

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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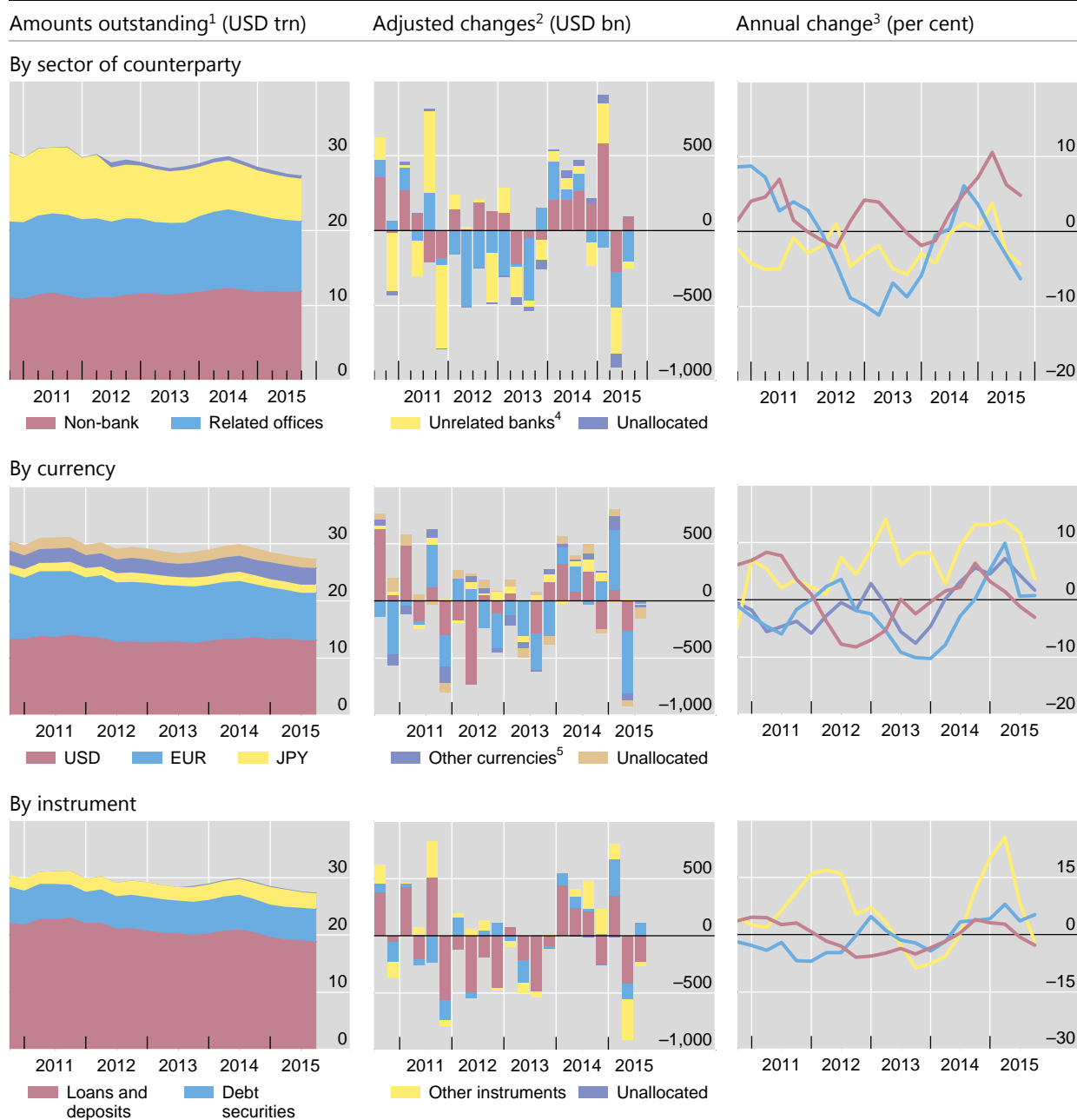
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A Locational banking statistics

