

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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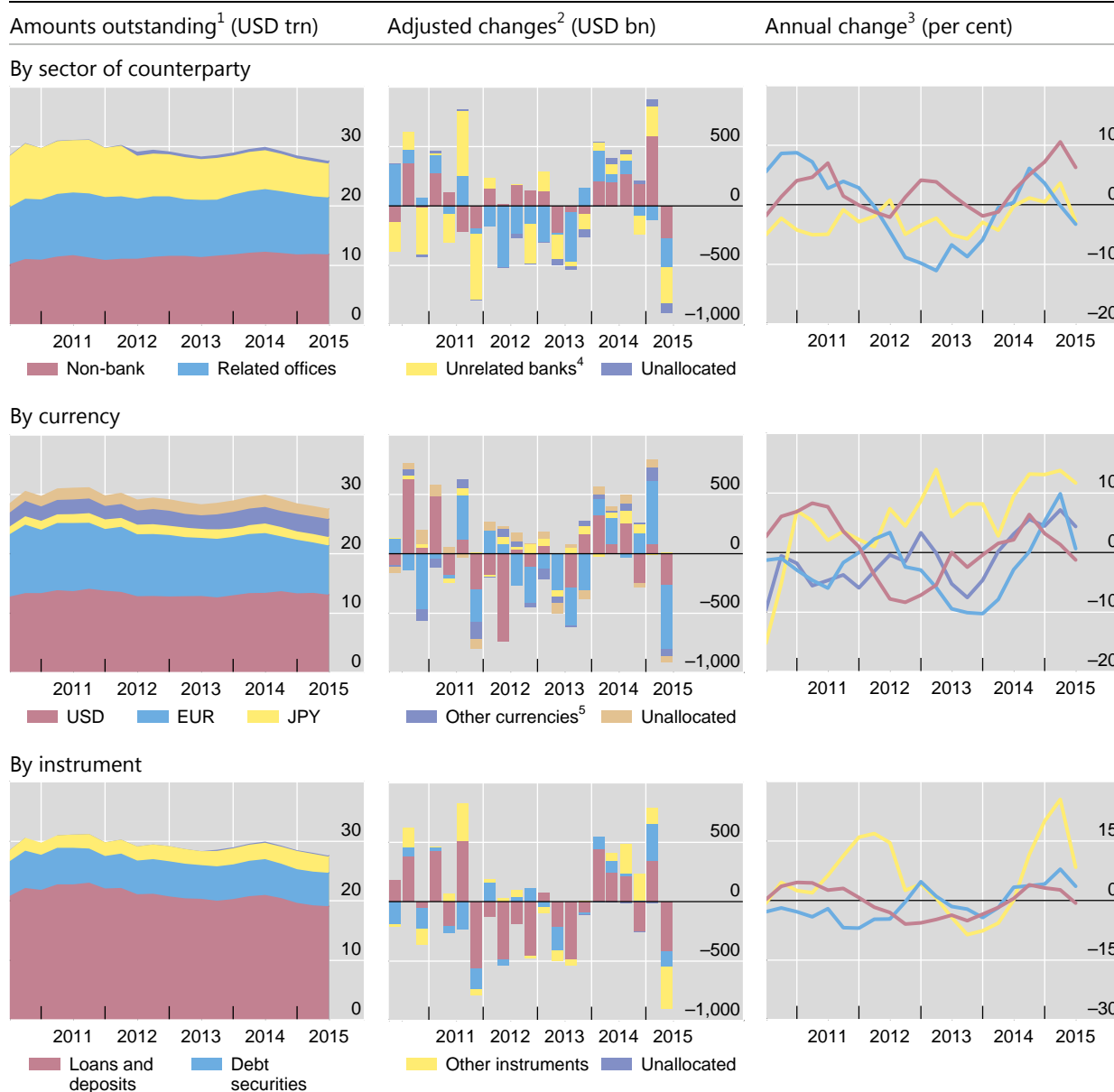
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A Locational banking statistics

Cross-border claims, by sector, currency and instrument

Graph A.1



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 USD, EUR, JPY and unallocated currencies. The currency is known but reporting is incomplete.

Cross-border claims, by borrowing region

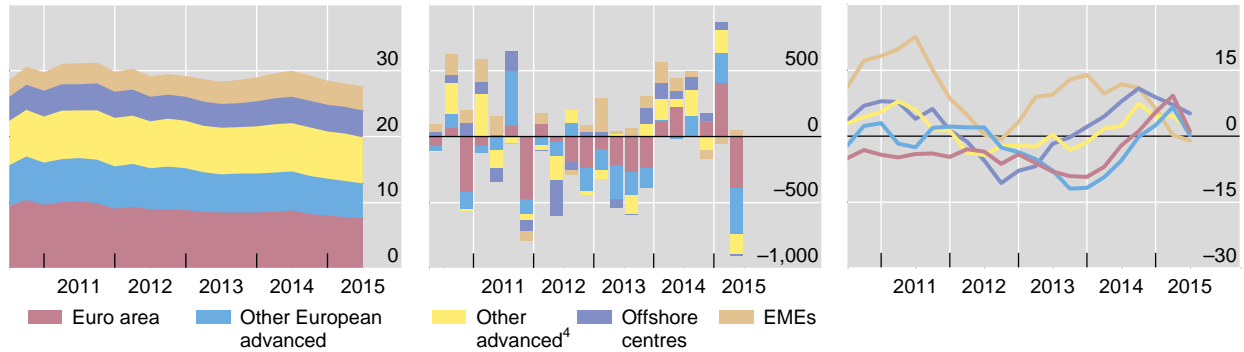
Graph A.2

Amounts outstanding¹ (USD trn)

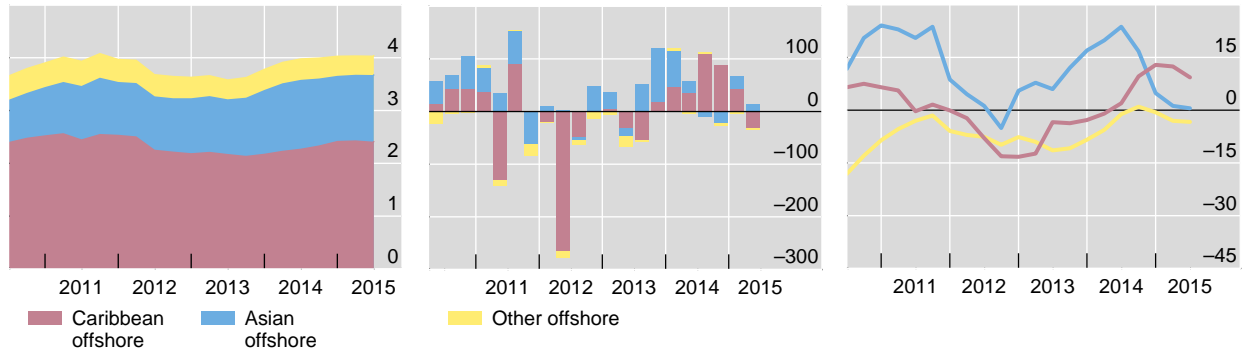
Adjusted changes² (USD bn)

Annual change³ (per cent)

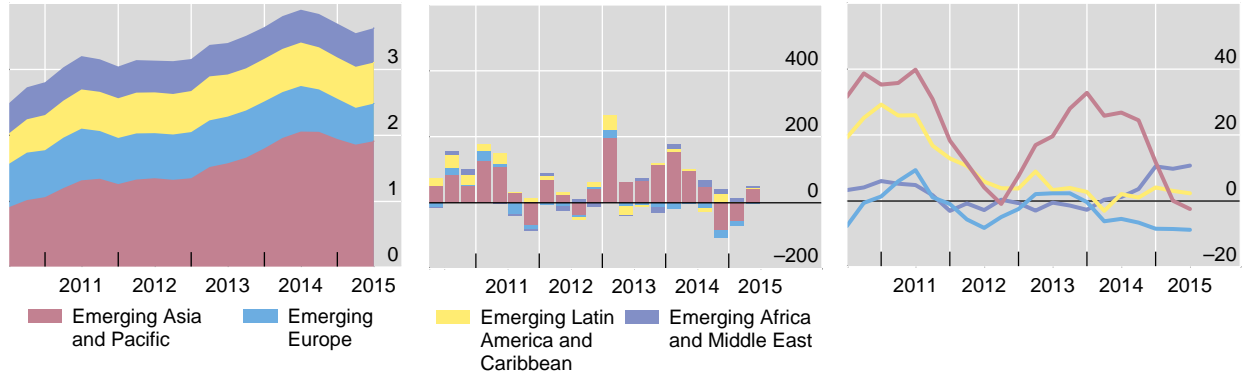
On all countries



On offshore centres



On emerging market economies

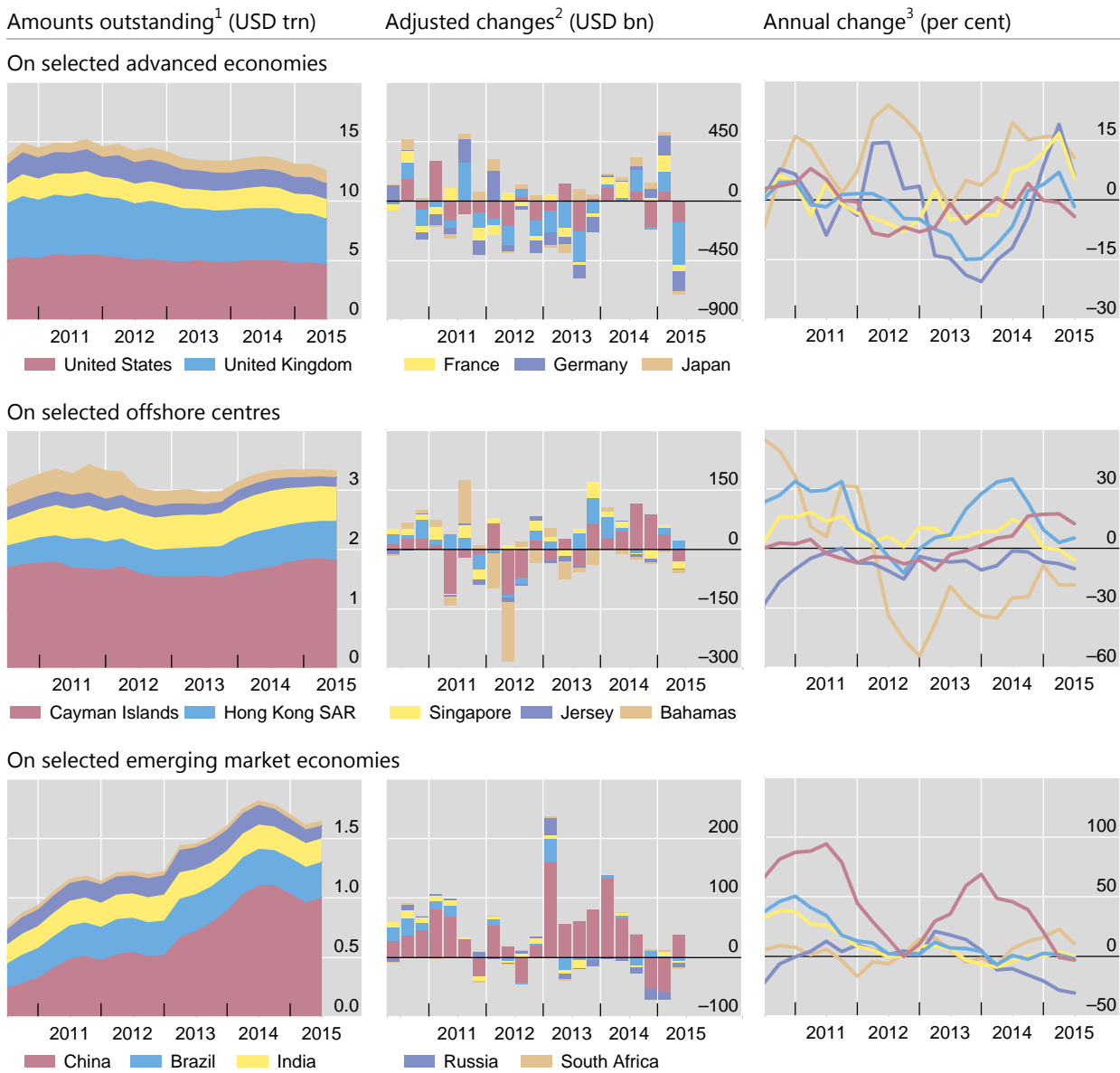


Further information on the BIS locational banking statistics is available at www.bis.org/statistics/bankstats.htm.

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. ⁴ Includes international organisations and cross-border amounts unallocated by residence of counterparty.

Cross-border claims, by borrowing country

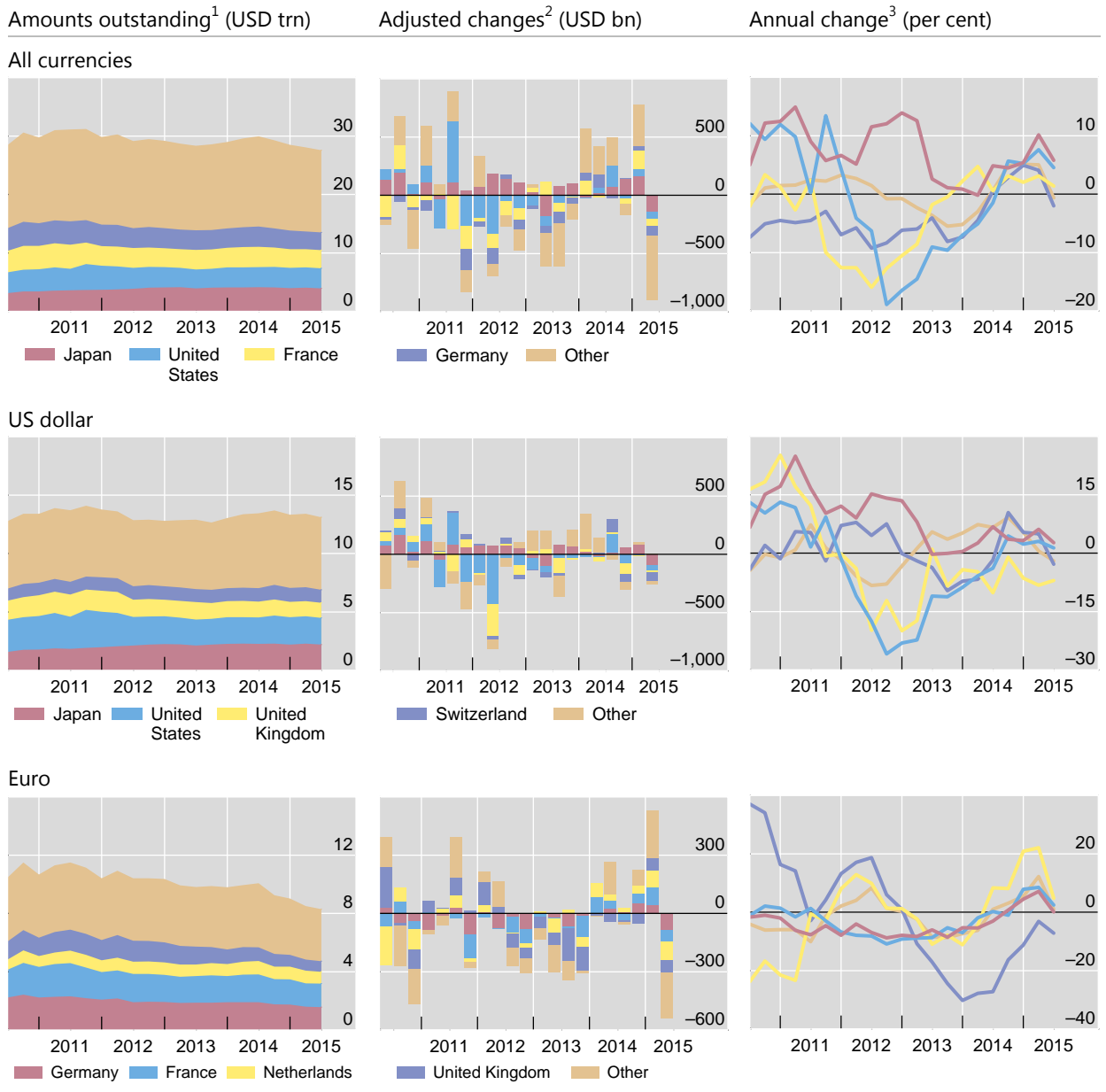
Graph A.3



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.

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

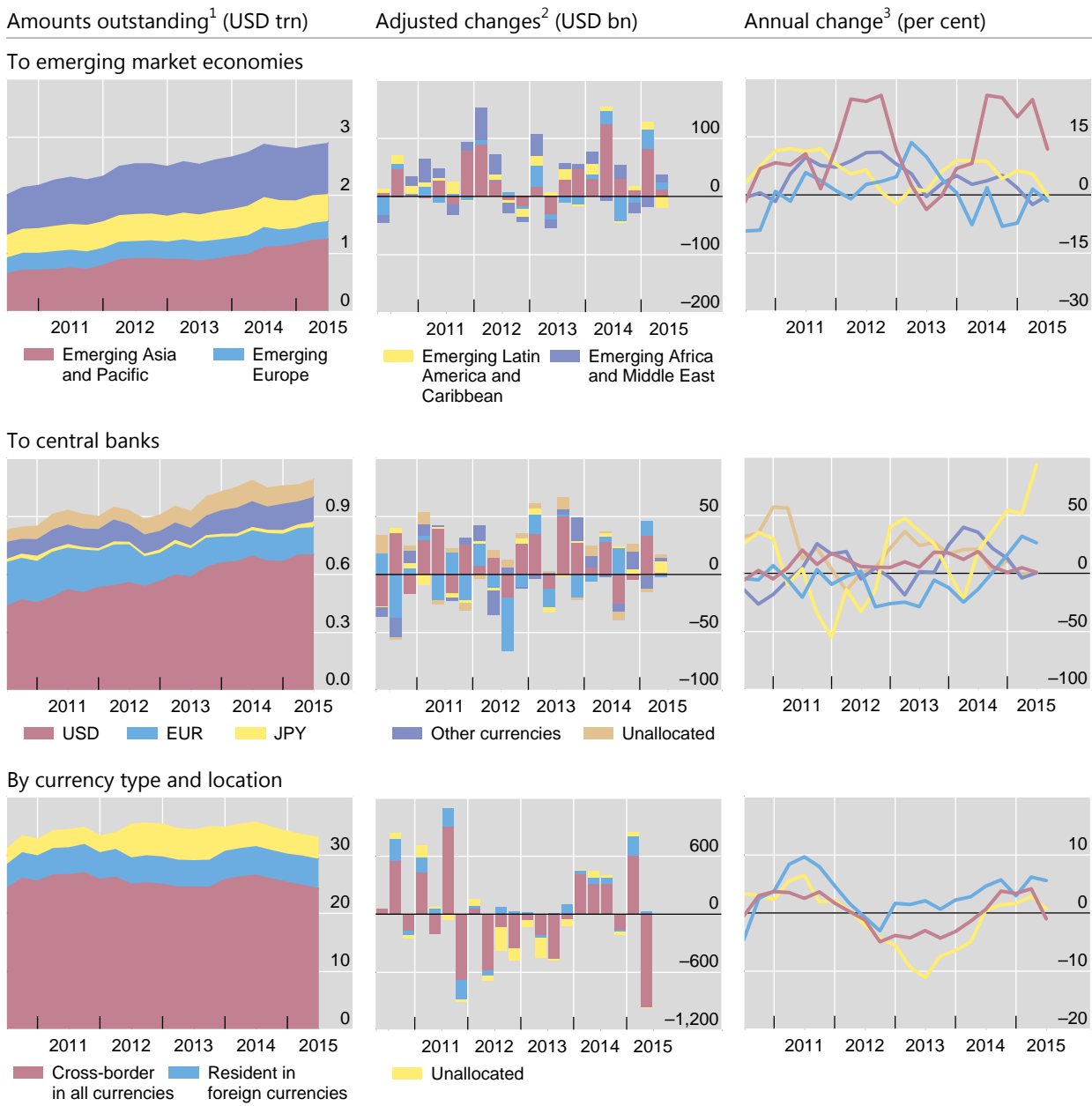


Further information on the BIS locational banking statistics is available at www.bis.org/statistics/bankstats.htm.

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.

Cross-border liabilities of reporting banks

Graph A.5



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.

B Consolidated banking statistics

Consolidated claims of reporting banks on advanced economies

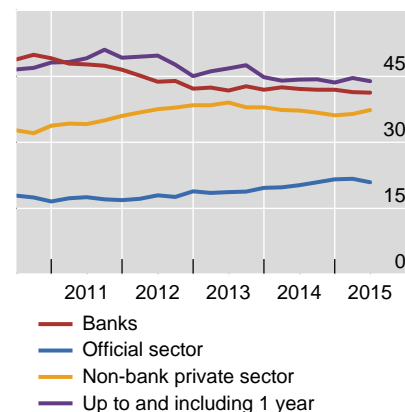
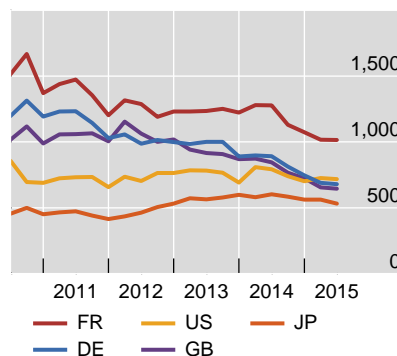
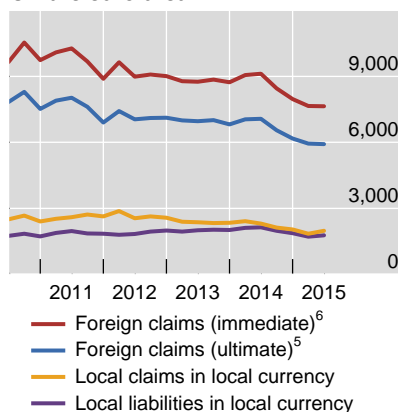
Graph B.1

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

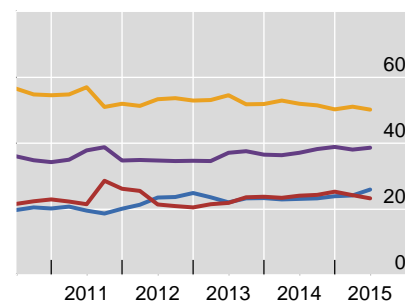
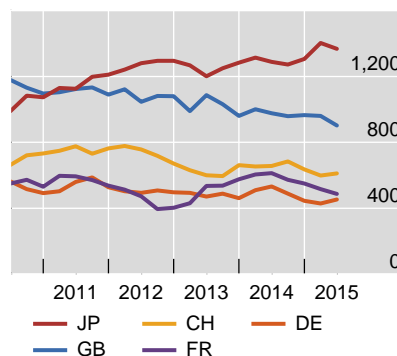
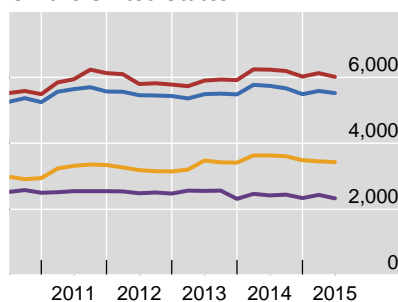
Foreign claims of selected
creditors^{1,3} (USD bn)

International claims, by sector and
maturity⁴ (per cent)

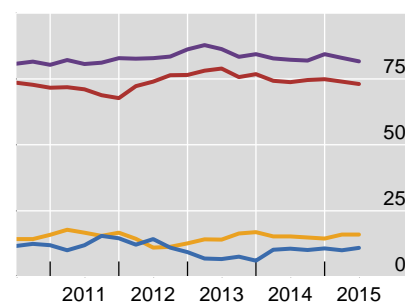
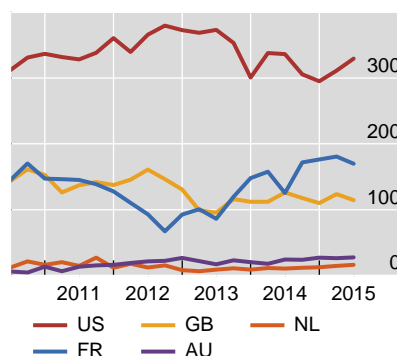
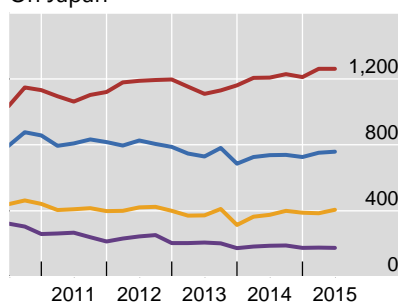
On the euro area



On the United States



On Japan



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

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

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 ultimate risk basis. ⁶ On an immediate counterparty basis. Includes the unconsolidated claims of banks headquartered outside but located inside CBS-reporting countries.