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

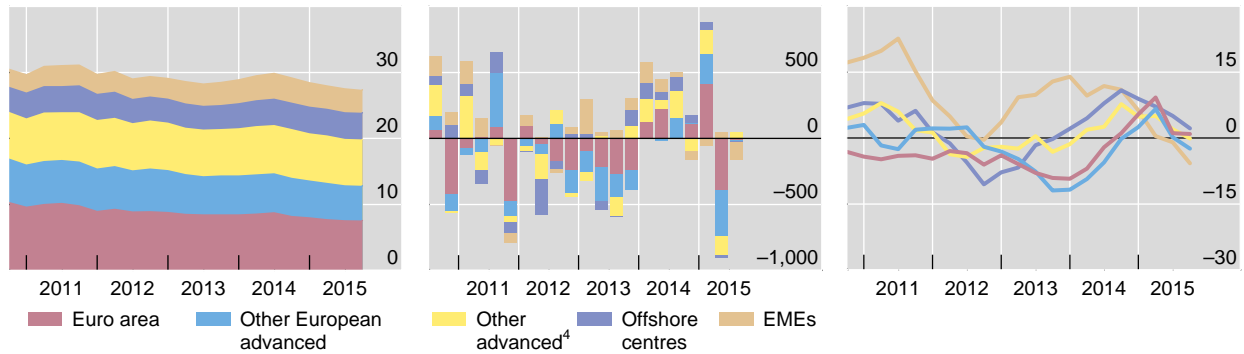
Graph A.2

Amounts outstanding¹ (USD trn)

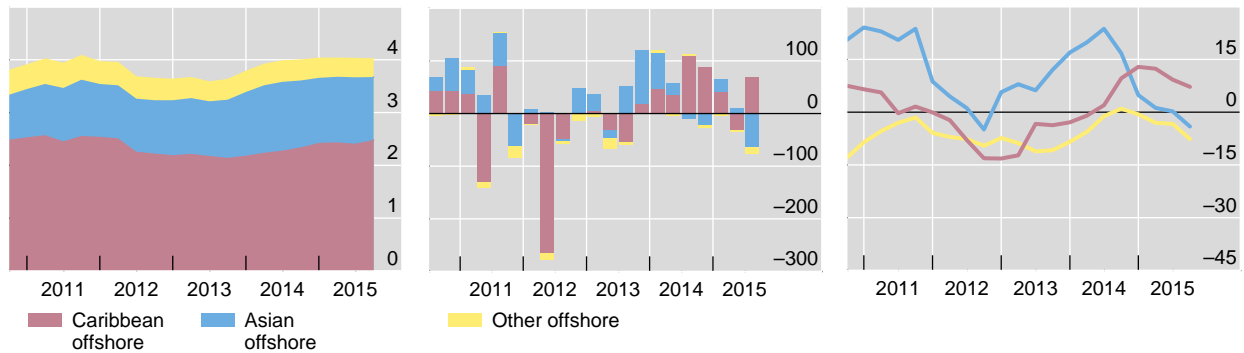
Adjusted changes² (USD bn)

Annual change³ (per cent)

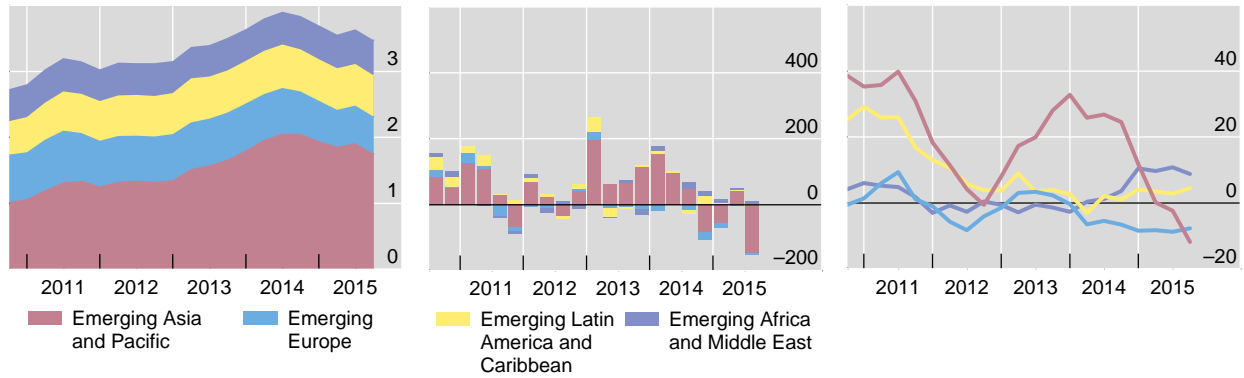
On all countries



On offshore centres



On emerging market economies

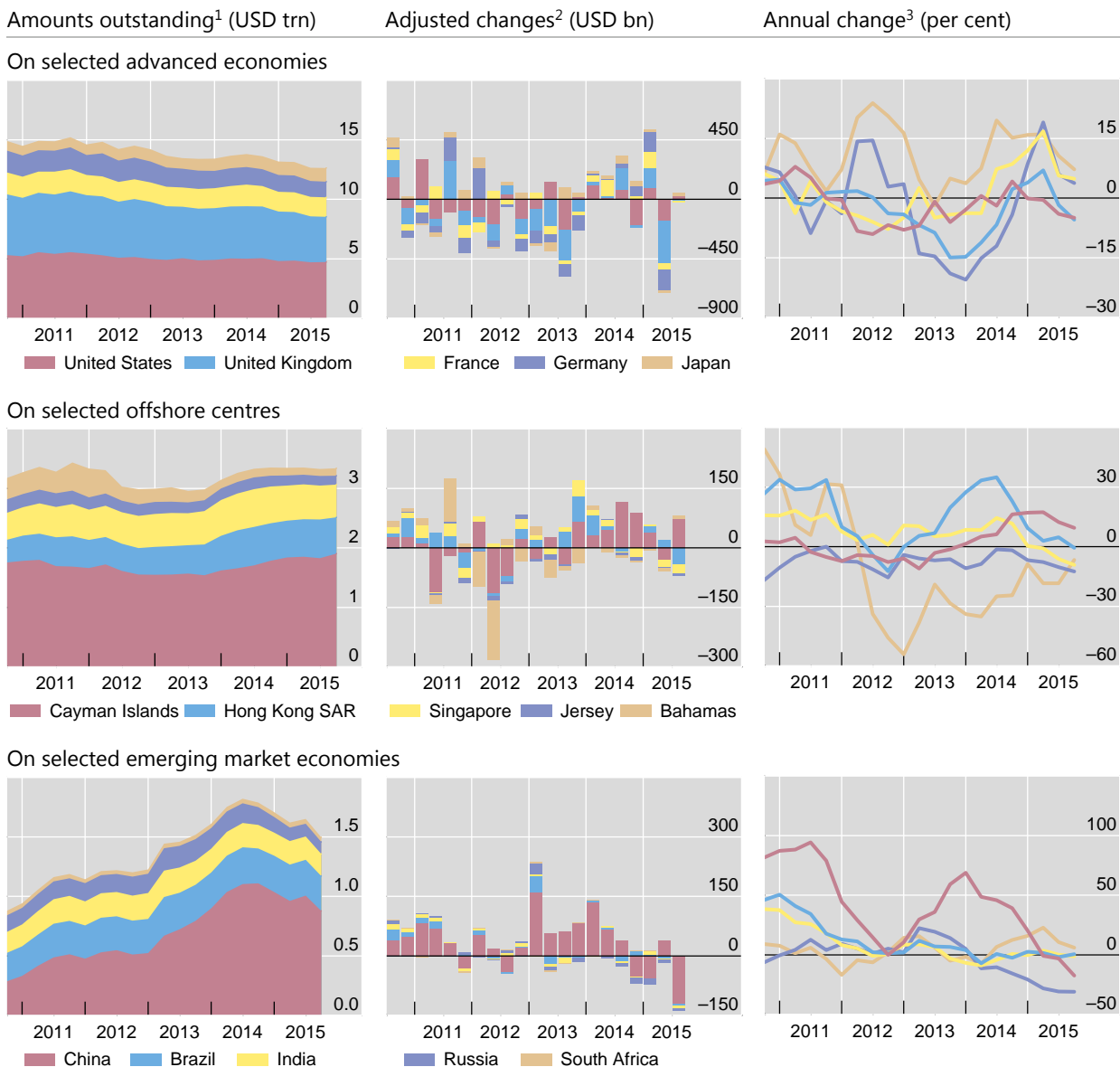


Further information on the BIS locational banking statistics is available at www.bis.org/statistics/bankstats.htm.