Consolidated claims of reporting banks on emerging market economies

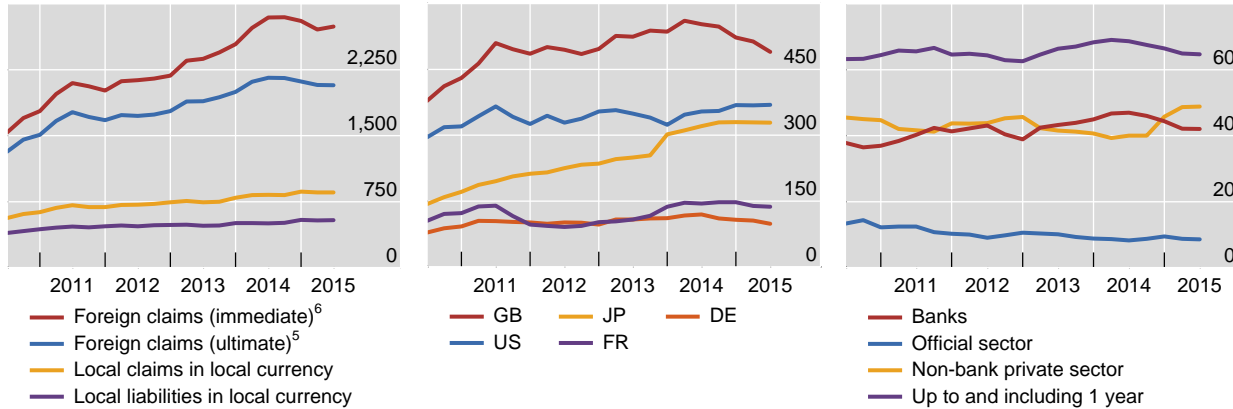
Graph B.2

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

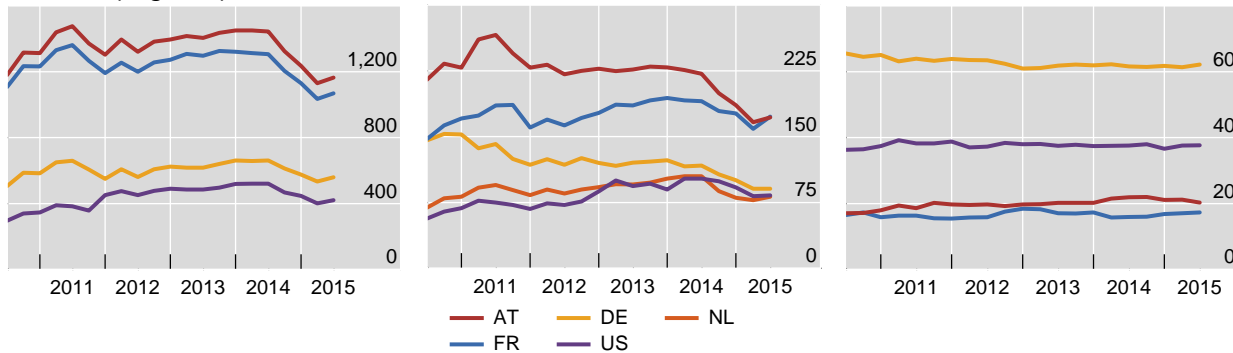
Foreign claims of selected
creditors^{1,3} (USD bn)

International claims, by sector and
maturity⁴ (per cent)

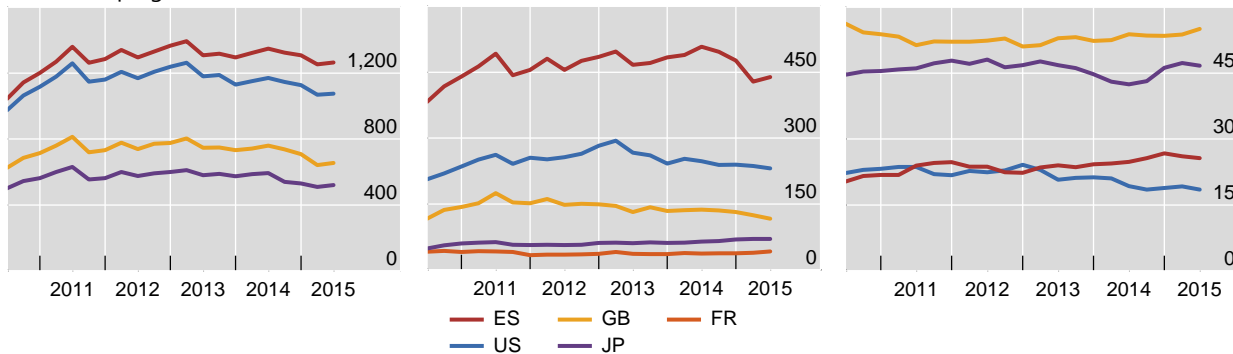
On developing Asia and the Pacific



On developing Europe



On developing Latin America and the Caribbean



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

AT = Austria; CA = Canada; DE = Germany; ES = Spain; FR = France; GB = United Kingdom; JP = Japan; NL = Netherlands; US = United States.

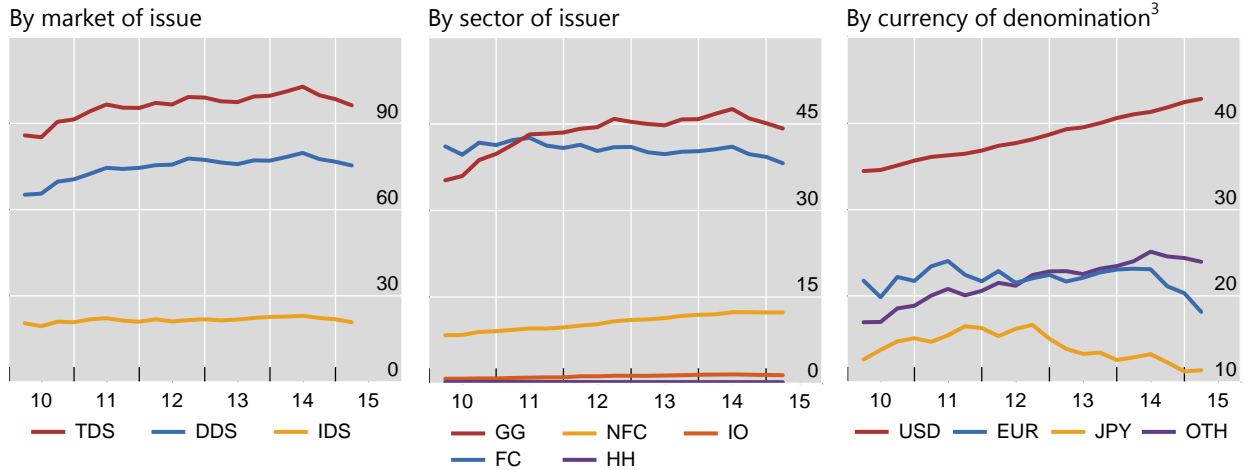
¹ Amounts outstanding at quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ² Excludes domestic claims, ie claims on residents of a bank's home country. ³ Foreign claims on an ultimate risk basis, 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 ultimate risk basis. ⁶ On an immediate counterparty basis. Includes the unconsolidated claims of banks headquartered outside but located inside CBS-reporting countries.

C Debt securities statistics

Global debt securities markets¹

Amounts outstanding, in trillions of US dollars²

Graph C.1



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

TDS = total debt securities; DDS = domestic debt securities; IDS = international debt securities; GG = general government; NFC = non-financial corporations; IO = international organisations; FC = financial corporations; HH = households and non-profit institutions serving households; USD = US dollar; EUR = euro; JPY = yen; OTH = other currencies.

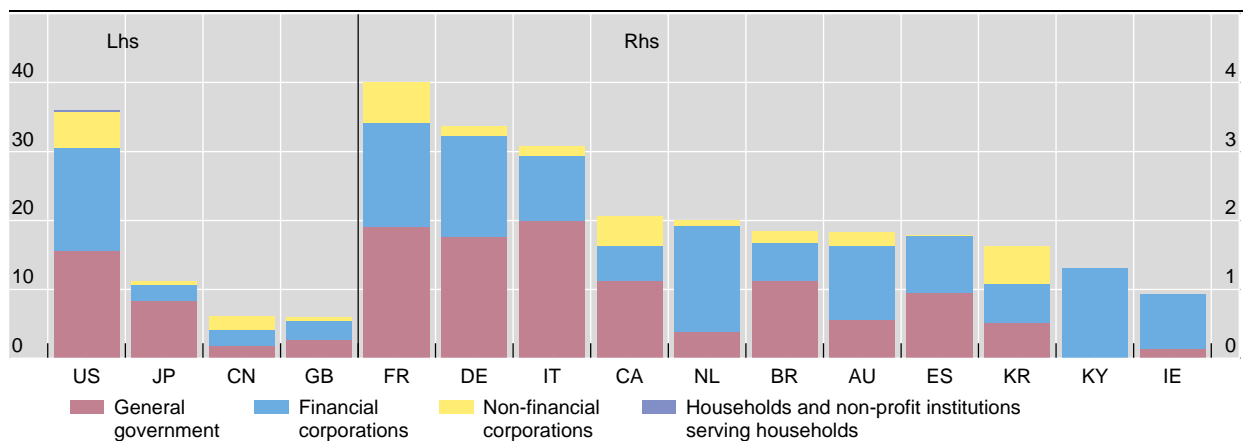
¹ Sample of countries varies across breakdowns shown. For countries that do not report TDS, data are estimated by the BIS as DDS plus IDS. For countries that do not report either TDS or DDS, data are estimated by the BIS as IDS. ² At quarter-end. Amounts denominated in currencies other than the US dollar 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-March 2015, in trillions of US dollars²

Graph C.2



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

AU = Australia; BR = Brazil; 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.

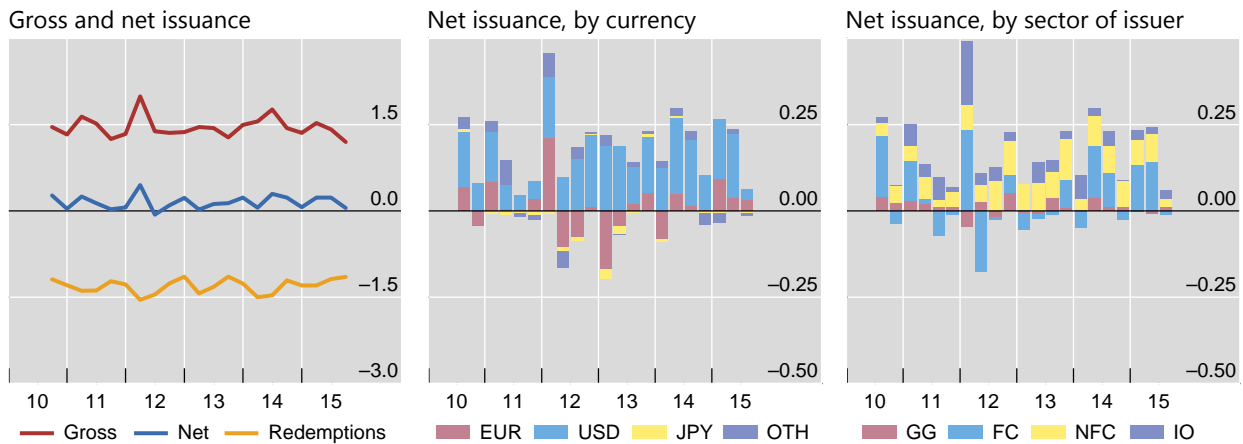
¹ For countries that do not report TDS, data are estimated by the BIS as DDS plus IDS. ² Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Sources: National data; BIS debt securities statistics.

International debt securities, by currency and sector

In trillions of US dollars

Graph C.3



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

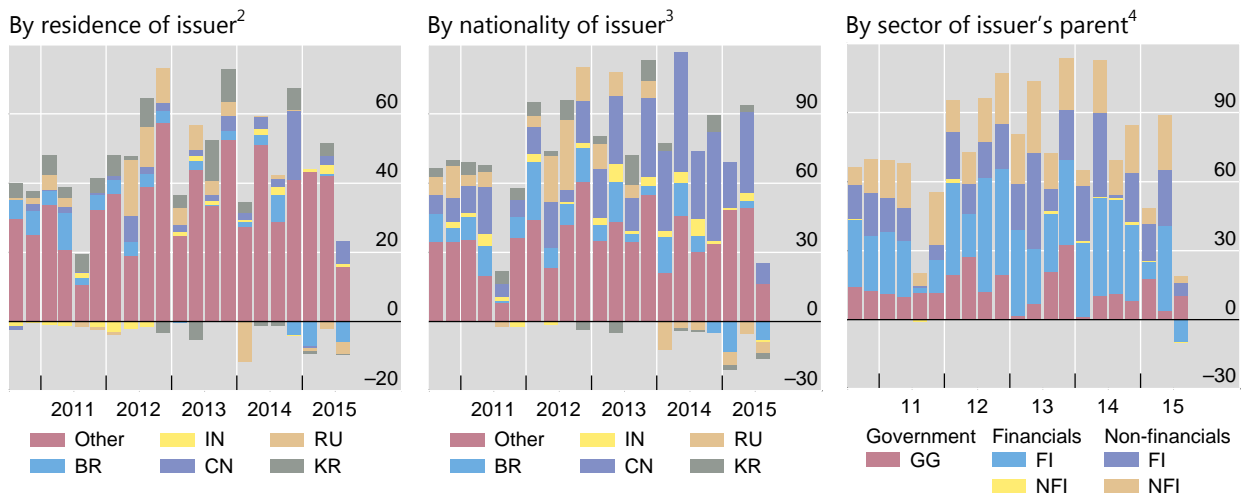
EUR = euro; USD = US dollar; JPY = yen; OTH = other currencies; GG = general government; FC = financial corporations; NFC = non-financial corporations; IO = international organisations.

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



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

BR = Brazil; CN = China; IN = India; KR = Korea; RU = Russia; GG = general government; FI = financial corporations; NFI = non-financial corporations.

¹ For the sample of countries comprising emerging market economies, see the glossary to the *BIS Statistical Supplement*. 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

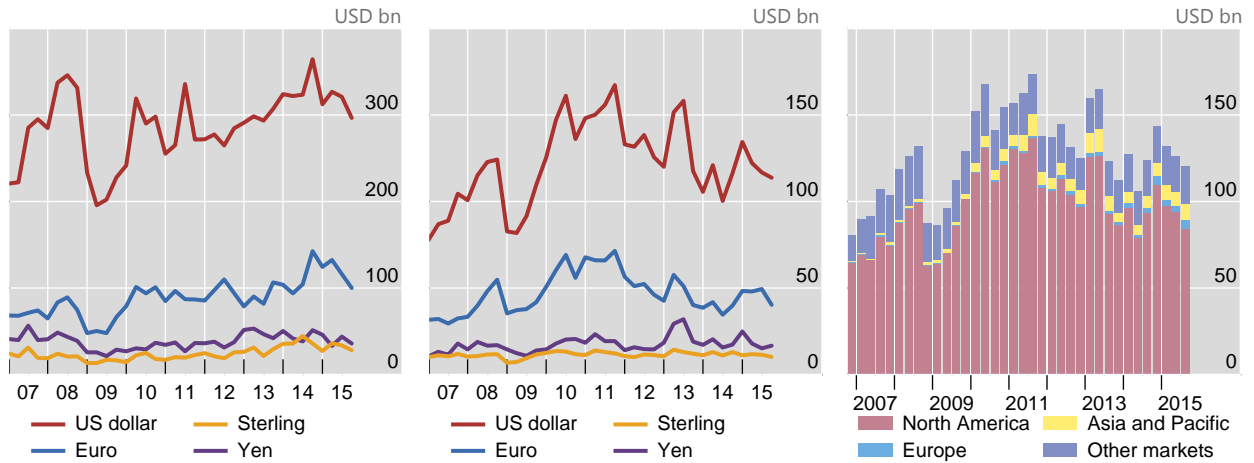
Graph D.1

Open interest, by currency¹

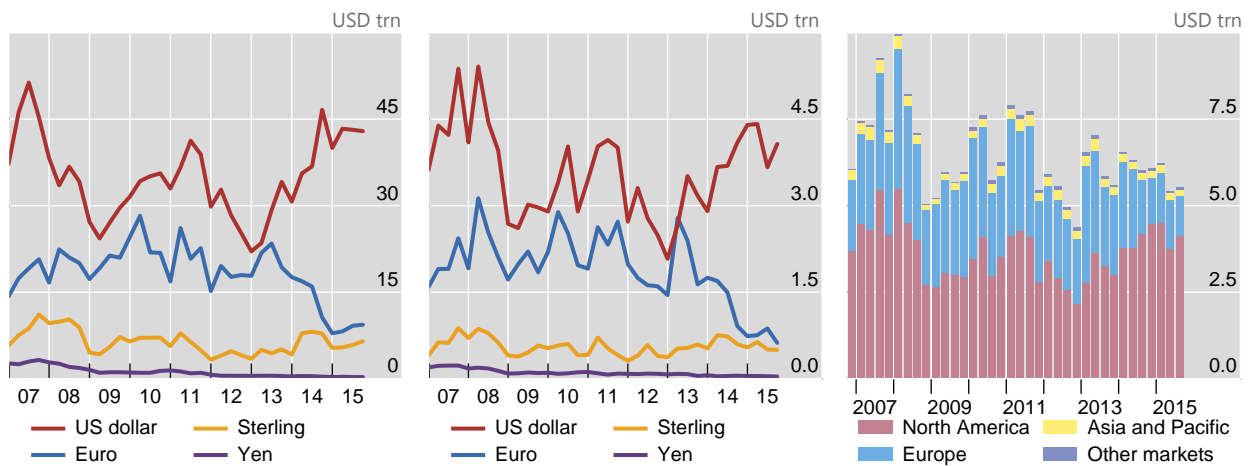
Daily average turnover, by currency²

Daily average turnover, by location of exchange²

Foreign exchange derivatives³



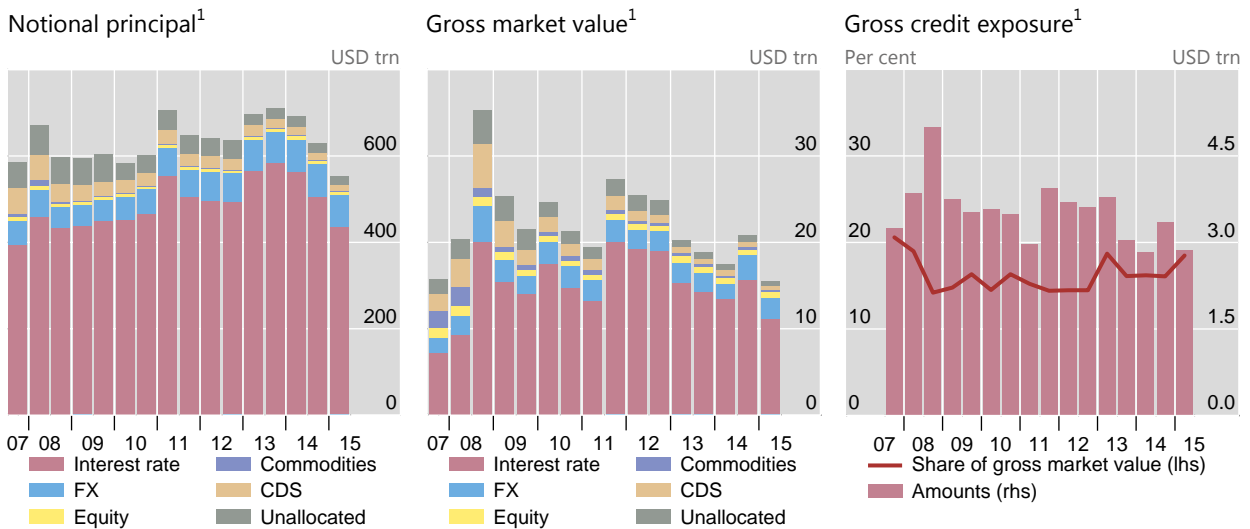
Interest rate derivatives³



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 Daily turnover averaged over the quarter. ³ Futures and options.

Sources: FOW; Futures Industry Association; BIS derivatives statistics.