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

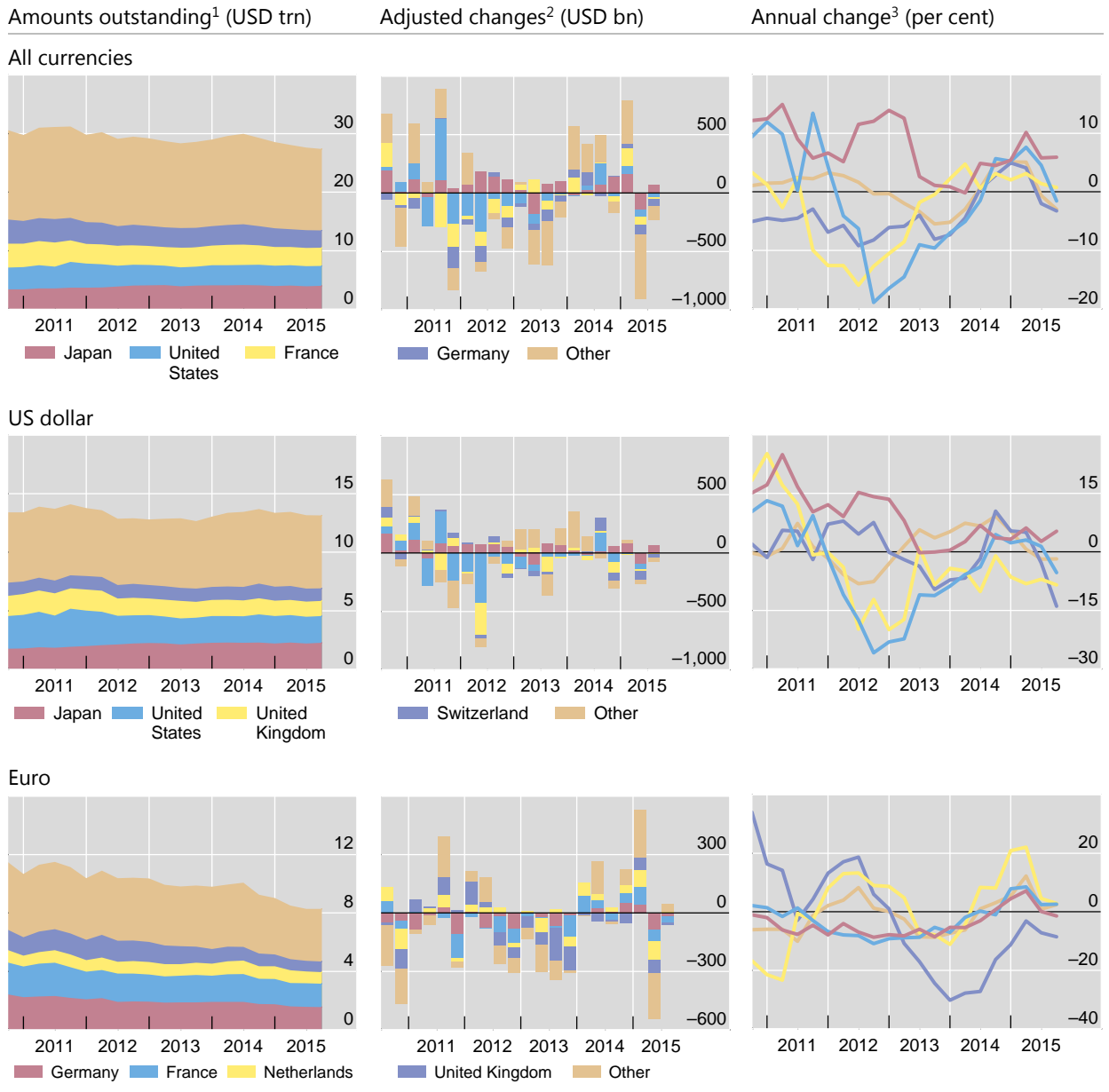
Graph A.3



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

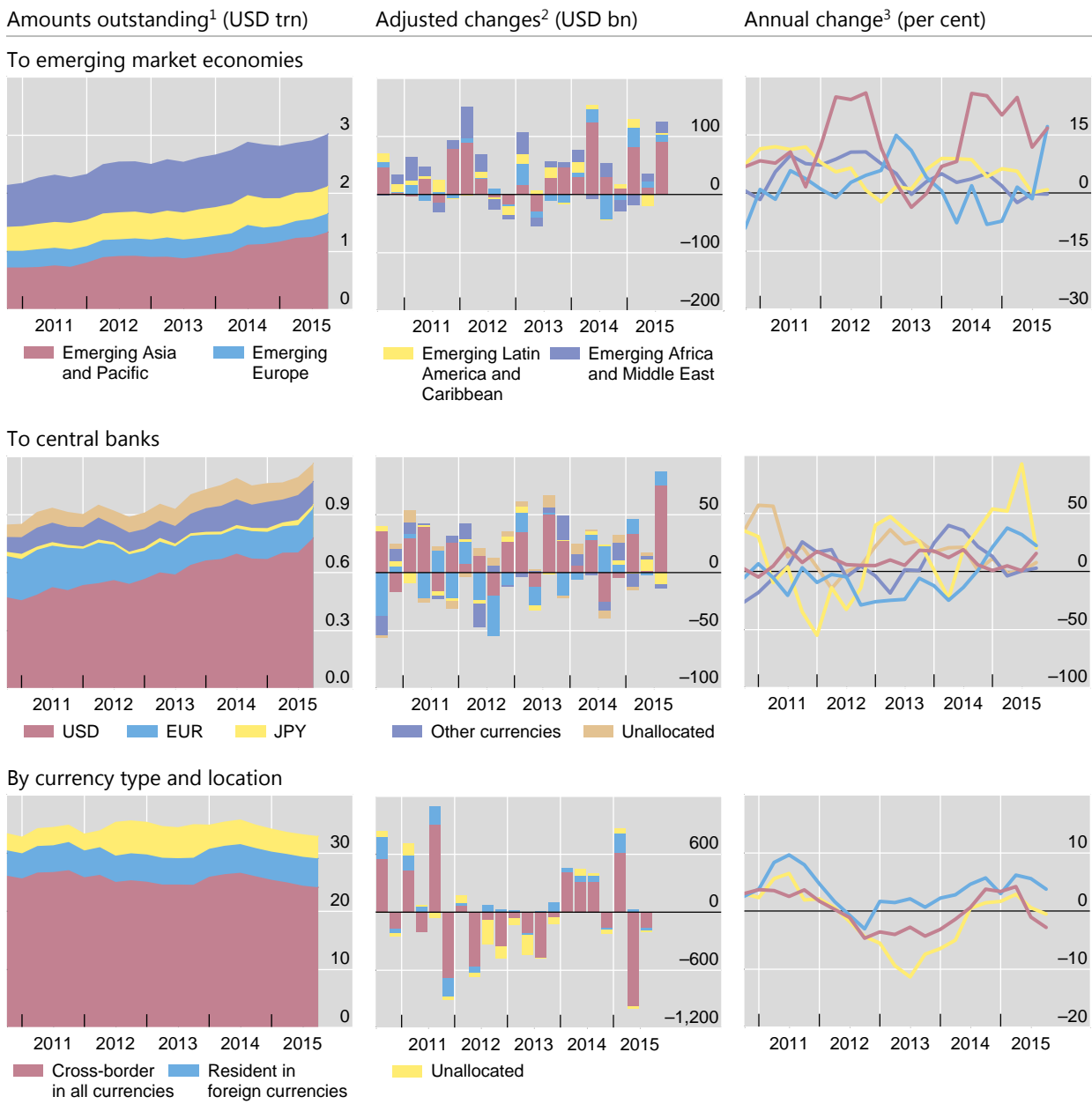


Further information on the BIS locational banking statistics is available at www.bis.org/statistics/bankstats.htm.

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

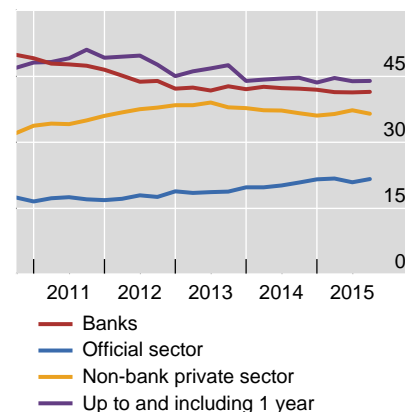
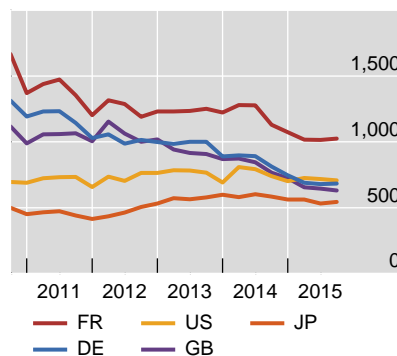
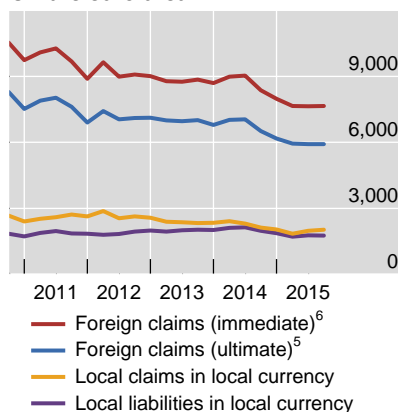
Graph B.1