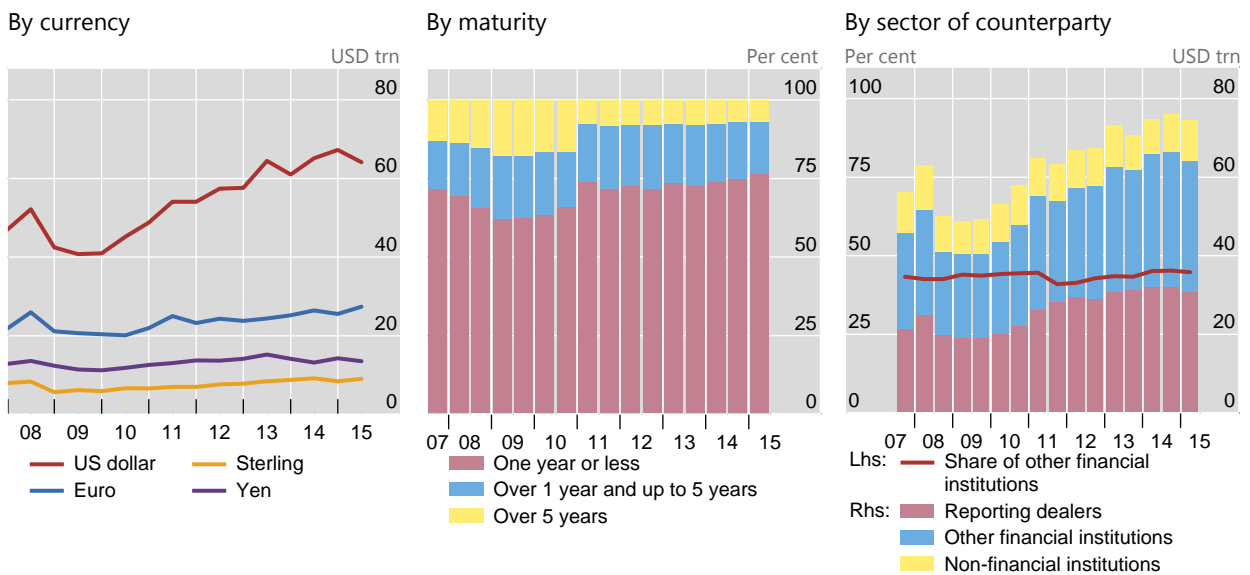


Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

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.

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.

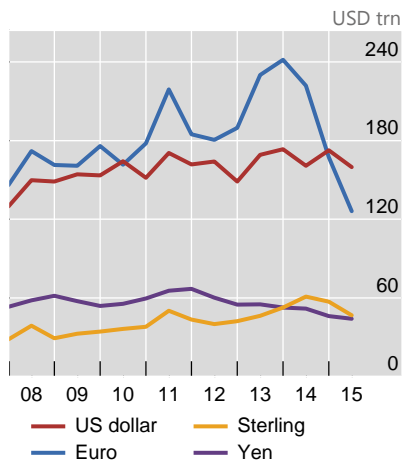
¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

OTC interest rate derivatives

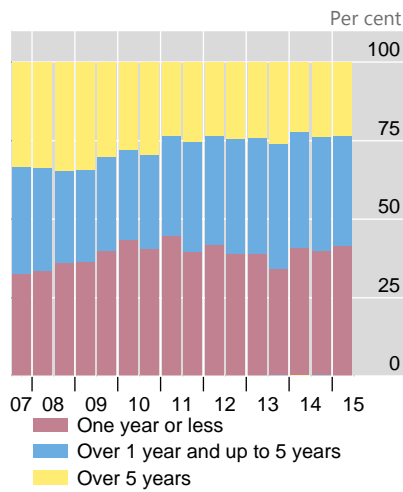
Notional principal¹

Graph D.4

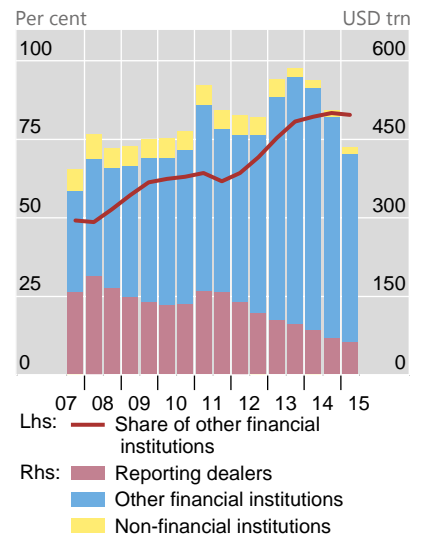
By currency



By maturity



By sector of counterparty



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

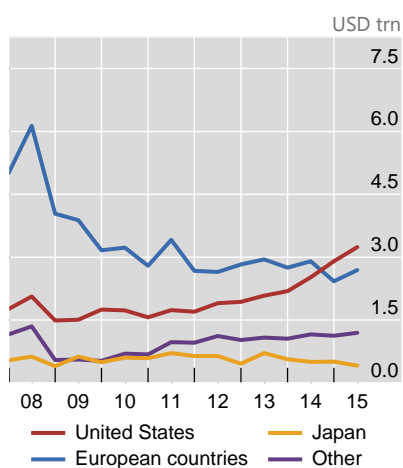
¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

OTC equity-linked derivatives

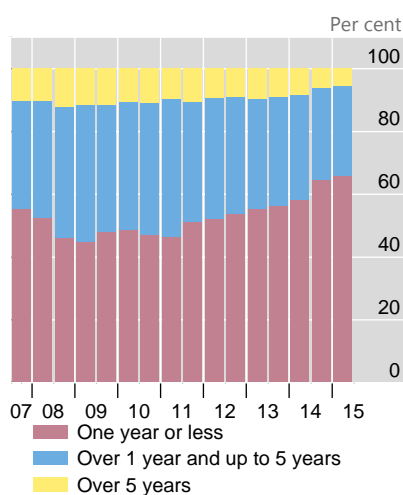
Notional principal¹

Graph D.5

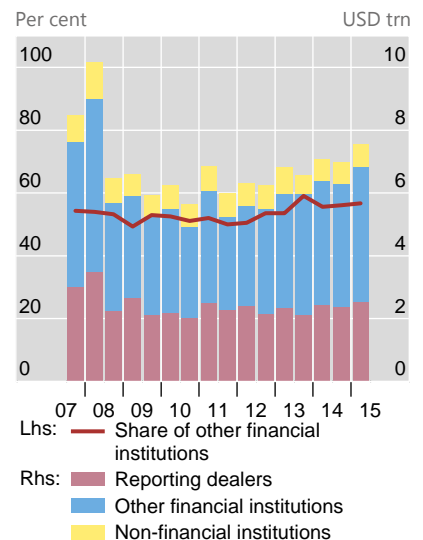
By equity market



By maturity



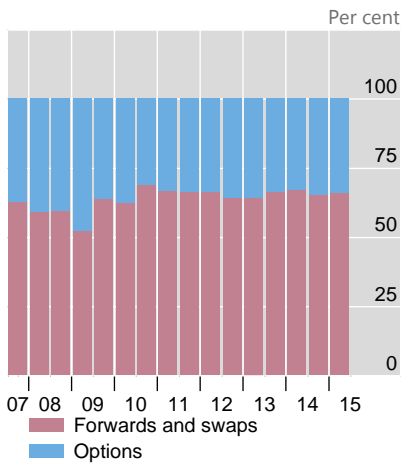
By sector of counterparty



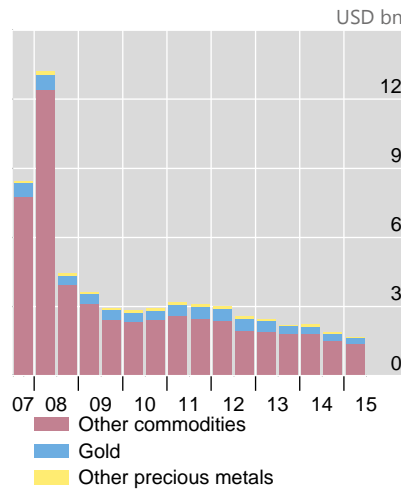
Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

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.

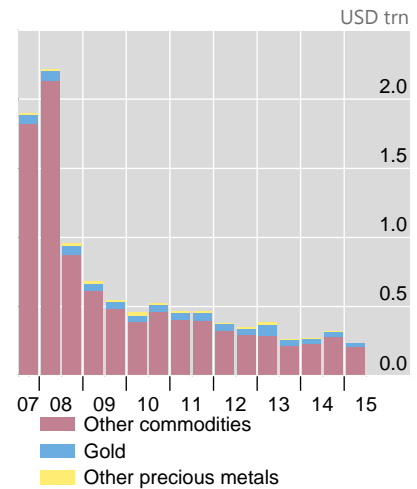
Notional principal, by instrument¹



Notional principal, by commodity¹



Gross market value, by commodity¹

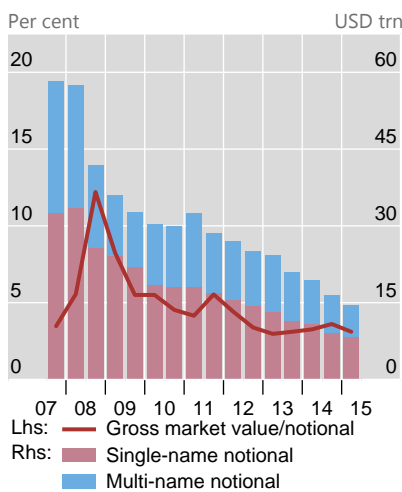


Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

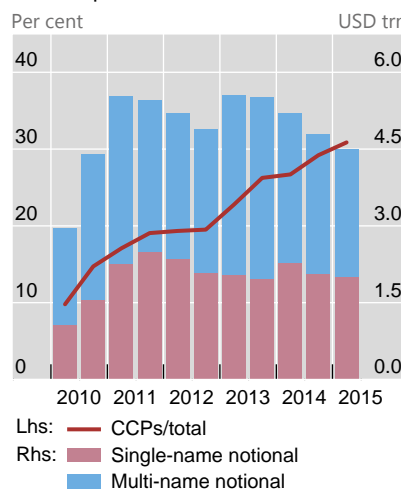
¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Credit default swaps¹

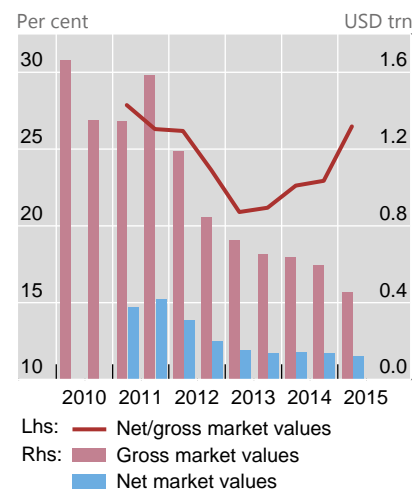
Notional principal



Notional principal with central counterparties (CCPs)



Impact of netting



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

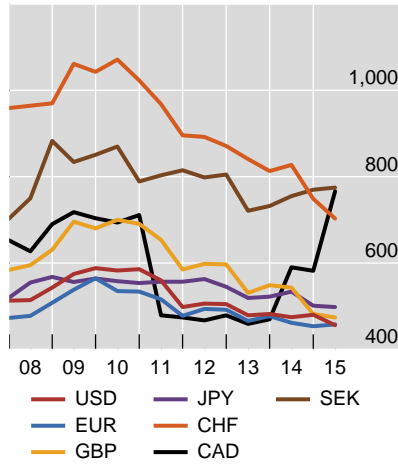
¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Concentration in global OTC derivatives markets

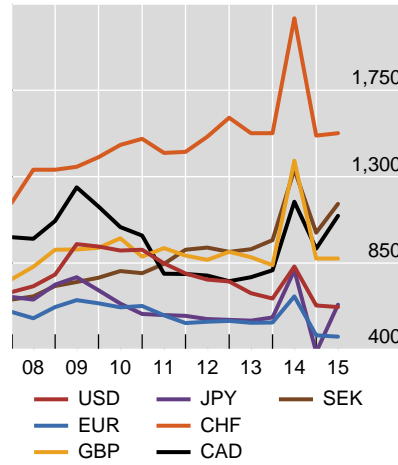
Herfindahl index¹

Graph D.8

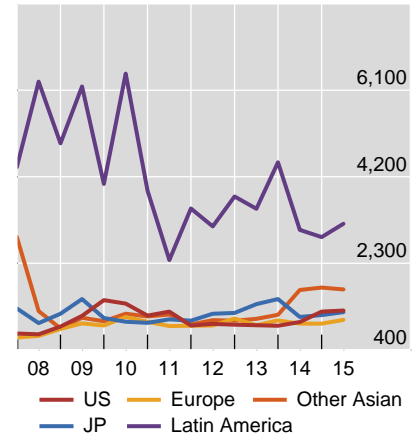
Foreign exchange derivatives²



Interest rate swaps



Equity-linked options



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

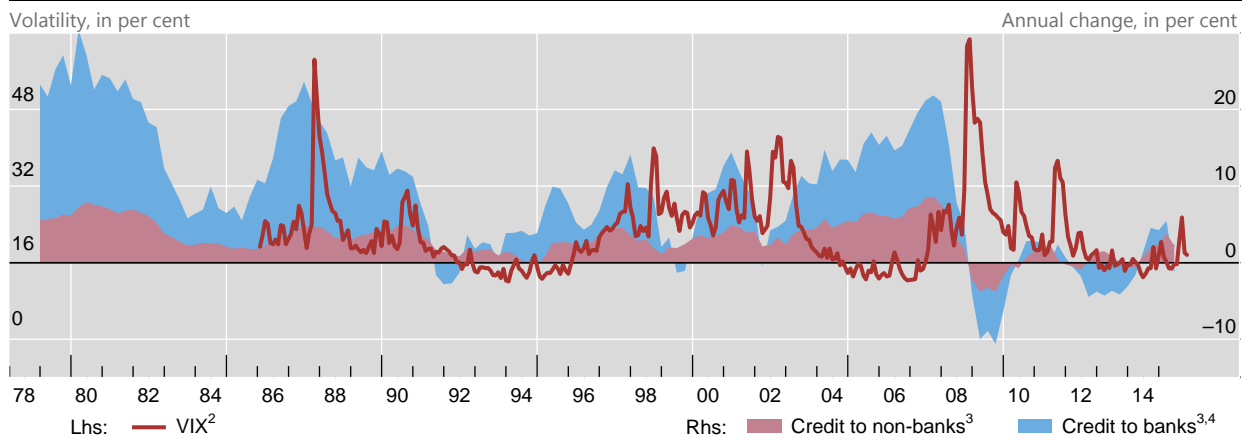
CAD = Canadian dollar; CHF = Swiss franc; EUR = euro; GBP = pound sterling; JPY = Japanese yen; SEK = Swedish krona; USD = US dollar. JP = Japan; US = United States.

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.

E Global liquidity indicators

Growth of international bank credit¹

Graph E.1



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

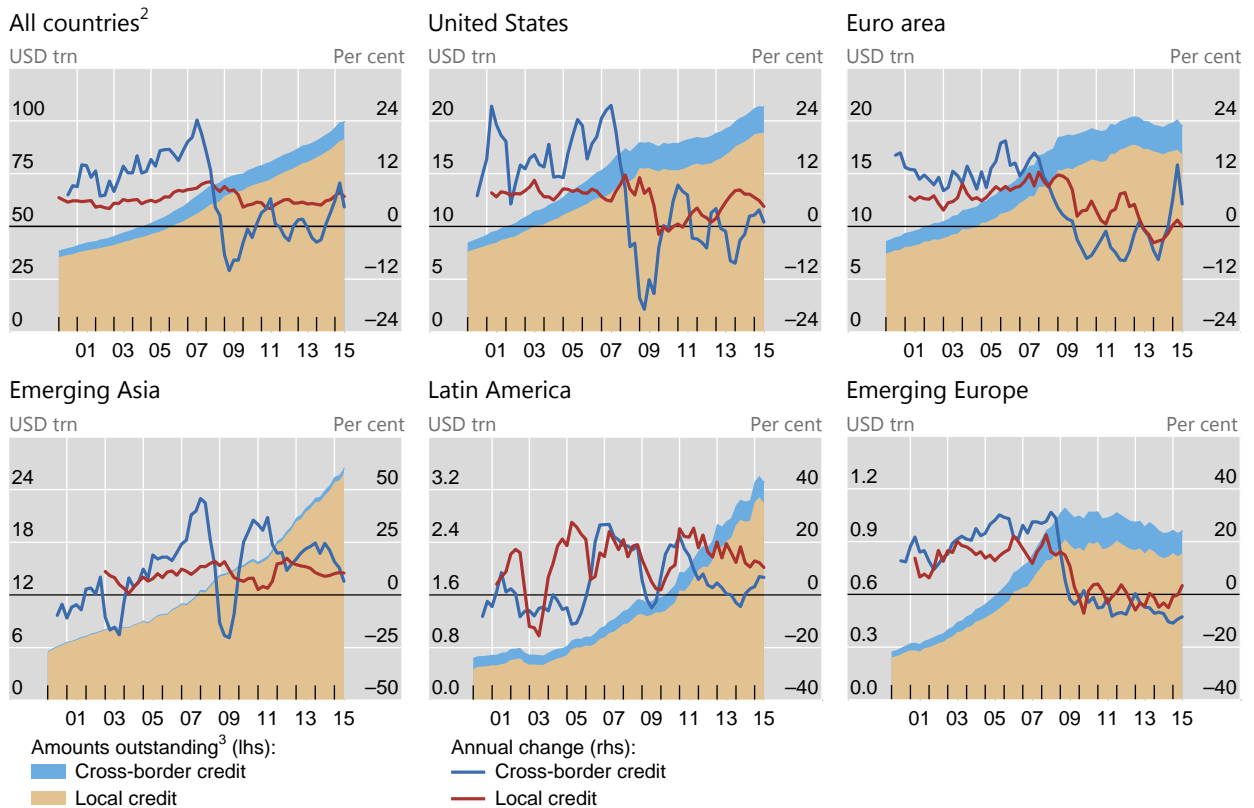
¹ LBS reporting banks' cross-border claims plus local claims in foreign currencies. ² VIX refers to the Chicago Board Options Exchange Market Volatility Index. It measures the implied volatility of S&P 500 index options. ³ Contribution to the annual percentage change in credit to all sectors. ⁴ Including intragroup transactions.

Sources: Bloomberg; BIS locational banking statistics.

Global bank credit to the non-bank 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.

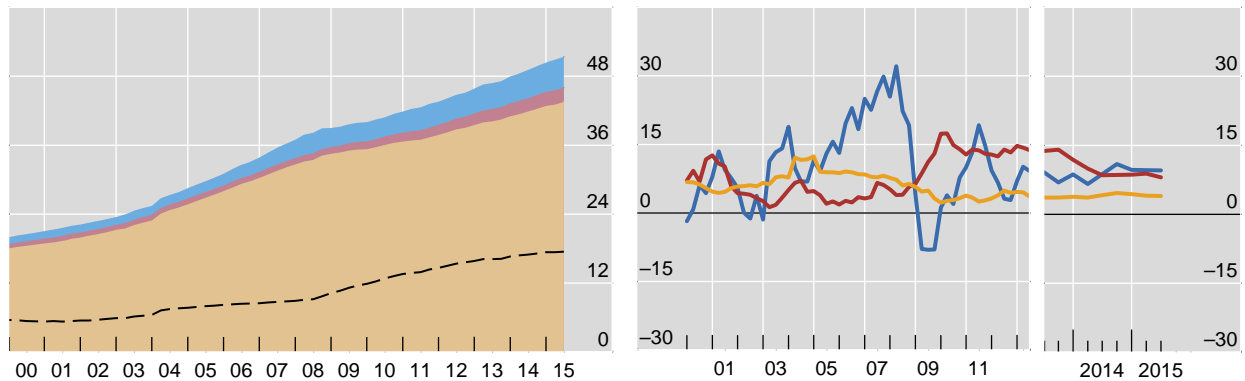
¹ Cross-border claims of LBS reporting banks plus local claims of all banks. Local claims are from national financial accounts and include credit extended by the central bank to the government. ² Sample of 52 countries. ³ Amounts outstanding at quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing at end-June 2015.

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

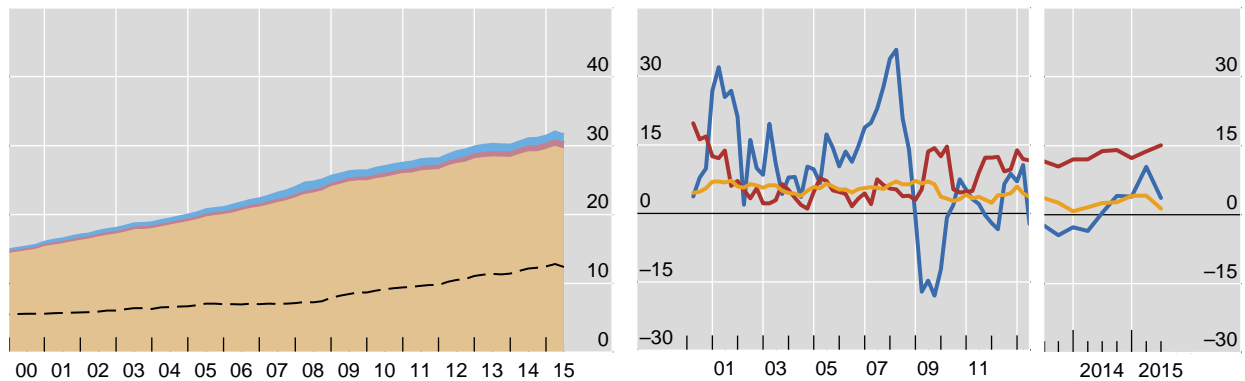
Amounts outstanding¹ (USD trn)

Annual change (per cent)

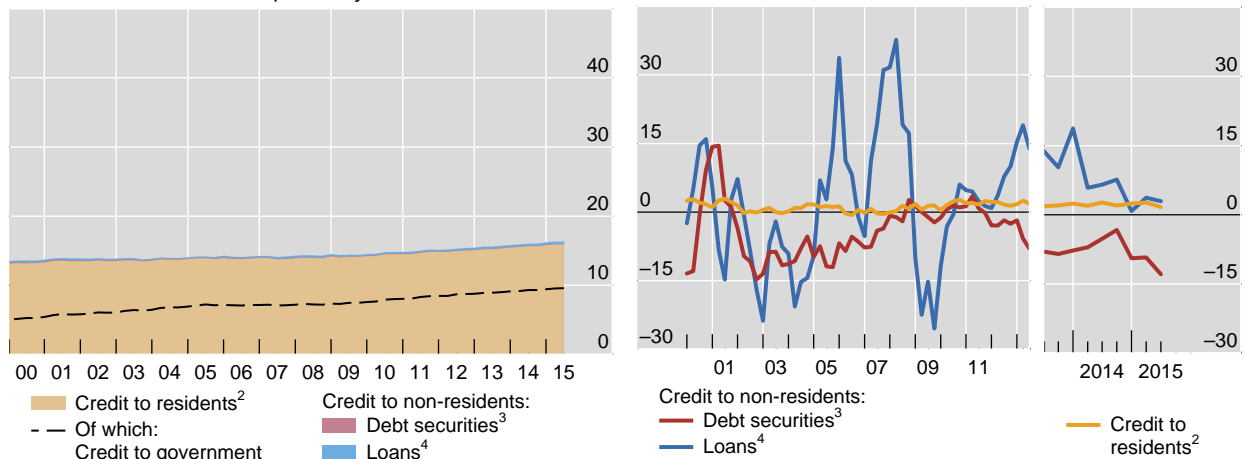
Credit denominated in US dollars (USD)



Credit denominated in euros (EUR)



Credit denominated in Japanese 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-June 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, comprises 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 on-lent to non-banks.