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

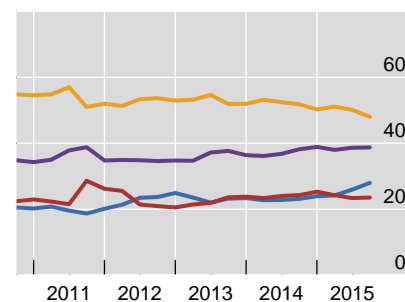
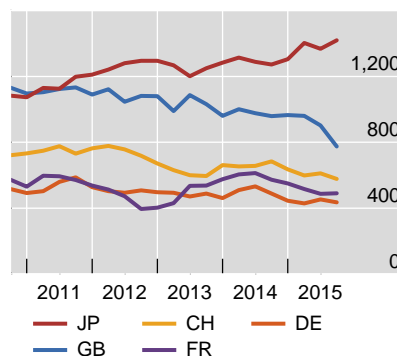
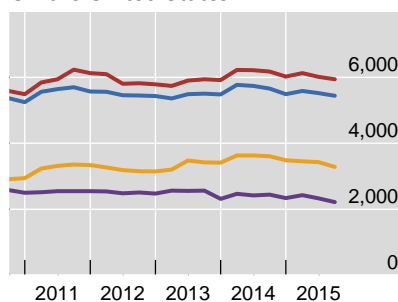
Foreign claims of selected
creditors^{1,3} (USD bn)

International claims, by sector and
maturity⁴ (per cent)

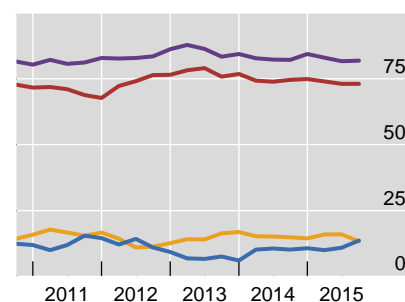
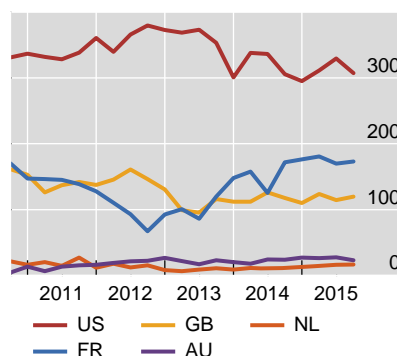
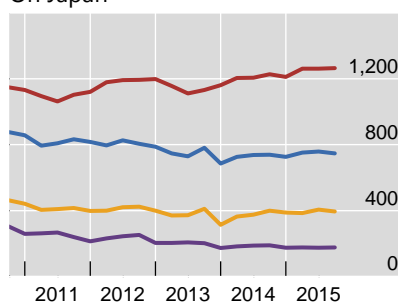
On the euro area