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

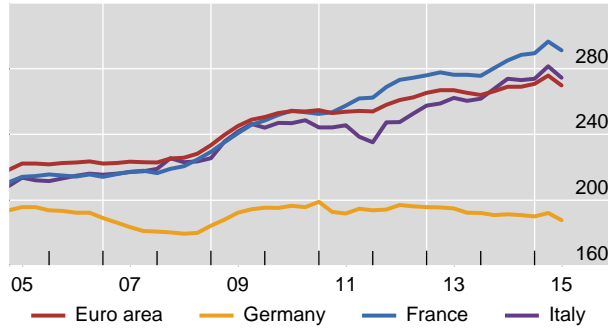
F Statistics on total credit to the non-financial sector

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

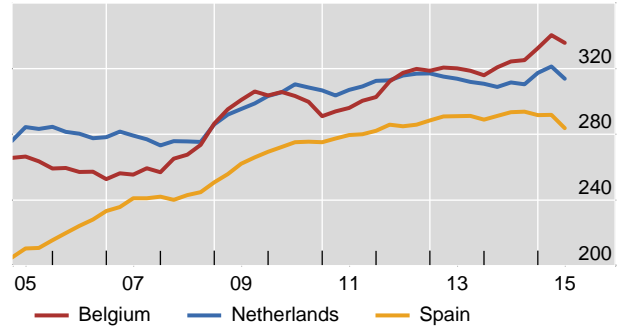
As a percentage of GDP

Graph F.1

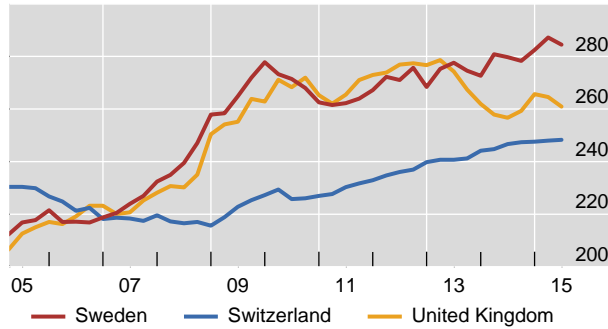
Euro area: aggregate and major countries



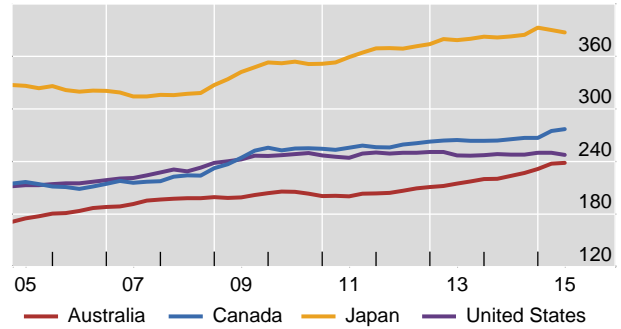
Euro area: other countries



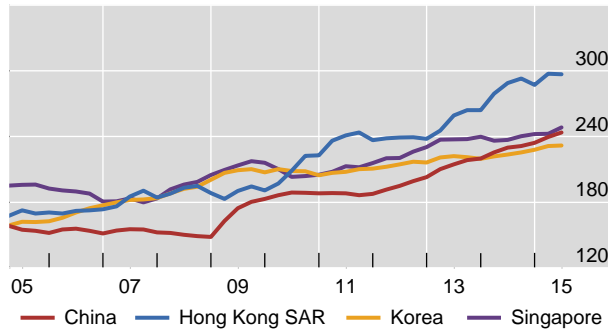
Other European countries



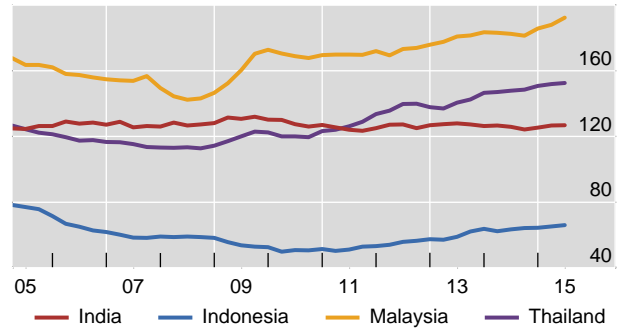
Major advanced economies



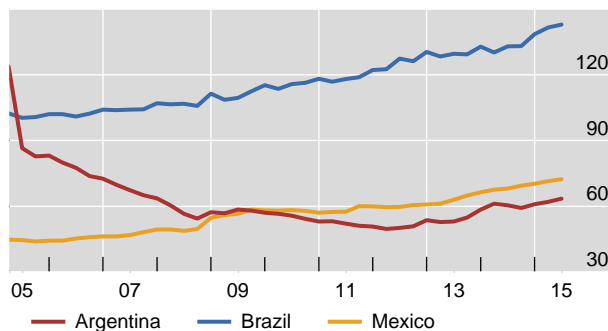
Emerging Asia



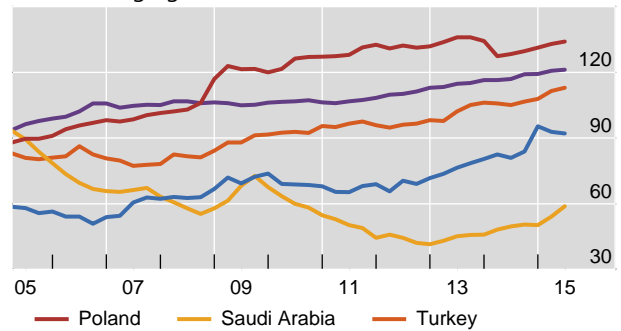
Other emerging Asia



Latin America



Other emerging market economies



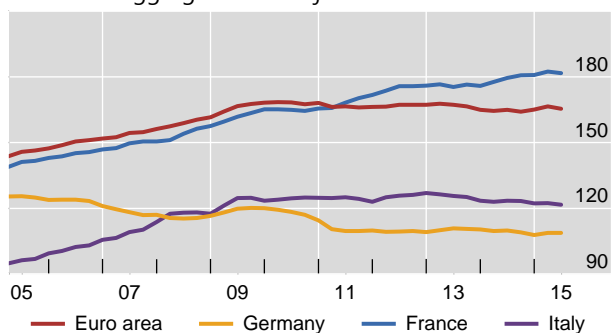
Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

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

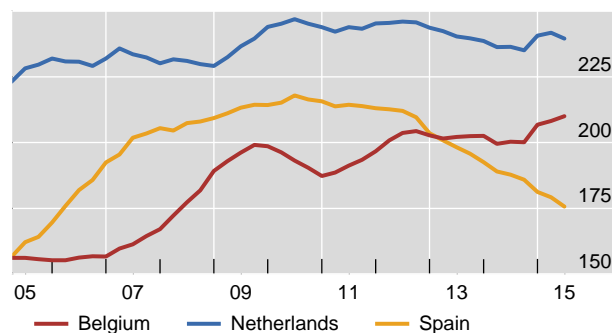
As a percentage of GDP

Graph F.2

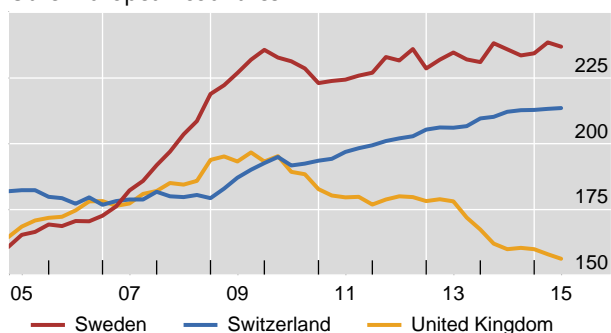
Euro area: aggregate and major countries



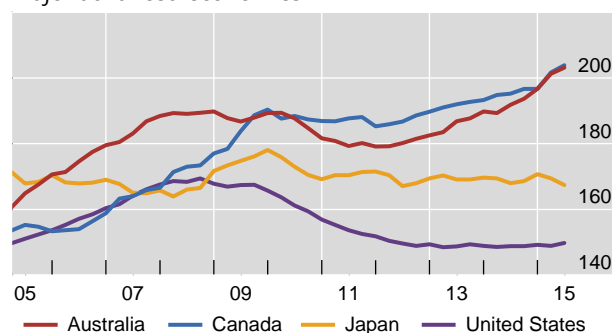
Euro area: other countries



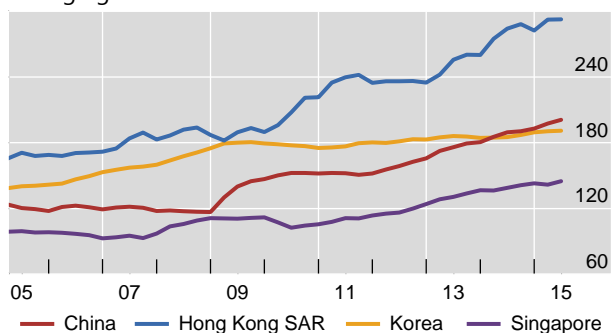
Other European countries



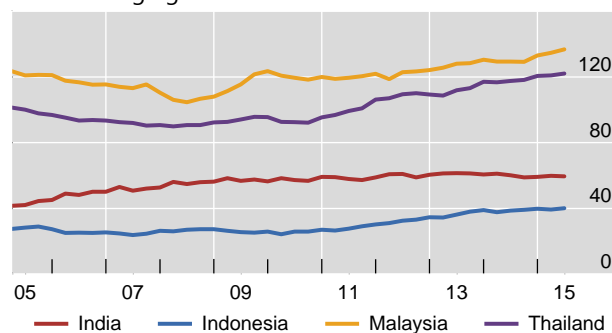
Major advanced economies



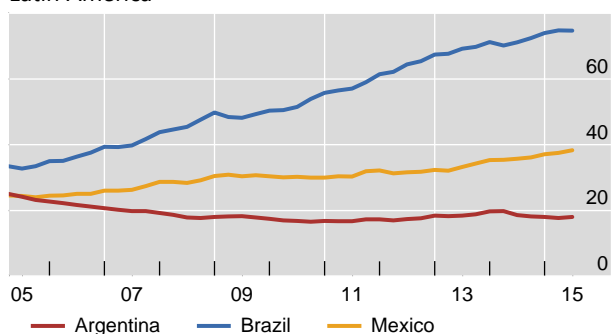
Emerging Asia



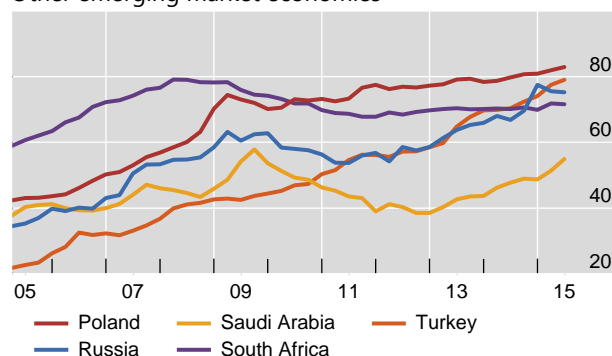
Other emerging Asia



Latin America



Other emerging market economies



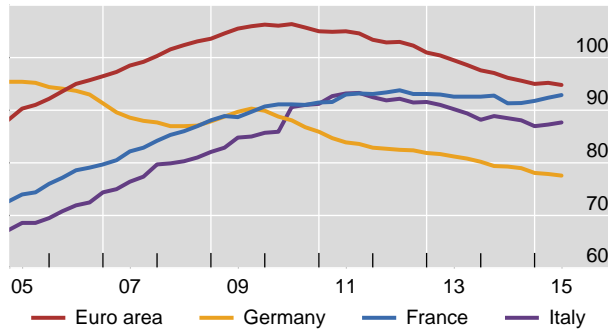
Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

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

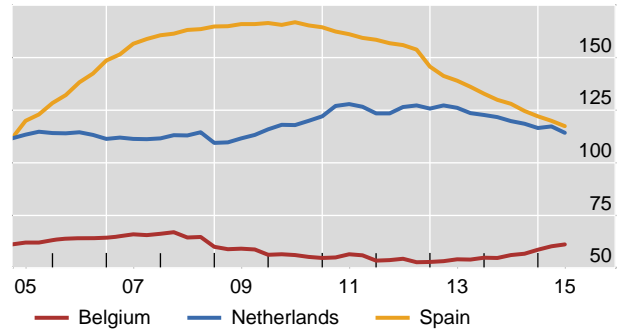
As a percentage of GDP

Graph F.3

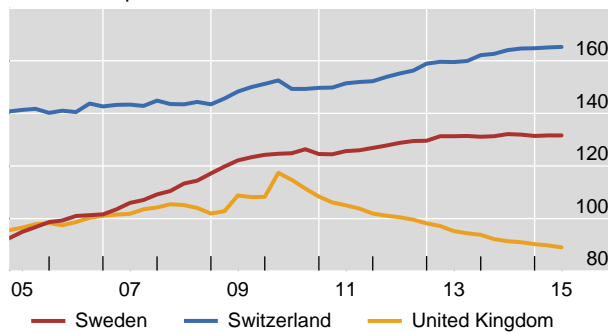
Euro area: aggregate and major countries



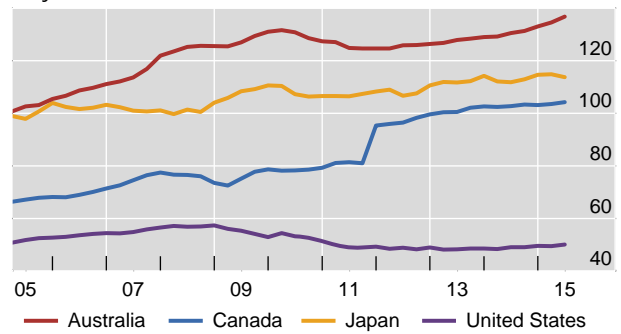
Euro area: other countries



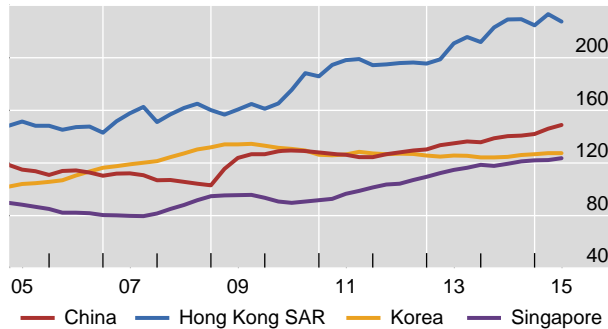
Other European countries



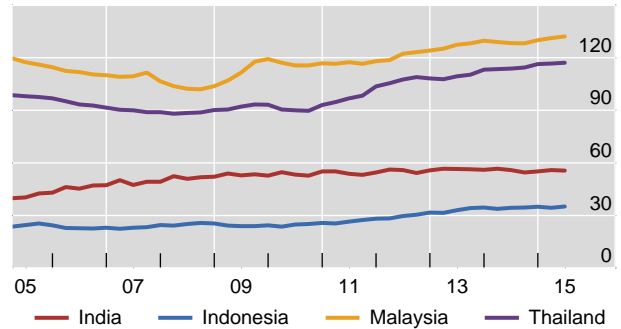
Major advanced economies



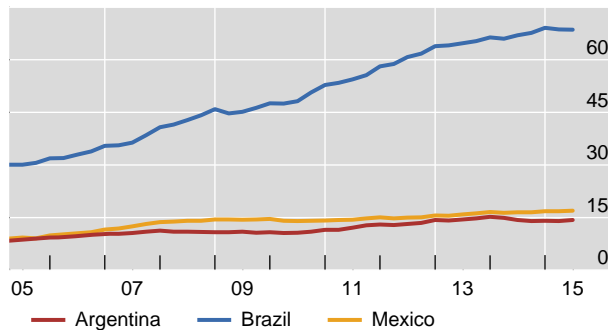
Emerging Asia



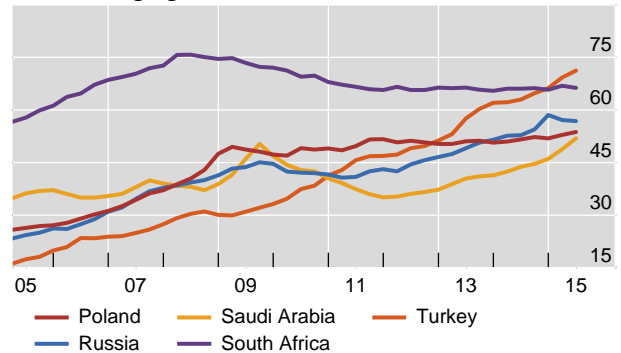
Other emerging Asia



Latin America



Other emerging market economies



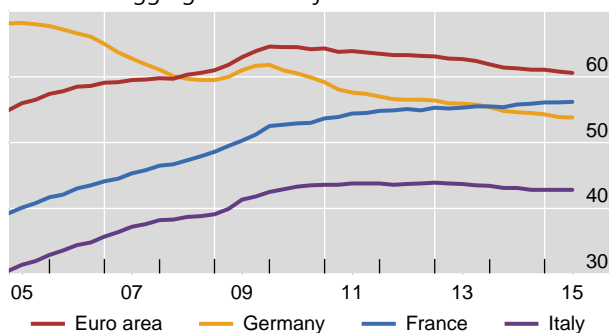
Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

Total credit to households (core debt)

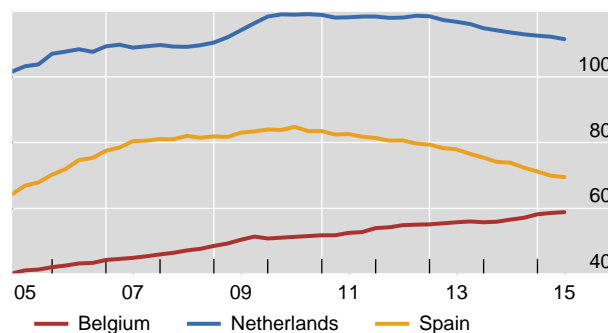
As a percentage of GDP

Graph F.4

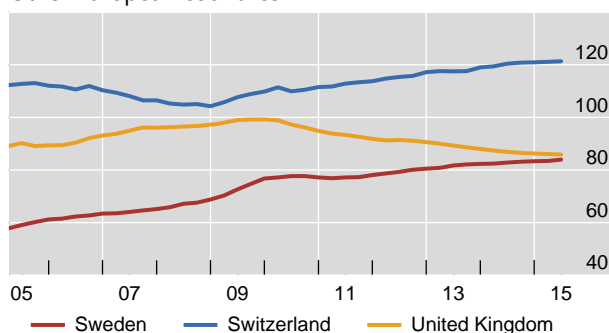
Euro area: aggregate and major countries



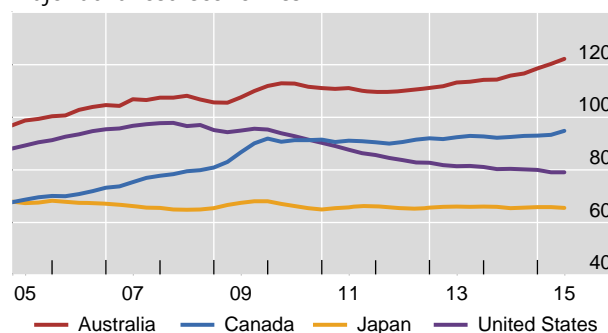
Euro area: other countries



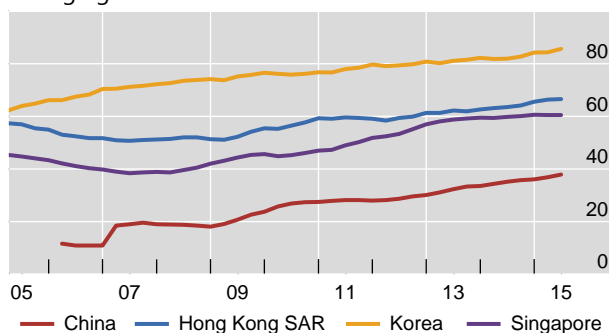
Other European countries



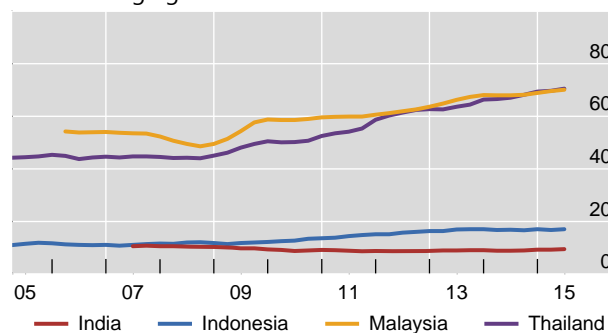
Major advanced economies



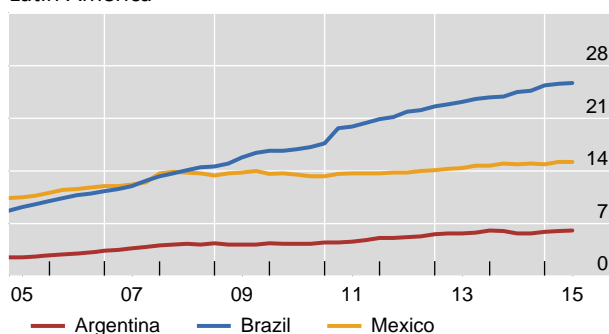
Emerging Asia



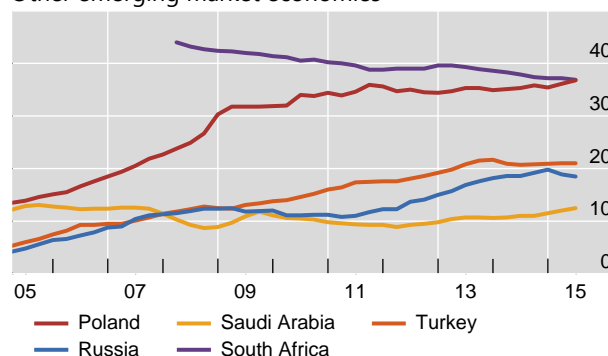
Other emerging Asia



Latin America



Other emerging market economies



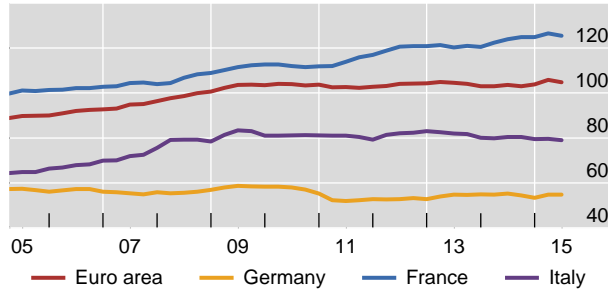
Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

Total credit to non-financial corporations (core debt)