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

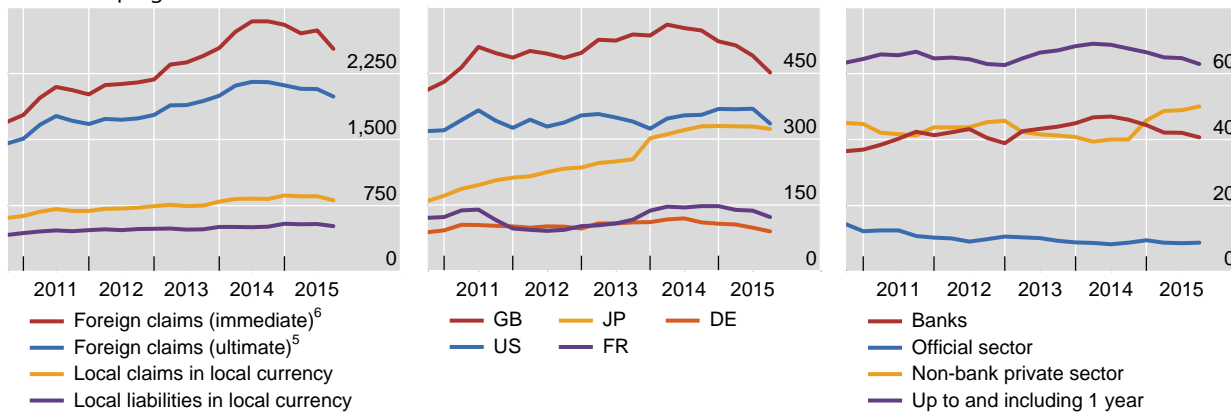
Graph B.2

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

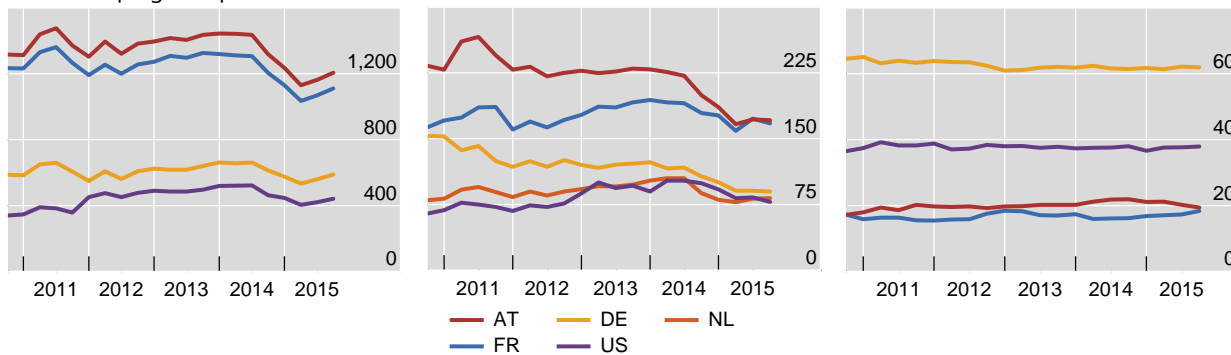
Foreign claims of selected
creditors^{1, 3} (USD bn)

International claims, by sector and
maturity⁴ (per cent)

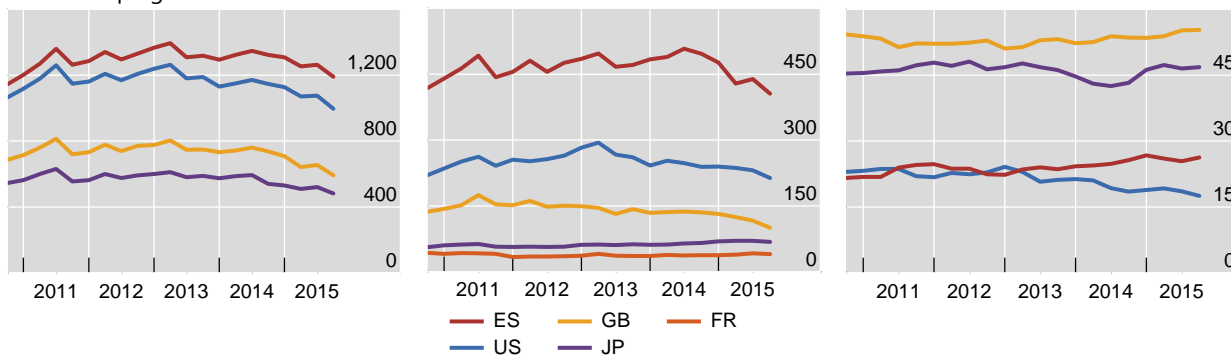
On developing Asia and the Pacific



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.

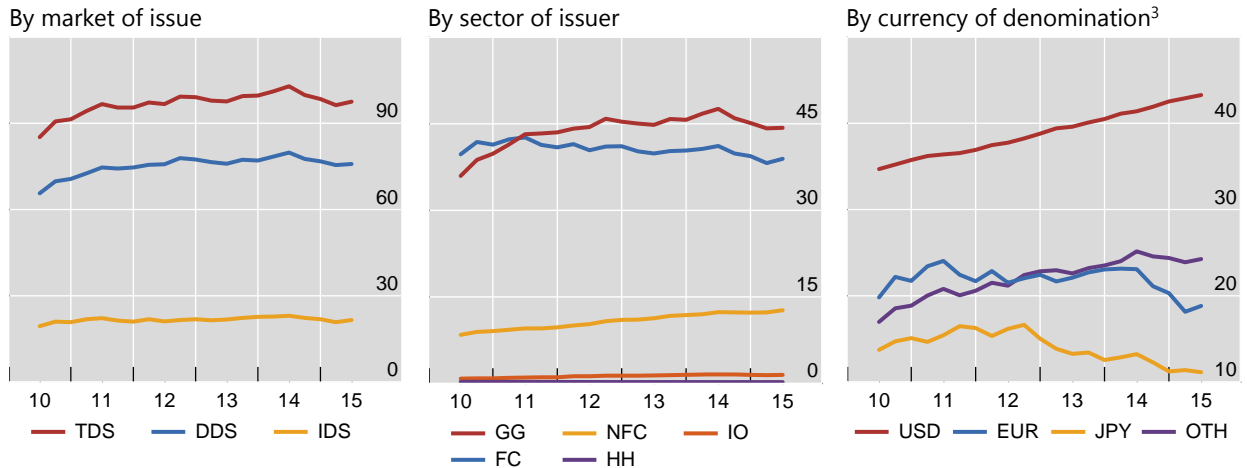
¹ Amounts outstanding at quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ² Excludes domestic claims, ie claims on residents of a bank's home country. ³ Foreign claims on an ultimate risk basis, 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.