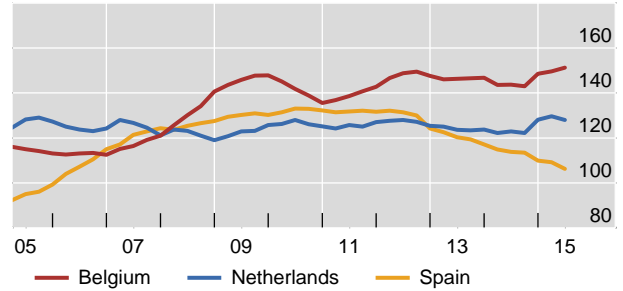
As a percentage of GDP

Graph F.5

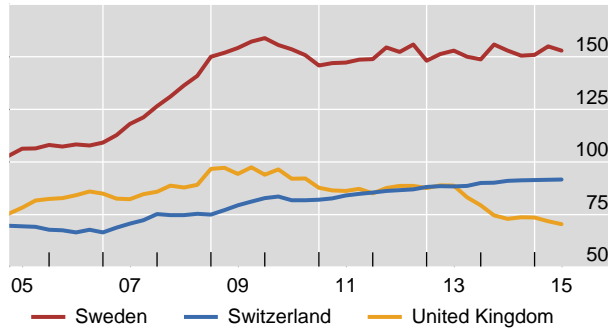
Euro area: aggregate and major countries



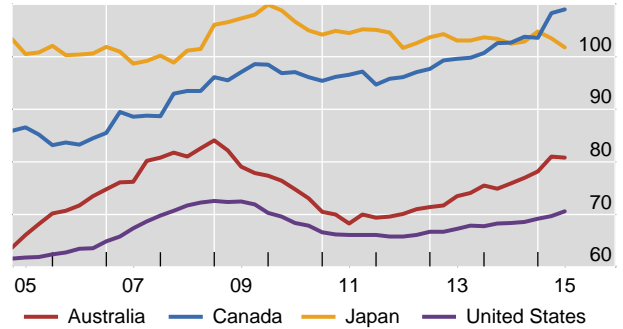
Euro area: other countries



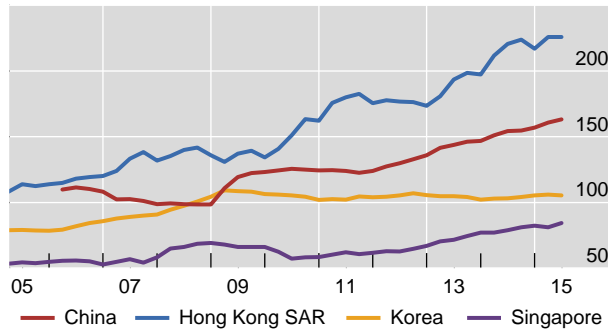
Other European countries



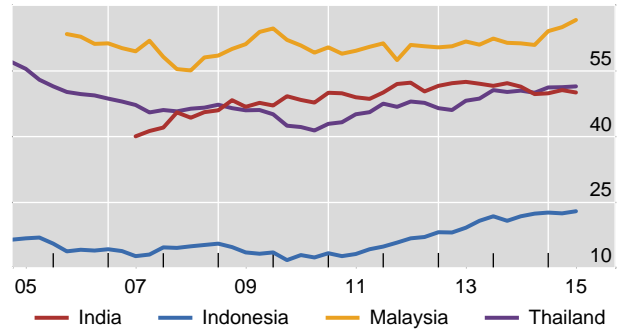
Major advanced economies



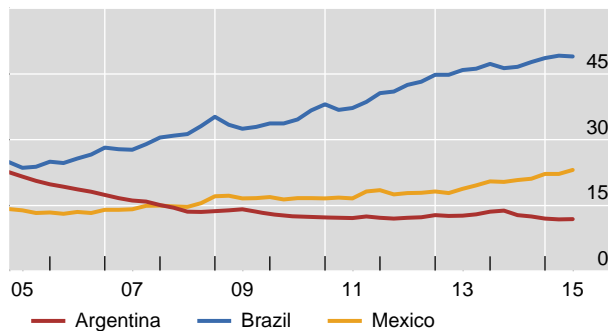
Emerging Asia



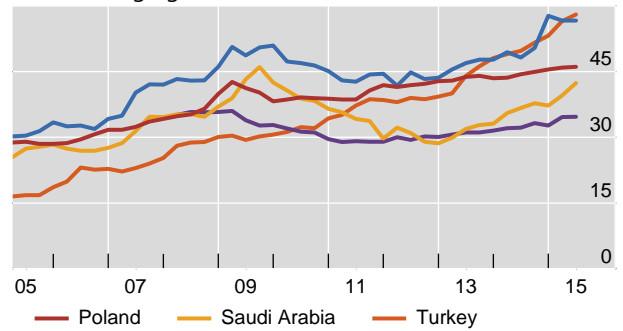
Other emerging Asia



Latin America



Other emerging market economies



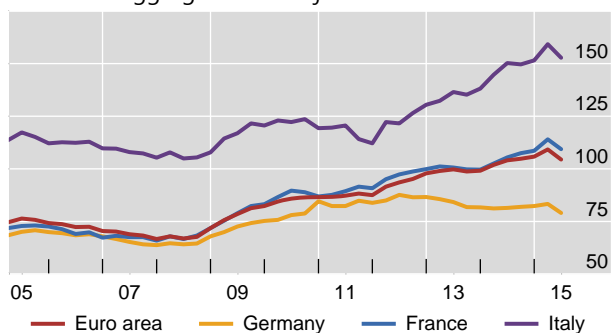
Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

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

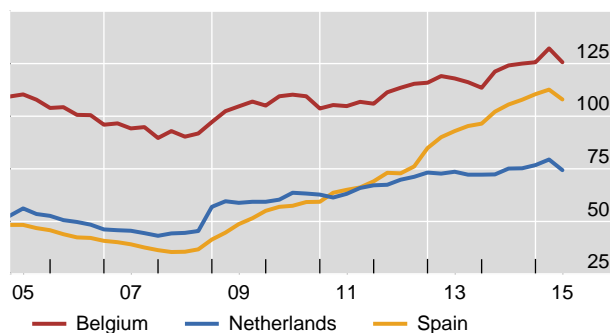
As a percentage of GDP

Graph F.6

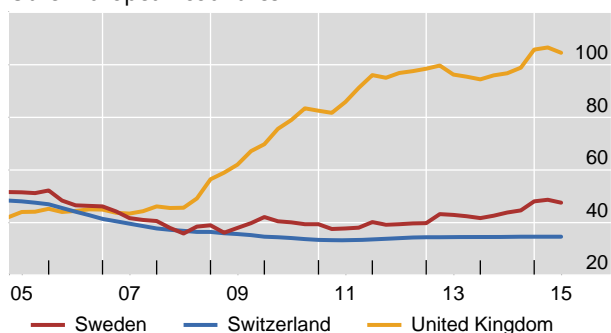
Euro area: aggregate and major countries



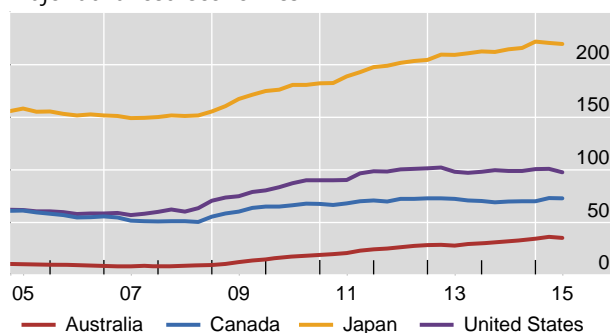
Euro area: other countries



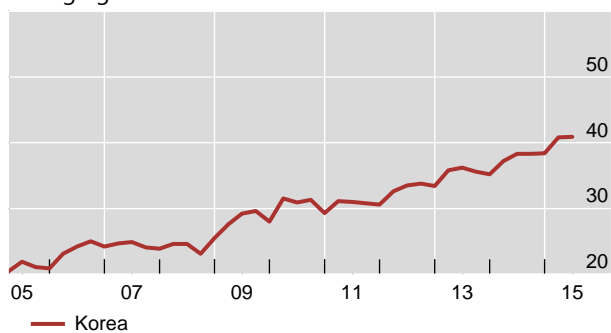
Other European countries



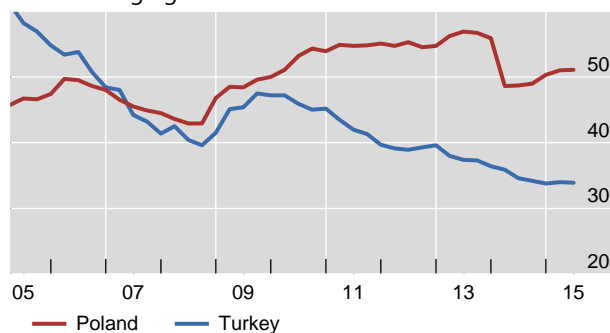
Major advanced economies



Emerging Asia



Other emerging market economies



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

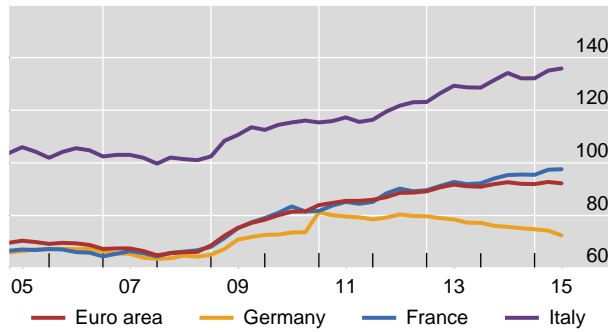
¹ Consolidated data for the general government sector.

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

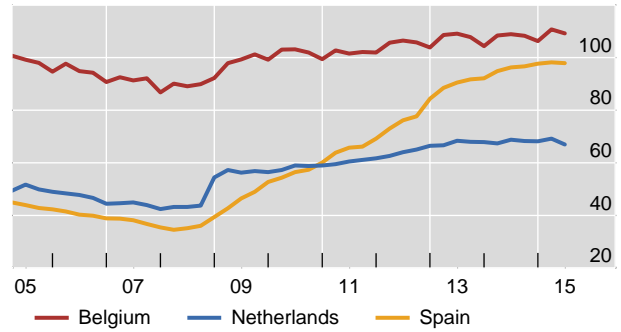
As a percentage of GDP

Graph F.7

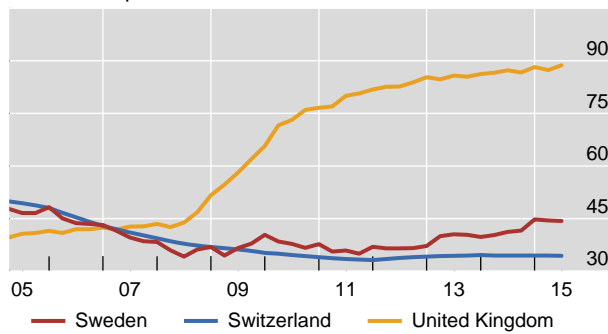
Euro area: aggregate and major countries



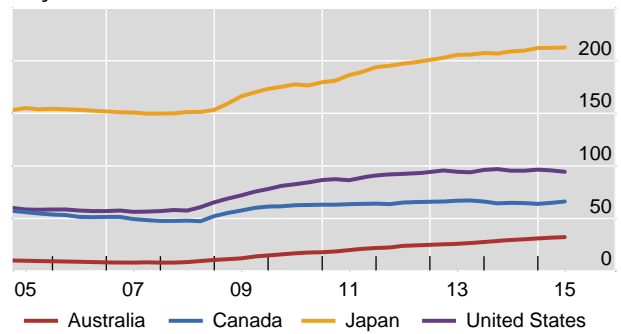
Euro area: other countries



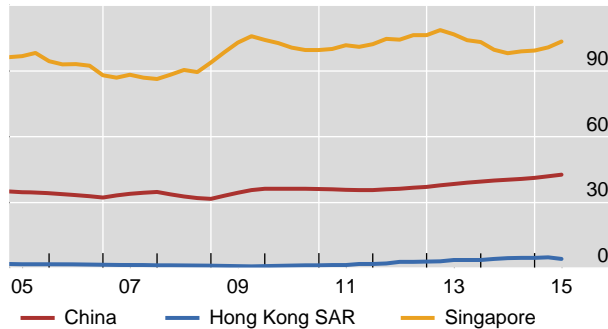
Other European countries



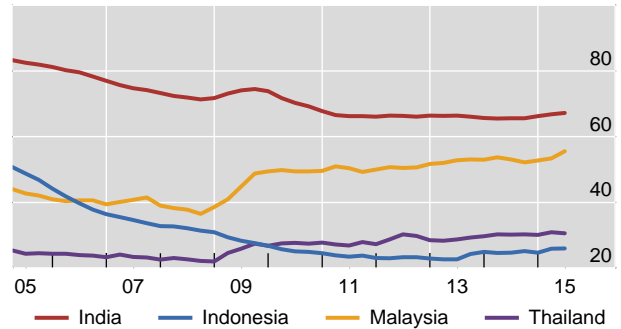
Major advanced economies



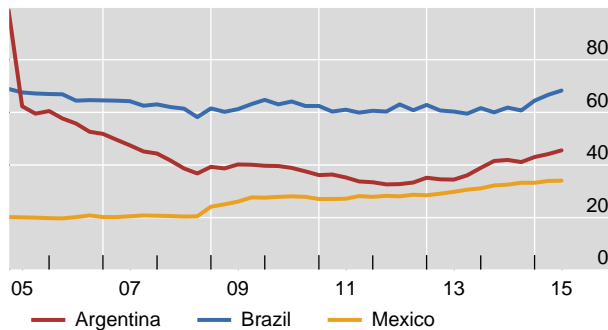
Emerging Asia



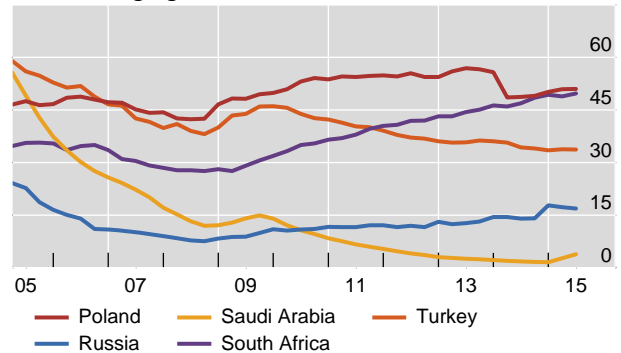
Other emerging Asia



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.

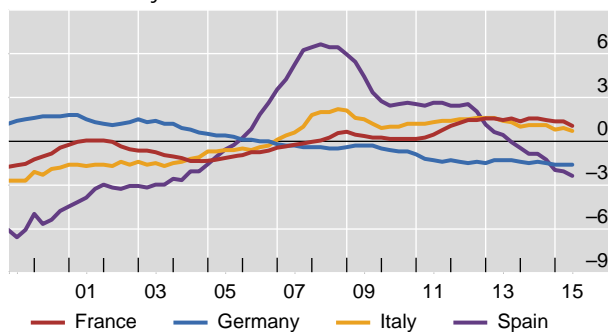
G Debt service ratios for the private non-financial sector

Debt service ratios of the private non-financial sector

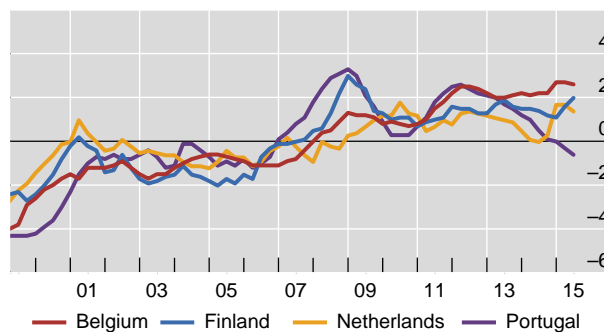
Deviation from country-specific mean; in percentage points¹

Graph G.1

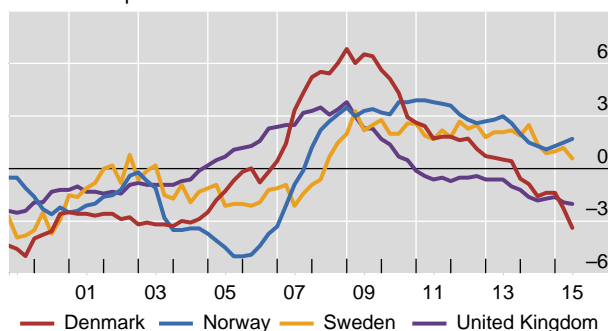
Euro area: major countries



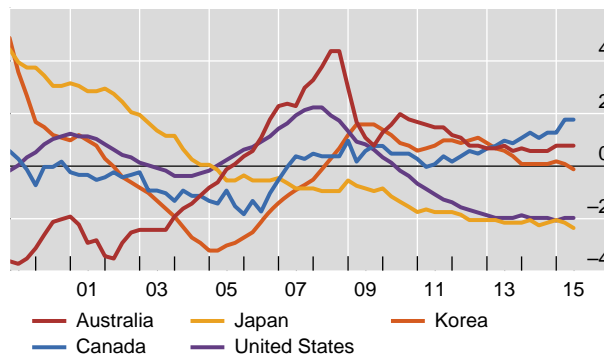
Euro area: other countries



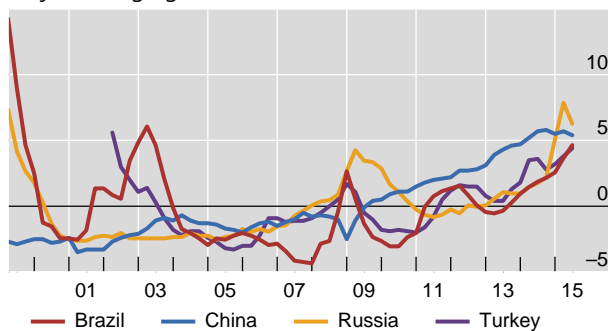
Other European countries



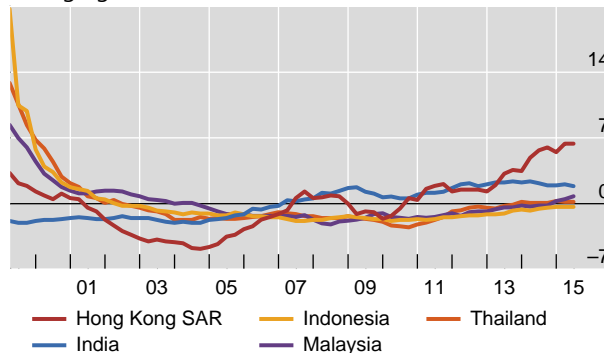
Other economies



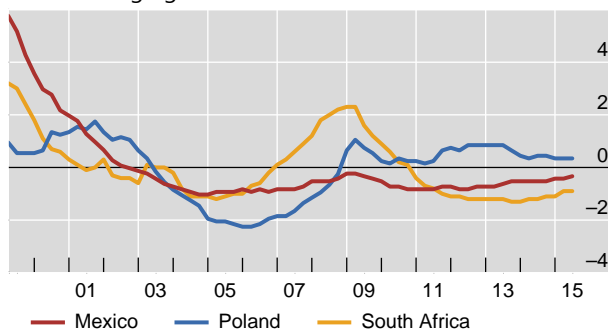
Major emerging markets²



Emerging Asia²



Other emerging markets²



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.

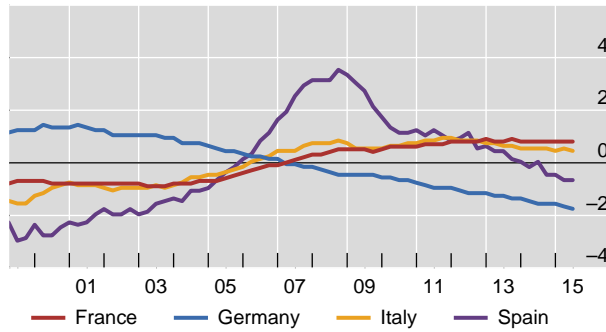
Further information on the BIS debt service ratio statistics is available at www.bis.org/statistics/dsr.htm.

Debt service ratios of households

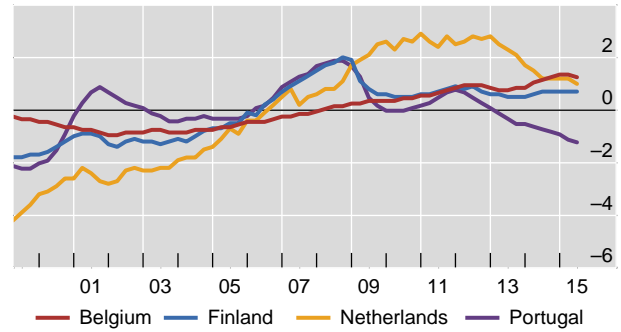
Deviation from country-specific mean; in percentage points¹

Graph G.2

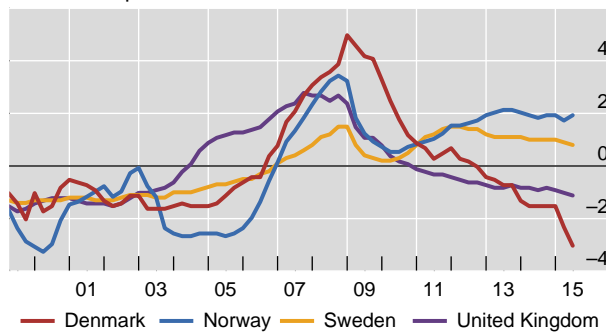
Euro area: major countries



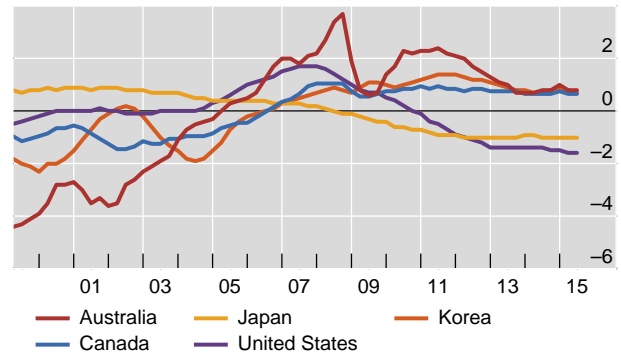
Euro area: other countries



Other European countries



Other economies



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

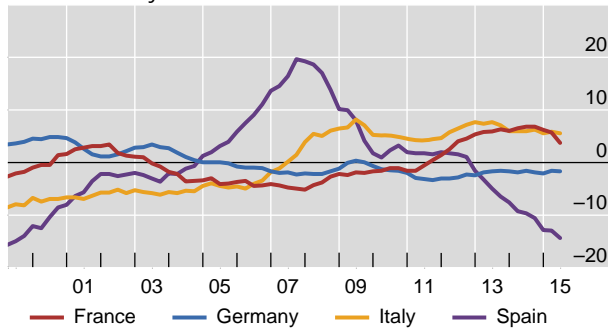
¹ Country-specific means are based on all available data from 1999 onwards.

Debt service ratios of non-financial corporations

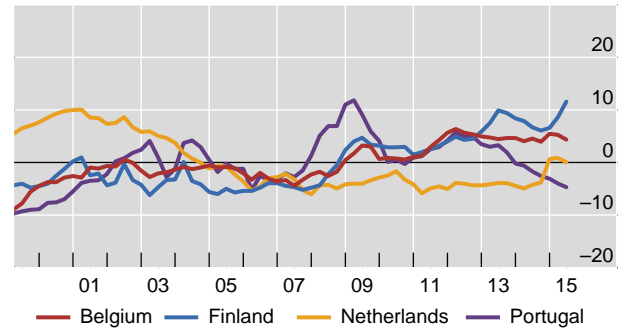
Deviation from country-specific mean; in percentage points¹

Graph G.3

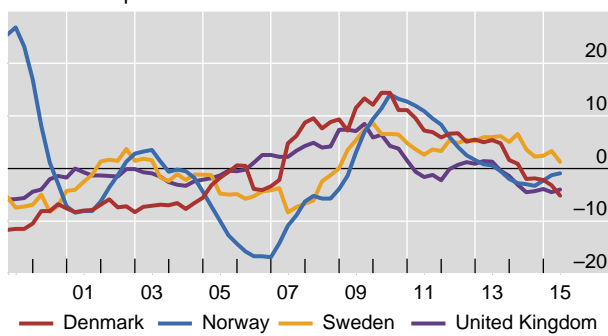
Euro area: major countries



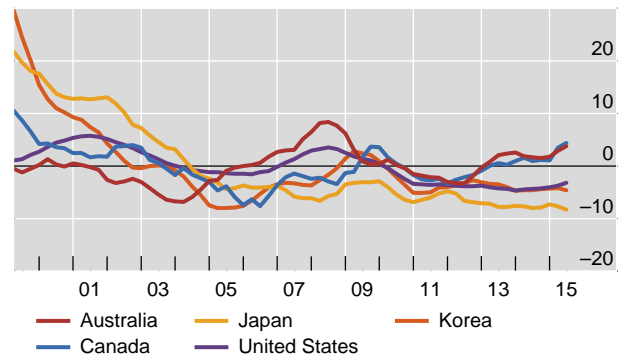
Euro area: other countries



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.

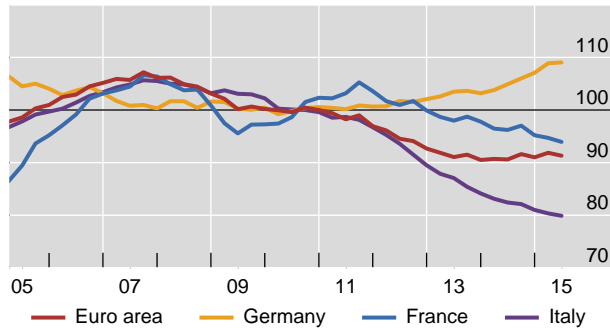
H Property price statistics

Real residential property prices

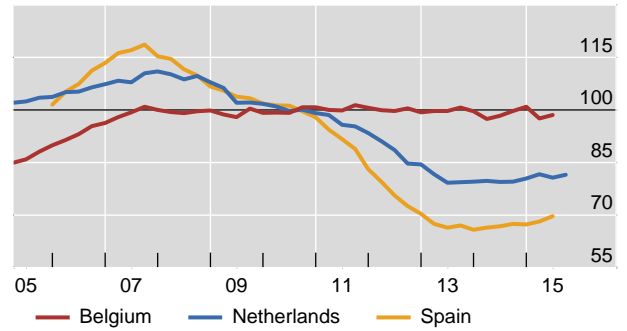
CPI-deflated; 2010 = 100

Graph H.1

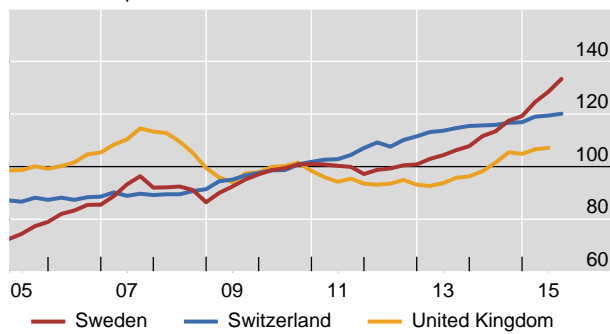
Euro area: aggregate and major countries



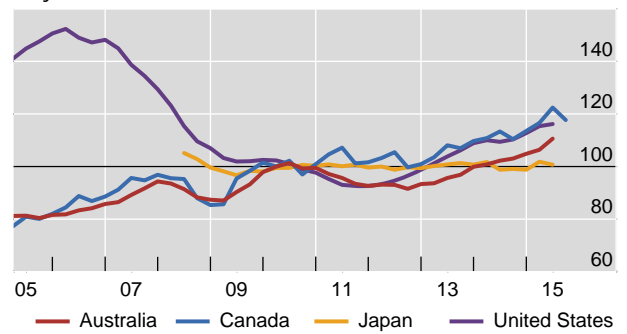
Euro area: other countries



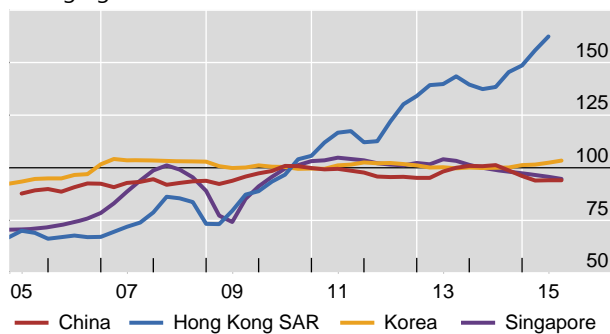
Other European countries



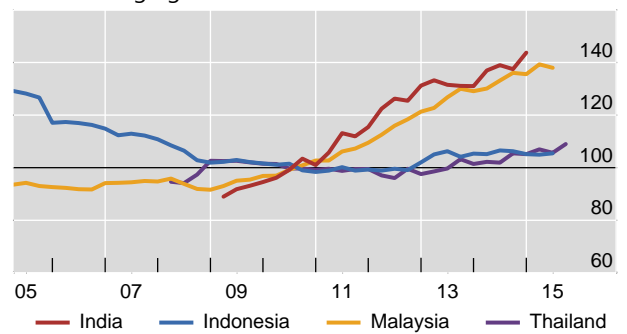
Major advanced economies



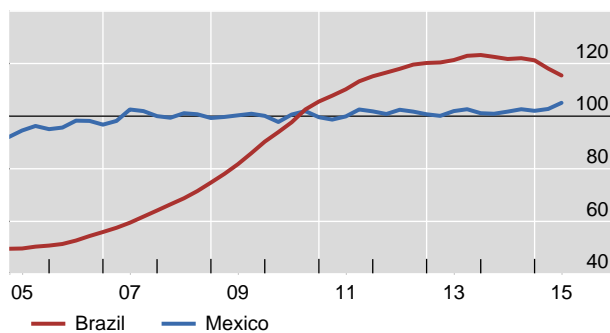
Emerging Asia



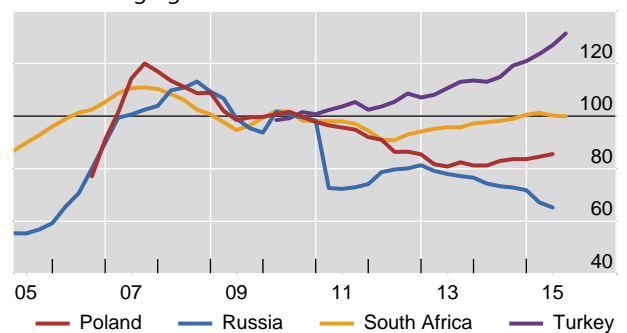
Other emerging Asia



Latin America



Other emerging market economies



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

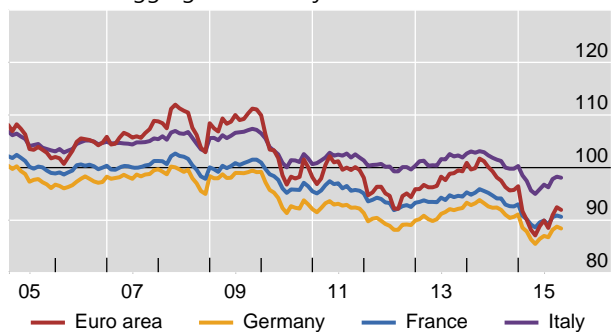
I Effective exchange rate statistics

Real effective exchange rates

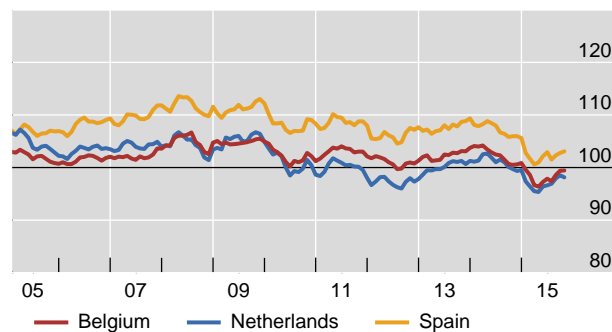
CPI-based; 1995–2005 = 100¹

Graph I.1

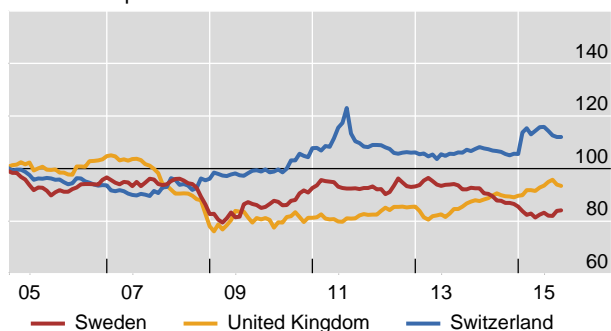
Euro area: aggregate and major countries



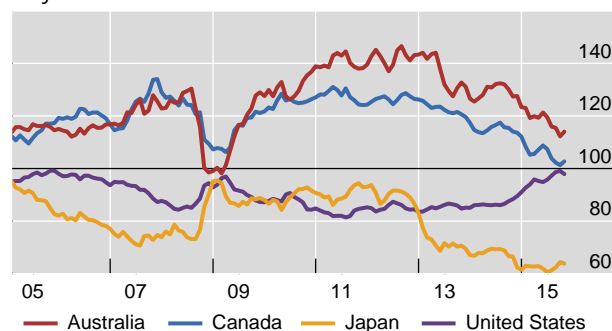
Euro area: other countries



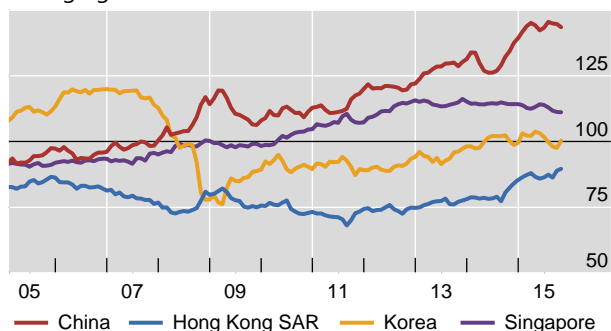
Other European countries



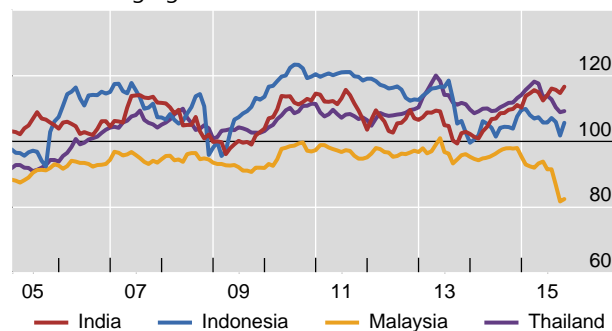
Major advanced economies



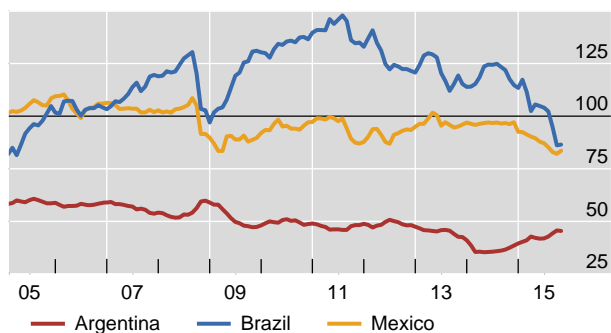
Emerging Asia



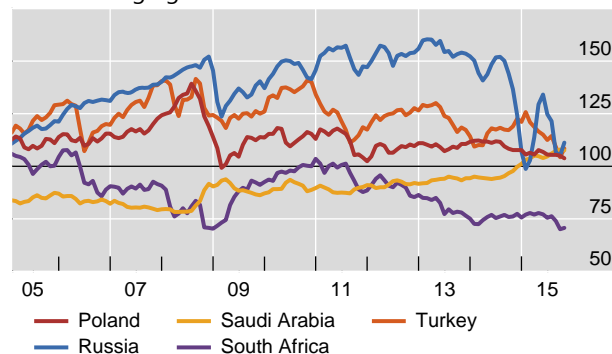
Other emerging Asia



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 an appreciation in the economy's currency in real terms against a broad basket of currencies.

Special features in the BIS Quarterly Review

September 2015	Introduction to BIS statistics	
September 2015	Enhanced data to analyse international banking	Stefan Avdjiev, Patrick McGuire and Philip Wooldridge
September 2015	A new database on general government debt	Christian Dembiermont, Michela Scatigna, Robert Szemere and 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 and Marjorie Santos
September 2015	International monetary spillovers	Boris Hofmann and Előd Takáts
September 2015	The rise of regional banking in Asia and the Pacific	Eli M Remolona and Ilhyock Shim
March 2015	The costs of deflations: a historical perspective	Claudio Borio, Magdalena Erdem, Andrew Filardo & Boris Hofmann
March 2015	Oil and debt	Dietrich Domanski, Jonathan Kearns, Marco Jacopo Lombardi & Hyun Song Shin
March 2015	(Why) Is investment weak?	Ryan Banerjee, Jonathan Kearns & Marco Lombardi
March 2015	Financial inclusion - issues for central banks	Aaron Mehrotra & James Yetman
March 2015	Shifting tides - market liquidity and market-making in fixed income instruments	Ingo Fender & Ulf Lewrick
December 2014	Currency movements drive reserve composition	Robert N McCauley & Tracy Chan
December 2014	Securitisations: tranching concentrates uncertainty	Adonis Antoniadis & Nikola Tarashev
December 2014	Bank business models	Rungporn Roengpitya, Nikola Tarashev & Kostas Tsatsaronis
December 2014	Non-financial corporations from emerging market economies and capital flows	Stefan Avdjiev, Michael Chui & Hyun Song Shin

Recent BIS publications¹

BIS Papers

What do new forms of finance mean for EM central banks?

Lending Papers in this volume were prepared for a meeting of senior officials from central banks held at the Bank for International Settlements.

Financial intermediation in emerging market economies (EMEs) has been transformed over the past decade: a higher volume of bond financing has gone hand-in-hand with a growing internationalization of financial markets and significant changes to the balance sheets of banks. The 2015 Deputy Governor meeting examined three interrelated aspects of the new forms of financial intermediation in EMEs: (a) the role of banks; (b) the role of debt securities markets; and (c) implications of recent changes in financial intermediation for monetary policy.

One conclusion is that greater access of households to bank credit and of EME corporations to domestic and external bond markets is a double-edged sword. On the one hand, it has helped foster financial development, diversifying funding sources and reducing credit risk concentration. On the other hand, it has also been accompanied by increased risks and vulnerabilities - as the financial market turbulences of 2015 illustrated. Domestic bond markets now react more strongly to global forces. Larger foreign currency debt has made many companies more vulnerable to exchange rate shocks. Credit cycles have also become more pronounced. These developments raise questions about the appropriate instruments for EME monetary authorities as they seek to contain monetary and financial stability risks.

Cross-border financial linkages: challenges for monetary policy and financial stability

Lending Ever more extensive global financial linkages are changing in ways that have significant implications for policy. Asia-Pacific countries have experienced a particularly rapid growth in financial flows since the crisis. Against this background, the BIS's Representative Office for Asia and the Pacific and the Reserve Bank of New Zealand (RBNZ) co-hosted a conference on cross-border financial linkages with a view to fostering research on implications of these important developments. The conference marked the completion of the BIS Asian Office's research programme in this area.

The event brought together senior officials and researchers from central banks, international organisations and academia. Governor Graeme Wheeler of the Reserve Bank of New Zealand made the opening remarks. Papers presented at the conference covered patterns of cross-border linkages, foreign exchange markets and exchange rate risks, financial market spillovers in Asia-Pacific, and policies to deal with capital flows and their effectiveness. The volume comprises the opening speech and papers presented at the conference.

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 (www.bis.org).

A search-based model of the interbank money market and monetary policy implementation

Morten Linneman Bech and Cyril Monnet

We present a search-based model of the interbank money market and monetary policy implementation. Banks are subject to reserve requirements and the central bank tenders reserves. Interbank payments redistribute holdings and banks trade with each other in a decentralized (over-the-counter) market. The central bank provides standing facilities where banks can either deposit surpluses or borrow to cover shortfalls of reserves overnight. The model provides insights on liquidity, trading volume, and rate dispersion in the interbank market - features largely absent from the canonical models in the tradition of Poole (1968) - and fits a number of stylized facts for the Eurosystem observed during the recent period of unconventional monetary policies. Moreover, it provides insights on the implications of different market structures.

External shocks, banks and optimal monetary policy in an open economy

External shocks, banks and optimal monetary policy in an open economy

We document empirically that the 2007-09 Global Financial Crisis exposed emerging market economies (EMEs) to an adverse feedback loop of capital outflows, depreciating exchange rates, deteriorating balance sheets, rising credit spreads and falling real economic activity. In order to account for these empirical findings, we build a New-Keynesian DSGE model of a small open economy with a banking sector that has access to both domestic and foreign funding. Using the calibrated model, we investigate optimal, simple and operational monetary policy rules that respond to domestic/external financial variables alongside inflation and output. The Ramsey-optimal policy rule is used as a benchmark. The results suggest that such an optimal policy rule features direct and non-negligible responses to lending spreads over the cost of foreign debt, the real exchange rate and the US policy rate, together with a mild anti-inflationary policy stance in response to domestic and external shocks. Optimal policy faces trade-offs in smoothing inefficient fluctuations in the intratemporal and intertemporal wedges driven by inflation, credit spreads and the real exchange rate. In response to productivity and external shocks, a countercyclical reserve requirement (RR) rule used in coordination with a conventional interest rate rule attains welfare levels comparable to those implied by spread- and real exchange rate-augmented rules.

Expectations and risk premia at 8:30am: Macroeconomic announcements and the yield curve

Peter Hördahl, Eli M Remolona and Giorgio Valente

We investigate the movements of the yield curve after the release of major U.S. macroeconomic announcements through the lenses of an arbitrage-free dynamic term structure model with macroeconomic fundamentals. Combining estimated yield responses obtained using high-frequency data with model estimates using monthly data, we show that bond yields move after announcements mostly because of revisions to expectations about short-term interest rates. Changes in risk premia are also sizable, partly offset the effects of short-rate expectations and help to account for the hump-shaped pattern across maturities. Most announcement responses are due to changes in expectations about the output gap.

Modelling the time-variation in euro area lending spreads

Boris Blagov, Michael Funke and Richhild Moessner

Using a Markov-switching VAR with endogenous transition probabilities, we analyse what has triggered the interest rate pass-through impairment for Italy, Ireland, Spain and Portugal. We find that global risk factors have contributed to higher lending rates in Italy and Spain, problems in the banking sector help to explain the impairment in Spain, and fiscal problems and contagion effects have contributed in Italy and Ireland. We also find that the ECB's unconventional monetary policy announcements have had temporary positive effects in Italy.

Due to the zero lower bound these findings are amplified if EONIA is used as a measure of the policy rate. We did not detect changes in the monetary policy transmission for Portugal.

Capital flows and the current account: Taking financing (more) seriously

Claudio Borio and Piti Disyatat

This paper questions the appropriateness of popular analytical frameworks that focus on current accounts or net capital flows as a basis for assessing the pattern of cross-border capital flows, the degree of financial integration and the vulnerability of countries to financial crises. In the process, it revisits the Lucas paradox, the Feldstein-Horioka puzzle and the notion of sudden stops. It argues that, in a world of huge and free capital flows, the centrality of current accounts in international finance, and hence in academic and policy debates, should be reconsidered.

Breaking free of the triple coincidence in international finance

Stefan Avdjiev, Robert Neil McCauley and Hyun Song Shin

The traditional approach to international finance is to view capital flows as the financial counterpart to savings and investment decisions, assuming further that the GDP boundary defines both the decision-making unit and the currency area. This "triple coincidence" of GDP area, decision-making unit and currency area is an elegant simplification but misleads when financial flows are important in their own right. First, the neglect of gross flows, when only net flows are considered, can lead to misdiagnoses of financial vulnerability. Second, inattention to the effects of international currencies may lead to erroneous conclusions on exchange rate adjustment. Third, sectoral differences between corporate and official sector positions can distort welfare conclusions on the consequences of currency depreciation, as macroeconomic risks may be underestimated. This paper illustrates the pitfalls of the triple coincidence through a series of examples from the global financial system in recent years and examines alternative analytical frameworks based on balance sheets as the unit of analysis.

The evolution of inflation expectations in Canada and the US

James Yetman

We model inflation forecasts as monotonically diverging from an estimated long-run anchor point towards actual inflation as the forecast horizon shortens. Fitting the model with forecaster-level data for Canada and the US, we identify three key differences between the two countries. First, the average estimated anchor of US inflation forecasts has tended to decline gradually over time in rolling samples, from 3.4% for 1989-1998 to 2.2% for 2004-2013. By contrast, it has remained close to 2% since the mid-1990 for Canadian forecasts. Second, the variance of estimates of the long-run anchor is considerably lower for the panel of Canadian forecasters than US ones following Canada's adoption of inflation targets. And third, forecasters in Canada look much more alike than those in the US in terms of the weight that they place on the anchor. One explanation for these results is that an explicit inflation targeting regime (Canada) provides for less uncertainty about future monetary policy actions than a monetary policy regime where there was no explicit numerical inflation target (the US before 2012) to anchor expectations.

Do banks extract informational rents through collateral?

Bing Xu, Honglin Wang and Adrian Van Rixtel

This paper investigates if informational monopolies resulting from relationship lending and bank market concentration allow for rent extraction through collateral. Our identification strategy hinges on the notion that informational equalization shocks (such as equity IPOs) erode rent seeking opportunities, while competing theories do not rely on information asymmetries among lenders. Using a unique hand-collected database of 9,288 bank loans obtained by 649 listed Chinese firms, we find that collateral incidence is positively associated with relationship intensity and bank market concentration, while this effect is moderated for post-IPO loans. These results are obtained controlling for a large number of loan and firm characteristics, monetary policy variables and regional macroeconomic characteristics. We also demonstrate important cross-sectional variation among borrowing firms: rent extraction through collateral is significantly less pronounced for less risky firms. Our results hold for a battery of robustness tests, both included in the paper and in an Internet appendix (available

upon request). Furthermore, we provide new evidence on the determinants of collateral in Chinese bank lending markets.

Does variance risk have two prices? Evidence from the equity and option markets

Laurent Barras and Aytek Malkhozov

We formally compare two versions of the market Variance Risk Premium (VRP) measured in the equity and option markets. Both VRPs follow common patterns and respond similarly to changes in volatility and economic conditions. However, we reject the null hypothesis that they are identical and find that their difference is strongly related to measures of the financial standing of intermediaries. These results shed new light on the information content of the VRP, suggest the presence of market frictions between the two markets, and are consistent with the key role played by intermediaries in setting option prices.

Optimal inflation with corporate taxation and financial constraints

Daria Finocchiaro, Giovanni Lombardo, Caterina Mendicino and Philippe Weil

This paper revisits the equilibrium and welfare effects of long-run inflation in the presence of distortionary taxes and financial constraints. Expected inflation interacts with corporate taxation through the deductibility of i) capital expenditures at historical value and ii) interest payments on debt. Through the first channel, inflation increases firms' taxable profits and further distorts their investment decisions. Through the second, expected inflation affects the effective real interest rate, relaxes firms' financial constraints and stimulates investment. We show that, in the presence of collateralized debt, the second effect dominates. Therefore, in contrast to earlier literature, we find that when the tax code creates an advantage of debt financing, a positive rate of long-run inflation is beneficial in terms of welfare as it mitigates the financial distortion and spurs capital accumulation.

The hunt for duration: not waving but drowning?

Dietrich Domanski, Hyun Song Shin and Vladyslav Sushko

Long-term interest rates in Europe fell sharply in 2014 to historically low levels. This development is often attributed to yield-chasing in anticipation of quantitative easing (QE) by the European Central Bank (ECB). We examine how portfolio adjustments by long-term investors aimed at containing duration mismatches may have acted as an amplification mechanism in this process. Declining long-term interest rates tend to widen the negative duration gap between the assets and liabilities of insurers and pension funds, and any attempted rebalancing by increasing asset duration results in further downward pressure on interest rates. Evidence from the German insurance sector is consistent with such an amplification mechanism.

Monetary policy and financial spillovers: losing traction?

Piti Disyatat and Phurichai Rungcharoenkitkul

Has financial globalisation compromised central banks' ability to manage domestic financial conditions? This paper tackles this question by studying the dynamics of bond yields encompassing 31 advanced and emerging market economies. To gauge the extent to which external financial conditions complicate the conduct of monetary policy, we isolate a "contagion" component by focusing on comovements in measures of bond return risk premia that are unrelated to economic fundamentals. Our contagion measure is designed to more accurately capture spillovers driven by exogenous global shifts in risk preference or appetite. The analysis reaches several conclusions that run counter to popular presumptions based on comovements in bond yields. In particular, emerging market economies appear to be much less susceptible to global contagion than advanced economies, and the overall sensitivities to contagion have not increased post-crisis.

Leverage on the buy side

Fernando Avalos, Ramon Moreno and Tania Romero

This paper investigates the microeconomic determinants of leverage decisions by asset managers. Investment funds (the "buy side") have significantly increased their share of global capital flows in recent years. Unconventional monetary policies in advanced economies have squeezed returns while reducing borrowing costs, which in principle creates an incentive for asset managers to use more leverage. We start by studying the recent behaviour of fund

leverage in different asset categories at an aggregate level. Leverage appears to have increased significantly in funds focused on the fixed income markets of emerging economies. Then we analyse the microeconomic factors that shape the leverage decision. In line with theory, we find that leverage rises with expected returns, and falls with market risk and borrowing costs. Transaction costs are also mentioned in the literature as another factor that should inhibit leverage. Lacking the requisite data, we introduce as proxies changes in capital controls and macroprudential policies, because they tend to affect expected returns in comparable ways. We find that tighter capital controls on inflows increase leverage rather than decrease it, but that macroprudential measures have no discernible effect. Finally, we discuss these results and their policy implications.

Optimal time-consistent macroprudential policy

Javier Bianchi and Enrique G Mendoza

Collateral constraints widely used in models of financial crises feature a pecuniary externality: Agents do not internalize how borrowing decisions taken in "good times" affect collateral prices during a crisis. We show that agents in a competitive equilibrium borrow more than a financial regulator who internalizes this externality. We also find, however, that under commitment the regulator's plans are time-inconsistent, and hence focus on studying optimal, time-consistent policy without commitment. This policy features a state-contingent macroprudential debt tax that is strictly positive at date t if a crisis has positive probability at $t + 1$. Quantitatively, this policy reduces sharply the frequency and magnitude of crises, removes fat tails from the distribution of returns, and increases social welfare. In contrast, constant debt taxes are ineffective and can be welfare-reducing, while an optimized "macroprudential Taylor rule" is effective but less so than the optimal policy.

The impact of CCPs' margin policies on repo markets

Arianna Miglietta, Cristina Picillo and Mario Pietrunti

This paper quantifies the impact on the cost of funding in repo markets of the initial margins applied by central clearing counterparties (CCPs). We use contract-level data on the general collateral (GC) segment of Italy's MTS Repo market between January 2011 and April 2014. The analysis shows that the initial margins, paid by all participants, had a positive and significant effect on the cost of funding. Such an impact is consistent across different model specifications and data subsamples.

The influence of monetary policy on bank profitability

Claudio Borio, Leonardo Gambacorta and Boris Hofmann

This paper investigates how monetary policy affects bank profitability. We use data for 109 large international banks headquartered in 14 major advanced economies for the period 1995-2012. Overall, we find a positive relationship between the level of short-term rates and the slope of the yield curve (the "interest rate structure", for short), on the one hand, and bank profitability - return on assets - on the other. This suggests that the positive impact of the interest rate structure on net interest income dominates the negative one on loan loss provisions and on non-interest income. We also find that the effect is stronger when the interest rate level is lower and the slope less steep, ie that non-linearities are present. All this suggests that, over time, unusually low interest rates and an unusually flat term structure erode bank profitability.

The determinants of long-term debt issuance by European banks: evidence of two crises

Adrian Van Rixtel, Luna Romo González and Jing Yang

This paper is one of the first to investigate the determinants of bond issuance by European banks. We use a unique database of around 50,000 bonds issued by 63 banks from 14 European countries, allowing us to differentiate between different types of long-term debt securities. By investigating at the individual bank level, we are able to test explicitly a broad set of hypotheses from both the corporate finance and banking literature on the drivers of bond issuance. We use both country and bank-specific financial characteristics as explanatory variables. With respect to the country determinants, our findings suggest that "market timing" (low interest rates) drove issuance before but not during the crisis, when access to

funding became more important than its cost. Moreover, during the crisis years, country-risk characteristics became drivers of bond issuance, while for banks from the euro area periphery central bank liquidity substituted for unsecured long-term debt. We also show that heightened financial market tensions were detrimental to bond issuance, and more strongly so during crisis episodes. Our results yield strongly significant coefficients for the bank-specific variables, with signs as expected. We find evidence of "leverage targeting" by issuing long-term debt during the crisis years. The positive and significant coefficient for the capital ratio supports the "risk absorption" hypothesis, suggesting that larger capital buffers enhanced the risk-bearing capacity of banks and allowed them to issue more debt. Moreover, banks with deposit supply constraints and relatively large loan portfolios issued more bonds, both before and since the crisis years. We also find that higher rated banks were more likely to issue bonds, also during the crisis period. Stronger banks issued especially unsecured debt, while weaker banks resorted more to issuance of covered bonds. Overall, our results suggest that stronger banks - including those from peripheral countries - maintained better access to longer-term funding markets, even during crisis periods. Our results pass several robustness tests. We present an additional aggregated country analysis in a separate appendix.

International reserves and gross capital flow dynamics

Enrique Alberola-Ila, Aitor Erce and José María Serena

This paper explores the role of international reserves as a stabiliser of international capital flows, in particular during periods of global financial stress. In contrast with previous contributions, aimed at explaining net capital flows, we focus on the behaviour of gross capital flows. We analyse an extensive cross-country quarterly database, comprising 63 countries for the period 1991-2010, using standard panel regressions. We document significant heterogeneity in the response of resident investors to financial stress and relate it to a previously undocumented channel through which reserves act as a buffer during financial stress. A robust result of the analysis is that international reserves facilitate financial disinvestment overseas by residents - a fall in capital outflows. This partially offsets the drop in foreign capital inflows observed in such periods. For the whole sample, we also find that larger stocks of international reserves are linked to higher gross inflows and lower gross outflows. These results, which challenge current approaches to measuring reserve adequacy, call for refining such tools to better account for the role of resident investors.

Higher bank capital requirements and mortgage pricing: evidence from the Countercyclical Capital Buffer (CCB)

Christoph Basten and Catherine Koch

How has the CCB affected mortgage pricing after Switzerland became the first country to activate this Basel III macroprudential tool? By analyzing a database with several offers per mortgage request, we construct a picture of mortgage supply and demand. We find, first, that the CCB changes the composition of mortgage supply, as relatively capital-constrained and mortgage-specialized banks raise prices more than their competitors do. Second, risk-weighting schemes linked to borrower risk do not amplify the CCB's effect. To conclude, changes in the supply composition suggest that the CCB has achieved its intended effect in shifting mortgages from less resilient to more resilient banks, but stricter capital requirements do not appear to have discouraged less resilient banks from risky mortgage lending.

Global dollar credit and carry trades: a firm-level analysis

Valentina Bruno and Hyun Song Shin

We conduct a firm-level analysis of borrowing in US dollars by non-financial corporates from outside the United States. The dataset combines bond issuance data with firm-level financial information. We find that firms with already high cash holdings are more likely to issue US dollar-denominated bonds, and that the proceeds of the bond issue add to cash holdings. The tendency to add cash is more pronounced during periods when the dollar carry trade is more favourable and is prevalent for emerging market firms.

Basel Committee on Banking Supervision

Making supervisory stress tests more macroprudential: Considering liquidity and solvency interactions and systemic risk November 2015

In the run-up to the financial crisis, banking supervisors largely followed a microprudential approach towards assessing banks. As such, many of the "first-generation" stress tests used by bank supervisors after the crisis focused on solvency risks. Some supervisors also considered liquidity risks, but these risks were often viewed as independent of solvency risks. Additionally, authorities' stress tests often did not consider the potential interlinkages in the banking system or ways in which bank behaviour might collectively prove destabilising to the financial system.

However, the failure to adequately model interlinkages and the nexus between solvency risk and liquidity risk within and across banks led to a dramatic underestimation of the risks to, and vulnerabilities of, financial systems in many economies. The prior Basel Committee working paper 24 contains a summary of case studies, which discusses some liquidity and solvency interactions at large banks. Building on the experiences of different countries, this paper suggests that authorities should emphasise developing integrated liquidity and solvency stress tests (as opposed to stand-alone liquidity stress test exercises).

The paper offers several approaches to incorporating liquidity effects and their interactions with solvency that differ in their level of comprehensiveness and sophistication. In particular, the paper offers contributions to three key areas. First, micro stress tests provide a basis for developing and enriching stress tests by considering channels in addition to the standard credit channel through which shocks can be transmitted. Second, an analysis of estimated interactions between liquidity and solvency risks, using both regulatory and market-based measures, at the micro level will help improve stress testing models for individual banks. Finally, the third layer - network analysis and agent-based models - prove useful for broadening stress tests, as these models consider contagion through common exposure, interbank funding relationships and the endogenous behaviour of banks.

Fundamental review of the trading book - interim impact analysis November 2015

The Basel Committee on Banking Supervision has today published the results of its interim impact analysis of its fundamental review of the trading book. The report assesses the impact of proposed revisions to the market risk framework set out in two consultative documents published in October 2013 and December 2014. Further revisions to the market risk rules have since been made, and the Committee expects to finalise the standard around year-end.

The analysis was based on a sample of 44 banks that provided usable data for the study and assumed that the proposed market risk framework was fully in force as of 31 December 2014. It shows that the change in market risk capital charges would produce a 4.7% increase in the overall Basel III minimum capital requirement. When the bank with the largest value of market risk-weighted assets is excluded from the sample, the change in total market risk capital charges leads to a 2.3% increase in overall Basel III minimum regulatory capital.

Compared with the current market risk framework, the proposed standard would result in a weighted average increase of 74% in aggregate market risk capital. When measured as a simple average, the increase in the total market risk capital requirement is 41%. For the median bank in the same sample, the capital increase is 18%.

Compared with the current internally modelled approaches for market risk, the capital requirement under the proposed internally modelled approaches would result in an increase of 54%. For the median bank, the capital requirement under the proposed internally modelled approaches is 13% higher.

Compared with the current standardised approach for market risk, the capital requirement under the proposed standardised approach is 128% higher. For the median bank, the capital requirement under the proposed standardised approach is 51% higher.

**Implementation of Basel standards - A report to G20 Leaders on implementation of the Basel III regulatory reforms
November 2015**

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 in the implementation of the Basel III regulatory reforms since November 2014, 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. It is accompanied by a separate report from the Committee to G20 Leaders on finalising the post-crisis reforms.

**Finalising post-crisis reforms: an update - A report to G20 Leaders
November 2015**

This report reviews the Basel Committee's work since the global financial crisis to strengthen the international regulatory framework for banks. The measures introduced by the Committee include:

- increasing the quality and level of capital;
- enhancing risk capture;
- constraining leverage and excessive concentration;
- adding a macroprudential dimension to the regulatory framework;
- addressing liquidity risk; and
- enhancing supervision and promoting consistent global implementation of the Basel framework

The report also provides an update on the Committee's substantial progress towards finalising its post-crisis reforms, which includes revising the standardised approaches for determining regulatory capital and measures to reduce excessive variability in risk-weighted assets. The Committee is well on track to finalise the remaining elements of the regulatory reform agenda for global banks.

**Capital treatment for "simple, transparent and comparable" securitisations - consultative document
November 2015**

In November 2015 the Basel Committee on Banking Supervision released a consultative document on *Capital treatment for "simple, transparent and comparable" securitisations*. This proposal builds on the revised capital standards issued by the Committee in December 2014.

The *Criteria for identifying simple, transparent and comparable securitisations* (STC criteria) were published by the Basel Committee and the International Organization of Securities Commissions in July 2015. The July 2015 STC criteria are designed to mitigate securitisation risks, including uncertainty related to asset risk, structural risk, governance and operational risk. Transactions that comply with these criteria should therefore have lower structural and model risk.

The July 2015 STC criteria noted that additional or more detailed criteria, such as those related to the credit risks of the underlying securitised assets, may be necessary based on specific needs and applications. Given that greater prescriptiveness is required for using the STC criteria in regulatory capital requirements, the Committee proposes to supplement the July 2015 STC criteria with additional criteria for the specific purpose of differentiating the capital treatment of STC from that of other securitisation transactions. The additional criteria would, for example, exclude transactions in which the standardised risk weights for the underlying assets exceed certain levels.

Compliance with the expanded set of STC criteria provides additional confidence in the performance of the transactions. The Committee is proposing to reduce minimum capital requirements for such STC securitisations by reducing the risk weight floor for senior exposures, and by rescaling risk weights for other exposures. A range for the potential reduction in capital charges is suggested. The Committee will make a final decision on calibration in 2016 based on further analysis and assessment of the quantitative impact of the proposals.

The Committee welcomes comments on this consultative document. Comments should be uploaded here by Friday 5 February 2016 or they may be sent by post to: Secretariat of the Basel Committee on Banking Supervision, Bank for International Settlements, CH-4002 Basel, Switzerland. All comments will be published on the website of the Bank for International Settlements unless a respondent requests confidential treatment.

TLAC Holdings - consultative document November 2015

The Basel Committee's TLAC Holdings consultative document sets out its proposed prudential treatment of banks' investments in TLAC. It is applicable to all banks subject to the Basel Committee's standards, including both G-SIBs and non-G-SIBs.

The proposed treatment is for banks to deduct from their regulatory capital their holdings of TLAC instruments, subject to thresholds. It also addresses the treatment of holdings of instruments that rank *pari passu* to TLAC in the creditor hierarchy. The objective of the proposed treatment is to support the TLAC regime by reducing the risk of contagion if a G-SIB should enter resolution.

The TLAC regime also necessitates changes to Basel III to specify how G-SIBs must take account of the TLAC requirement when calculating their regulatory capital buffers. In particular, any Common Equity Tier 1 that is being used to meet the TLAC requirement cannot be used to meet the regulatory capital buffers. The proposed changes to Basel III to give effect to this requirement are set out in the consultative document.

The Committee welcomes comments on the TLAC holdings consultative document. Comments on the proposals should be uploaded here by Friday 12 February 2016. Alternatively, comments may be sent by post to: Secretariat of the Basel Committee on Banking Supervision, Bank for International Settlements, CH-4002 Basel, Switzerland. All comments may be published on the website of the Bank for International Settlements unless a respondent requests confidential treatment.

TLAC Quantitative Impact Study (QIS) Report November 2015

The *TLAC Quantitative Impact Study (QIS) Report* analyses the TLAC levels and shortfalls at G-SIBs based on the FSB's consultative version of the TLAC term sheet, published in November 2014. The TLAC QIS is a critical component of the impact analysis of the *TLAC regime*. In particular, it provides the main data set that is the basis for the report led by staff of the Bank for International Settlements: *Assessing the economic costs and benefits of TLAC implementation*. The TLAC QIS report also examines the extent that G-SIBs and non-G-SIBs are currently invested in TLAC instruments, which helps to inform the prudential treatment of *TLAC holdings*.

Haircut floors for non-centrally cleared securities financing transactions - consultative document November 2015

In October 2014, the FSB published a report on *Strengthening Oversight and Regulation of Shadow Banking - Regulatory framework for haircuts on non-centrally cleared securities financing transactions* and introduced a framework for haircut floors for non-centrally cleared SFTs. As part of this framework, the FSB recommended that the Basel Committee on Banking Supervision (BCBS) incorporate the haircut floors into the capital requirements for non-centrally cleared SFTs by setting higher capital requirements for transactions with haircuts

traded below the haircut floors. The objective of the BCBS proposal is to create incentives for banks to set their collateral haircuts above the floors rather than hold more capital.

Frequently asked questions on the Basel III Countercyclical Capital Buffer October 2015

To promote consistent implementation of the Basel III countercyclical capital buffer, the Basel Committee on Banking Supervision has issued frequently asked questions and other supporting information.

The information published today includes a list of all prevailing and pre-announced buffers, as well as developments related to domestic rule-making. The information is presented for both Basel Committee member jurisdictions, as well as select non-member jurisdictions. The dedicated website can be found here. This webpage will be updated as jurisdictions inform the Committee of changes to domestic countercyclical capital buffer requirements. Interested stakeholders can sign up for a email alert when information is updated.

The countercyclical capital buffer requirement, when activated by member jurisdictions, will be phased in from 1 January 2016.

Ninth progress report on adoption of the Basel regulatory framework October 2015

This updated *Progress report on adoption of the Basel regulatory framework* provides a high-level view of Basel Committee members' progress in adopting Basel III regulations as of end-September 2015.

The report focuses on the status of domestic rule-making processes to ensure that the Basel standards are transformed into national law or regulation according to the internationally agreed timeframes. The report is based on information provided by individual members as part of the Committee's Regulatory Consistency Assessment Programme (RCAP). The report includes the status of adoption of the risk-based capital standards, the liquidity standards (LCR and NSFR), the framework for systemically important banks (SIBs), the leverage ratio, the revised Pillar 3 disclosure requirements and the large exposure framework.

In addition to periodically reporting on the status of adoption, all Committee members undergo an assessment of the consistency of their domestic rules with the Basel standards. The Committee believes that disclosure provides additional incentive for members to fully comply with the international agreements.

Regulatory Consistency Assessment Programme (RCAP) – report on risk-weighted assets for counterparty credit risk (CCR) October 2015

This report presents the findings from a hypothetical test portfolio exercise to examine variability in banks' modelling of derivatives, and specifically in exposure modelling. The report focuses on the internal models method (IMM) and the advanced credit valuation adjustments (CVA) risk capital charge for over-the-counter (OTC) derivative trades. The study is a part of the Basel Committee's Regulatory Consistency Assessment Programme (RCAP), which is intended to ensure consistent implementation of the Basel framework. This exercise completes the Committee's review of trading-related internal models and follows two earlier exercises that focused on market risk RWAs.

The report analyses the variability of risk-weighted assets outcomes, highlights good practices and identifies areas where additional attention from banks and supervisors is required to mitigate unwarranted RWA variability. In this regard, an important aim of the report is to support implementation and supervision of CCR models.

The results show considerable variability in the outcomes of CCR models, which is typically higher for CVA models than for IMM models. Overall, the level of variability is similar to the variability of other market risk model outcomes observed in previous exercises. Key drivers for the variability include differences in banks' modelling choices, as well as differences in supervisory practices.

Basel III Monitoring Report September 2015

This report presents the results of the Basel Committee's latest Basel III monitoring exercise. The study is based on the rigorous reporting process set up by the Committee to periodically review the implications of the Basel III standards for banks. The results of previous exercises in this series were published in March 2015, September 2014, March 2014, September 2013, March 2013, September 2012 and April 2012.

Data have been provided for a total of 221 banks, comprising 100 large internationally active banks ("Group 1 banks", defined as internationally active banks that have Tier 1 capital of more than €3 billion) and 121 Group 2 banks (ie representative of all other banks).

The results of the monitoring exercise assume that the final Basel III package is fully in force, based on data as of 31 December 2014. That is, they do not take account of the transitional arrangements set out in the Basel III framework, such as the gradual phase-in of deductions from regulatory capital. No assumptions were made about bank profitability or behavioural responses, such as changes in bank capital or balance sheet composition. For that reason, the results of the study are not comparable to industry estimates.

Data as of 31 December 2014 show that all large internationally active banks meet the Basel III risk-based capital minimum requirements as well as the Common Equity Tier 1 (CET1) target level of 7.0% (plus the surcharges on global systemically important banks - G-SIBs - as applicable). Between 30 June and 31 December 2014, Group 1 banks reduced their capital shortfalls relative to the higher Tier 1 and total capital target levels; the additional Tier 1 capital shortfall has decreased from €18.6 billion to €6.5 billion and the Tier 2 capital shortfall has decreased from €78.6 billion to €40.6 billion. As a point of reference, the sum of after-tax profits prior to distributions across the same sample of Group 1 banks for the six-month period ending 31 December 2014 was €228.1 billion.

Under the same assumptions, there is no capital shortfall for Group 2 banks included in the sample for the CET1 minimum of 4.5%. For a CET1 target level of 7.0%, the shortfall narrowed from €1.8 billion to €1.5 billion since the previous period.

The average CET1 capital ratios under the Basel III framework across the same sample of banks are 11.1% for Group 1 banks and 12.3% for Group 2 banks.

Basel III's Liquidity Coverage Ratio (LCR) came into effect on 1 January 2015. The minimum requirement is set initially at 60% and will then rise in equal annual steps to reach 100% in 2019. The weighted average LCR for the Group 1 bank sample was 125% on 30 June 2014, up from 121% six months earlier. For Group 2 banks, the weighted average LCR was 144%, up from 140% six months earlier. For banks in the sample, 85% reported an LCR that met or exceeded 100%, while 98% reported an LCR at or above 60%.

Basel III also includes a longer-term structural liquidity standard - the Net Stable Funding Ratio (NSFR) - which was finalised by the Basel Committee in October 2014. The weighted average NSFR for the Group 1 bank sample was 111% while for Group 2 banks the average NSFR was 114%. As of December 2014, 75% of the Group 1 banks and 85% of the Group 2 banks in the NSFR sample reported a ratio that met or exceeded 100%, while 92% of the Group 1 banks and 93% of the Group 2 banks reported an NSFR at or above 90%.

All data, including for previous reporting dates, reflect revisions received up to 28 August 2015 with the exception of Table A.20, which was revised on 21 September 2015.

Committee on Payments and Market Infrastructures

Guidance on cyber resilience for financial market infrastructures - CPMI-IOSCO consultative paper November 2015

Financial market infrastructures (FMIs) play a critical role in promoting the stability of the financial system. In this context, the level of operational resilience of FMIs, including cyber resilience, can be a decisive factor in the overall resilience of the broader financial system.

This consultative document provides principles-based guidance for FMIs to enhance their cyber resilience, cognisant of the dynamic nature of cyber threats and the importance of interconnected entities for the resilience of individual FMIs. This guidance also recognises some of the unique challenges that cyber risk presents to FMIs' traditional operational risk management frameworks, such as the need for a fast and safe resumption of core services following a cyber-attack. In doing so, it does not aim at introducing new standards but rather at elaborating on the principles which are already established in the Principles for financial market infrastructures (PFMI).

Digital currencies November 2015

Digital currencies, and especially those which have an embedded decentralised transfer mechanism based on the use of a distributed ledger, are an innovation that could have a range of impacts on various aspects of financial markets and the wider economy. These could include potential disruption to business models and systems, as well as facilitating new economic interactions and linkages.

Currently, such schemes are not widely used or accepted, and they face a series of challenges that could limit their future growth. However, some digital currency schemes have demonstrated that their underlying technology could feasibly be used for peer-to-peer transactions in the absence of a trusted third party. Such technology may have potential to improve some aspects of the efficiency of payment services and financial market infrastructures (FMIs) in general. In particular, these improvements might arise in circumstances where intermediation through a central party is not currently cost-effective.

This report considers the possible implications of interest to central banks arising from these innovations.

Correspondent banking - consultative report October 2015

Correspondent banking is an essential component of the global payment system, especially for cross-border transactions. Through correspondent banking relationships, banks can access financial services in different jurisdictions and provide cross-border payment services to their customers, supporting, inter alia, international trade and financial inclusion.

Until recently, banks have maintained a broad network of correspondent relationships, but there are growing indications that this situation might be changing. In particular, some banks providing these services are cutting back the number of relationships they maintain.

The CPMI consultative report provides some basic definitions, outlines the main types of correspondent banking arrangement, summarises recent developments and touches on the underlying drivers. The report reviews certain technical measures relating to: (i) know-your-customer (KYC) utilities; (ii) the increased use of the Legal Entity Identifier (LEI); (iii) information-sharing mechanisms; and (iv) improvements in payment messages. Following a detailed assessment of the advantages and disadvantages of each of these technical measures, the report puts forward four recommendations for consideration by the industry and authorities.

Statistics on payment, clearing and settlement systems in the CPMI countries - Figures for 2014 - preliminary release
September 2015

This is an annual publication that provides data on payments and payment, clearing and settlement systems in the CPMI countries.

This version of the statistical update contains data for 2014 and earlier years. There are detailed tables for each individual country as well as a number of comparative tables.

Please note that this publication contains some provisional data for 2014 while some others are not yet available.

Progress report on the CCP workplan
September 2015

As noted in the FSB's *Ninth Progress Report on Implementation of OTC Derivatives Market Reforms* (July 2015), 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.

Payment aspects of financial inclusion
September 2015

The Committee The Committee on Payments and Market Infrastructures (CPMI) and the World Bank Group have issued the consultative report *Payment aspects of financial inclusion*.

The report provides an analysis of the payment aspects of financial inclusion, on the basis of which it sets out guiding principles designed to assist countries that seek to advance financial inclusion in their markets through payments.

The report is being issued as a consultation document. Comments are invited from any interested parties, and should be sent to the CPMI and the World Bank Group by 7 December 2015; please mention "PAFI" in the subject line of your e-mail. A final version of the report will be published subsequently.

Speeches

External dimension of monetary policy

Remarks by Mr Hyun Song Shin, Economic Adviser and Head of Research of the BIS, at the Board of Governors of the Federal Reserve System conference "Monetary policy implementation and transmission in the post-crisis period", Washington, DC, 13 November 2015.

International spillovers and spillbacks are not a recent phenomenon. They result from past monetary policy actions. Due to the "triple coincidence" accounting convention - whereby the GDP area, decision-making unit and currency area are assumed to be one and the same - policymakers missed massive build-ups in borrowing in the past. While the protagonists have changed (dollar borrowers are emerging market corporates rather than European banks, and the borrowing is done through corporate bonds rather than wholesale bank funding), the same mechanisms are at work today. Even if monetary policy cooperation is limited by domestic central bank mandates, enlightened self-interest should be enough motivation to take account of spillovers and spillbacks.

Revisiting three intellectual pillars of monetary policy received wisdom

Speech by Mr Claudio Borio, Head of the Monetary and Economic Department of the BIS, at the Cato Institute, Washington, DC, 12 November 2015.

The speech questions three deeply held beliefs that underpin current monetary policy received wisdom: it is appropriate to define equilibrium (or natural) rates as those consistent with output at potential and with stable prices (inflation); it is appropriate to think of money

(monetary policy) as neutral, ie as having no impact on real outcomes, over medium- to long-term horizons relevant for policy - 10-20 years or so, if not longer; and it is appropriate to set policy on the presumption that deflations are always very costly. Based on these considerations, the speech draws two conclusions: the well-known trend decline in real interest rates is, at least in part, a disequilibrium phenomenon, not consistent with lasting financial, macroeconomic and monetary stability; and there is a need to adjust current monetary policy frameworks so that monetary policy plays a more active role in preventing systemic financial instability and its huge macroeconomic costs. This calls for taking financial booms and busts more systematically into account.

Economic Forum: Policy Lessons and the Future of Unconventional Monetary Policy

Panel with Mr Claudio Borio, Head of the Monetary and Economic Department of the BIS, at the Sixteenth Jacques Polak Annual Research Conference: "Unconventional Monetary and Exchange Rate Policies", Washington, DC, 5–6 November 2015.

In the closing panel of the IMF's 16th Jacques Polak Annual Research Conference, Claudio Borio discusses unconventional monetary policies in a broader context. In his view, today's persistently low rates are not necessarily equilibrium rates because of their long-term costs. Monetary policy needs to be more symmetrical over financial booms and busts, and unconventional measures are best seen as crisis management tools.

Regulatory stability and the role of supervision and governance

Keynote address by Mr Jaime Caruana, General Manager of the BIS, at the Tenth High-level Meeting on Global Banking Standards and Supervisory Priorities in the Americas, jointly organised by the Association of Supervisors of Banks of the Americas (ASBA), the Basel Committee on Banking Supervision (BCBS) and the Financial Stability Institute (FSI), Montevideo, 28 October 2015.

Supervision has a number of important functions. In addition to the consistent implementation of regulation, supervision can complement regulation in dealing with the financial sector's continuous innovation and adaptation, thereby reducing the need for frequent rule changes and promoting regulatory stability. Moreover, supervision can go beyond the quantitative requirements to address qualitative matters such as corporate governance, influencing banks to change their risk culture for the better. In short, there is a lot that supervisors can and should do to help make banks not only more resilient but also more reliable - and thus more able to perform their intended economic and social function.

Beyond zero rates and unconventional monetary policy

Panel remarks by Mr Jaime Caruana, General Manager of the BIS, at the Sixth Annual Conference organised by the Central Reserve Bank of Peru and the Reinventing Bretton Woods Committee, on "Monetary and financial shifts: challenges and possible outcomes", Lima, Peru, 6 October 2015.

Monetary policy in major currencies can spill over to emerging market economies (EMEs) through various channels. Spillovers from global financial conditions have the effect of constraining EMEs' policy choices, making more likely the build-up of vulnerabilities, which are now appearing to spill back to world growth. This experience strengthens the argument for anticipating such spillovers and factoring them into policy ex ante, in a spirit of "enlightened self-interest", rather than only reacting to the spillbacks ex post. It also underscores the importance of persevering with policies that foster economic and financial resilience.

Challenges for the global economy

Presentation by Mr Claudio Borio, Head of the Monetary and Economic Department of the BIS, at the Belgium Financial Forum, Bruxelles, 14 September 2015.

Drawing on the latest BIS Annual Report, the presentation assesses the challenges the global economy is facing and possible policy responses. The lens used to elaborate the diagnosis and identify possible remedies focuses on financial, medium-term and global factors, whereas the prevailing perspective focuses more on real, short-term and domestic factors. A

key issue is how to interpret the trend decline in interest rates and their persistent unusually low levels: it is argued that this need not be an equilibrium phenomenon, fully consistent with lasting financial, monetary and macroeconomic stability.

Easing has induced easing

Interview with Mr Claudio Borio, Head of the Monetary and Economic Department (MED), in Börsen-Zeitung, conducted by Mr Mark Schrörs and published on 25 August 2015.

Mr Borio, China is on everyone's lips at the moment. There are increasing concerns about a "hard landing" of the economy and a bursting of the credit bubble. How worried are you about the recent developments? Do you see a risk that China could be the starting point of the next global recession or the next global financial crisis?

For quite some time now, a number of countries that escaped the global financial crisis largely unscathed have been exhibiting symptoms that are qualitatively similar to those that prevailed pre-crisis in those countries that would later be hardest hit by it: strong credit expansion and a strong increase in asset prices, especially property prices, on the back of high risk-taking and, for some, of the commodity price boom. These are symptoms of a strong financial boom that typically leads to a bust, with possibly large macroeconomic costs. This is true in particular of a number of emerging market economies (EMEs), including some of the largest, but also, to a lesser extent, of some advanced economies. China is one of these countries. We have to watch this very closely.

So there is a reason to worry globally?

The EMEs' heft in the global economy has increased substantially since the Asian financial crisis. So, should they run into trouble, the impact on the rest of the world would be larger. There are some positive developments suggesting that, in several respects, many EMEs are in a better shape than they were at the time. They have better macroeconomic policies, including greater exchange rate flexibility, they have strengthened their financial infrastructure and financial regulation, notably through macroprudential measures, and they have greatly increased their foreign exchange reserves. But this is no panacea against crises.

Regarding China, some observers argue that the link between the Chinese financial system and the global financial system is weak and that, because of that, there is no risk of a global financial crisis as in 2007-08.

I don't want to speculate about the next big crisis. But I would caution against underestimating the financial linkages. And, of course, China has a major impact on trade and commodity prices. Moreover, it is shared vulnerabilities that matter most.

You have mentioned greater exchange rate flexibility as an indicator of strength. Does that mean you welcome the new exchange rate regime in China? This has initially led to a depreciation of the renminbi - which has induced concerns about an intensified "currency war".

The fact that China is structurally moving towards a more market-oriented exchange rate regime is without doubt a positive development. The more general question is how the depreciation of the renminbi fits into the bigger global picture we have been seeing for some time.

And what is your answer?

In general, exchange rates can redistribute growth - from faster-growing to slower-growing countries. When they do so, this is positive. It is also natural that the exchange rate has come to play a greater role in monetary policy since the financial crisis: in the countries that have been hardest-hit by it, and with interest rates pushed so low, domestic transmission channels have been impaired. But the problem is that, in general, currency appreciations have not been welcome. The consequence is that easing has induced easing.

And in the end there is competitive devaluation and a race to the bottom when it comes to interest rates.

Some people argue that the world economy has been suffering for quite some time from a large deficiency of aggregate demand and hence that this exchange rate-induced generalised easing has been good for the world economy. At the BIS, we have a different view because we are more focused on medium-term financial booms and busts: instead of being a positive sum game, the process can be a negative sum game. The expansionary monetary policy has been transmitted to countries that did not need it, fuelling financial booms there.

The cooling-down of the Chinese economy and the depreciation of the renminbi have also led to concerns that global inflation, which is already very low, will be dampened further. What is your view on that?

Sometimes we seem to believe that we know more about the inflation process than we actually do - we do not fully understand what drives it. Having said this, at the BIS we are of the view that global factors have often been underestimated. We think that there are still significant disinflationary forces coming from technological progress and, above all, the globalisation of the world economy. These secular factors are headwinds that have held inflation down despite very easy monetary policies. But these are welcome supply side forces, which support the economy. On top of that, there are some cyclical factors at the moment.

For example, the oil price, which nosedived in 2014 and which has fallen again recently after it had recovered somewhat earlier this year.

In our judgment, until recently at least, this has largely been a supply side story. As highlighted in our Annual Report, OPEC's decision not to cut oil production despite the price collapse was seen as a regime change. More recently, perceptions of demand weakness seem to have been playing a bigger role.

So renewed deflation concerns are exaggerated?

We have done a lot of work here on deflation episodes in history. One main message is that the link between falling goods and services prices and output growth is very weak. The only evidence comes from the Great Depression. Nor have we found evidence of so-called "debt deflation", meaning a negative spiral between the price level and debt. By contrast, the data indicate that asset price deflations, especially property price falls, are more costly and that what is dangerous is a downward spiral between property prices and debt.

Does that mean that central banks should not overreact - even if inflation rates will go down again in the near future?

When calibrating a response, central banks should always look closely at which factors are influencing prices. Our research simply suggests that, when disinflationary forces reflect positive supply side factors, they are benign. And it also indicates that deflation is no red line in the sense that, if you cross it, you fall into the abyss. More generally, it suggests that there is also a case for paying greater attention to financial booms and busts, and hence to the longer-term consequences of the response.

After years of low inflation rates, some observers are already saying inflation is "dead".

This is by no means true. A number of countries have high inflation rates. To assume inflation is "dead" is the best way to make sure that it will become a big problem again.

For years, the Bank for International Settlements (BIS) has been calling for policymakers to shift away from a short-term focus on macroeconomic variables like production and inflation and to adopt a longer-term perspective, including one that pays more attention to the financial cycle. But the central banks' decisions are still very much dominated by the former. How frustrated are you by that?

We have to distinguish a couple of aspects here. As regards thinking, there has been a shift. It had already started before the financial crisis, but it intensified after it. It is now recognised that financial stability is very important. And many central banks are now of the view that very low interest rates for a very long time can raise financial stability risks. The other issue is how best to respond.

And here there is hardly any visible change.

I think that things have also shifted a little bit. But you are right: many central banks believe that it is exclusively the task of macroprudential regulation and supervision ...

... which focuses on the financial system as a whole ...

... to deal with these risks. We do not share this view: financial booms are too powerful to be constrained through macroprudential measures alone. Their active use, for instance, has not prevented the emergence of signs of financial imbalances in Asia. In comparison with central banks, at the BIS we have the luxury of not having to press the button and of not facing the constraints of national mandates. This allows us to see the picture from a different perspective. And our institutional duty is to say what we think is right.

Some experts say financial stability should become an explicit mandate for central banks.

The first priority should be to use as much as possible the flexibility that the existing monetary policy frameworks provide - even if we are aware of the serious political constraints and communication challenges. A lot depends on how central banks judge the potential trade-offs. Changing the mandate should not be taboo, but should only be done as a last resort.

The BIS is always warning of the risk of overburdening central banks. But is there not also a risk that central banks could become overburdened if they also had to safeguard financial stability?

No, I don't think so. Safeguarding financial stability is a natural central bank task, and it cannot be performed fully successfully by others. Monetary policy has a huge influence on financial markets, and hence on financial stability; it can thus effectively complement macroprudential measures. And this would also bring central banks closer to their origins. What I worry about is something completely different.

That is to say?

It is the growing perception that central banks can be the answer to all our economic problems. The great danger is that more and more people come to believe that everything can simply be solved with money and that central banks can produce infinite amounts of it. This could cause big problems in the future. This is why we insist that people should demand less from central banks and that structural policies should play a much greater role.

At the moment, the Fed is heading for a first interest rate increase after six and a half years of a zero interest rate policy. The IMF has warned against possible turbulences in financial markets. Do you also see a risk that the US interest rate reversal could jolt financial markets?

The Fed will increase the interest rate only when it thinks that the US economy is strong. That strength would help the world economy. In addition, to minimise the shock, the Fed has almost preannounced this step and been very cautious in its communication - not only regarding the "lift-off" but also regarding what it will do thereafter. But in assessing the impact, we should bear in mind that, as noted earlier, there are financial vulnerabilities in the global economy. And in the past, a monetary policy tightening in the US and an appreciation of the dollar have triggered turbulence in EMEs. This has to do, in particular, with the special role of the dollar.

The dollar is the world's dominant currency.

Yes, as such, the US sets the tone for global financial markets. And, more directly, financial conditions there have an impact because many borrowers around the world - in more recent years, especially companies - have heavily borrowed in dollars. For instance, since early 2009, the amount of dollar credit to non-banks in EMEs has almost doubled.

Because interest rates have been so low for so long in the US.

Yes, interest rates have been exceptionally low for an exceptionally long time. This is unprecedented. And it has led to aggressive risk-taking in financial markets. Furthermore, many of those who are active in the financial markets now have no first-hand experience of how to respond to rising interest rates: they were not even around the last time it happened. But having said all this, one thing is also clear: the longer the interest rate reversal is delayed, the riskier the situation will become.

The Fed has announced that it will increase rates very gradually. Between 2004 and 2006, it also tightened very gradually, raising interest rates by 25 basis points per meeting. A lot of people are saying that this contributed to the financial excesses that led to the financial crisis. Do you see the risk that the Fed is repeating a mistake?

There is a tendency to emphasise the risk of acting too early and too strongly at the expense of the risk of acting too late and too gradually. This can be dangerous. Raising interest rates too late and too slowly can fuel financial booms, and the following busts can be highly damaging. It is also very important to keep a steady hand when normalising monetary policy, and not to be deterred by spikes in short-term financial market volatility. This volatility may be inevitable given the initial conditions.

In its recent Annual Report, the BIS calls for more central bank cooperation, even including joint decisions on interest rates and exchange rate interventions. Do we need a new Bretton Woods?

No, that's not the point. But a key drawback of the existing international monetary and financial system is that it tends to heighten the risk of financial imbalances. First of all, we call for an enlightened self-interest. Central banks should take better account of the consequences of their decisions on others, especially because these will have repercussions on their own economy ("spillbacks"). This enlightened self-interest is particularly important for countries with an international currency. They have a special responsibility.

But this is not always sufficient from your point of view?

We should also not exclude the possibility of joint decisions. We have seen this in times of crisis. But it could also make sense for crisis prevention. And then, ideally, once could even go one step further. Policymakers around the world could agree internationally on common rules constraining national policies. This would increase discipline on a national level.

Do you think this is realistic?

At the moment, this is not on the cards. But national frameworks do not sufficiently take into account financial booms and busts. If they did, this would remove a major source of negative international spillovers. This would significantly reduce the need for further cooperation, but not eliminate it. To move in this direction, we need greater agreement on diagnosis.

And in the end, would one also need a global central bank? Some experts have pushed this idea from time to time.

No, this is out of the question. We know how difficult it is to have a central bank covering a number of very different economies. The euro area is an example of this. It is neither feasible nor desirable to have a world central bank.

A lot of observers say the problems in the euro area are the consequence of the fact that it is a monetary union without a fiscal or a political union. Is a political union a precondition for a successful monetary union?

To succeed, the euro area needs a high degree of economic integration and a clear political commitment to the project and to common rules. These rules have to be consistent with the agreed level of solidarity. That does not necessarily mean a political union.

In financial markets, there are concerns about reduced market liquidity, also as a consequence of large-scale asset purchases by central banks. How worried are you?

One point is clear: it is unrealistic to assume that markets will remain liquid even if one-sided order imbalances develop, as a result of, say, a fundamental rethink on the part of market participants of where prices should be. No one wants to stand in the way of an oncoming train. What worries us more is the "illusion of liquidity" in good times, meaning that investors may come to believe that there will always be enough liquidity for them to get out in time. This, in turns, fuels risk-taking and increases the likelihood of market stress. Even then, what is crucial in the end is whether problems in the financial markets stay in financial markets or spill over to the real economy, causing lasting damage. There is a risk of overreacting to spikes in financial market volatility.

And what about the role of central banks?

If central banks engage in large-scale asset purchases, it is quite possible that they may reduce liquidity in some market segments. They are aware of this risk, and they are trying to minimise it. But what matters more for me is the risk that market participants may increasingly come to perceive central banks as "buyers of last resort", as it were. This can increase risk-taking and thereby contribute to the illusion of liquidity.

Isn't it already a fact that market participants perceive central banks as "buyers of last resort"?

The idea of a "central bank put" has often been raised - meaning that central banks will always come to the rescue if markets come under stress. Central banks have clearly said that this is not the case: they would tailor the response, if at all needed, to circumstances. But this does not yet seem to have been fully recognised by everybody.

There is also much discussion about the increasing importance of asset managers for financial markets. How big is the risk stemming from this development?

We have to watch closely how the structural shift from banks to capital markets in general, and the boom of the asset management industry in particular, change market dynamics. The much greater heft of the asset management industry could lead to sharper market movements. The high size concentration of the industry may play a role, but what matters more is common behaviour across funds, when they tend to move in the same direction. This herd behaviour could have big implications.

Allow me to ask a "heretical" question at the end: You have said that we do not know as much about inflation as we had thought - and this is also prominent in the BIS Annual Report. But at the same time, we are only in the early stages of developing an understanding of the financial cycle. Does that mean that central banks at present hardly know what they are doing?

No, I would not put it this way. Like everyone else, central banks are doing their best to understand what is going on and work out how best to respond to it. But at the moment, this is not that easy. Therefore, it makes sense to adjust decision-making processes to take full account of this uncertainty. The worst mistakes in history have been made when people assumed they knew much more than they actually did - that they had finally found the right answers. There is a need for modesty and humility.

On the centrality of the current account in international economics

Keynote speech by Mr Claudio Borio, Head of Monetary and Economic Department of the BIS, at the ECB-Central Bank of Turkey conference "Balanced and sustainable growth – operationalising the G20 framework", Frankfurt, 28 August 2015.

The current account occupies a central position in international economics and policy debates. Indeed, in G20 policy debates the term "global imbalances" is treated as almost synonymous with "current account imbalances". Current account imbalances do matter and they can be a problem. But this speech argues that this centrality is not that helpful in understanding how the global economy works, especially in a world of free and huge capital flows. And it may even lead to the wrong policy prescriptions, including not paying sufficient attention to potentially more disruptive financial imbalances. A key reason is that, analytically, the current account is asked to shed light on issues for which it is ill-suited, such as the amount of financing a country gets from, or provides to, others, the direction of that financing (who lends to whom) and financial instability.