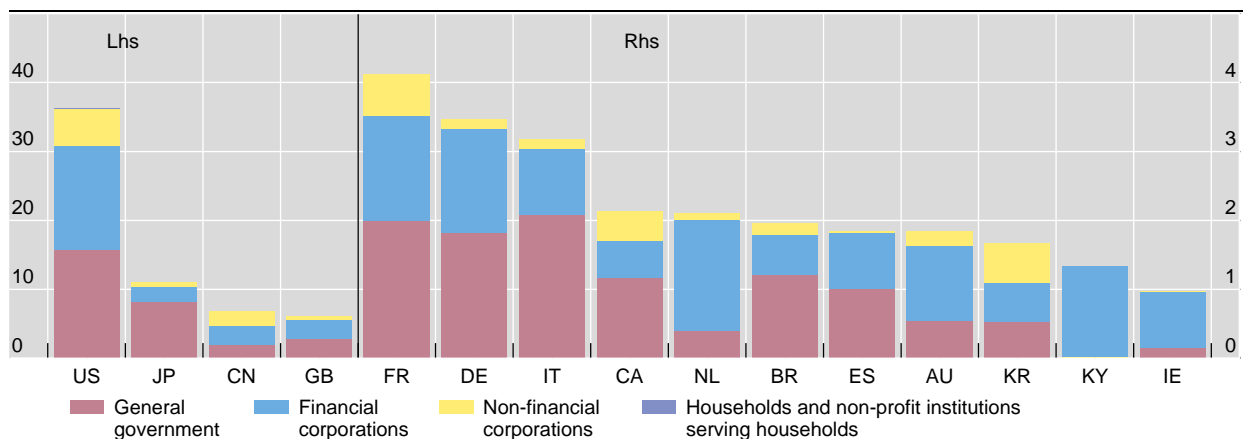
¹ Sample of countries varies across breakdowns shown. For countries that do not report TDS, data are estimated by the BIS as DDS plus IDS. For countries that do not report either TDS or DDS, data are estimated by the BIS as IDS. ² At quarter-end. Amounts denominated in currencies other than the US dollar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

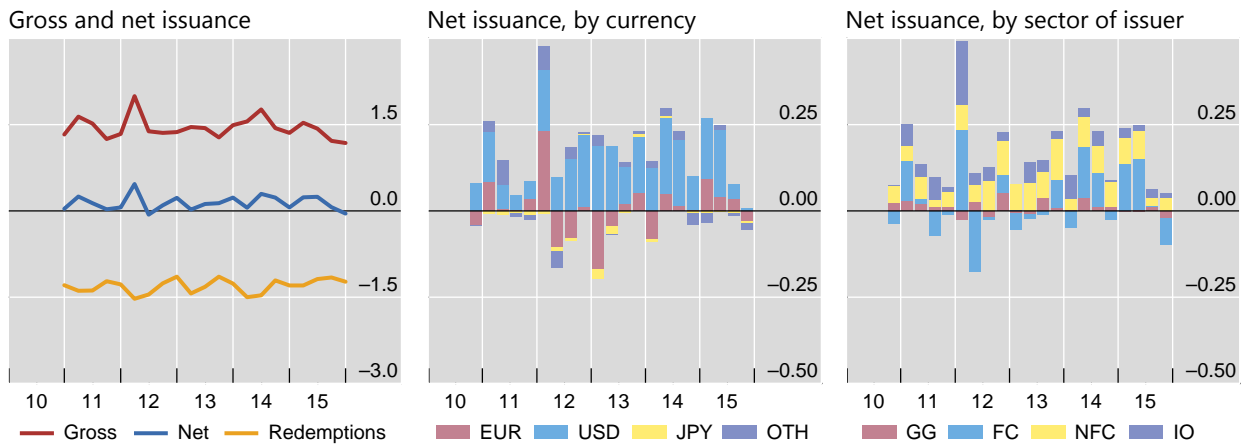
¹ For countries that do not report TDS, data are estimated by the BIS as DDS plus IDS. ² Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

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.

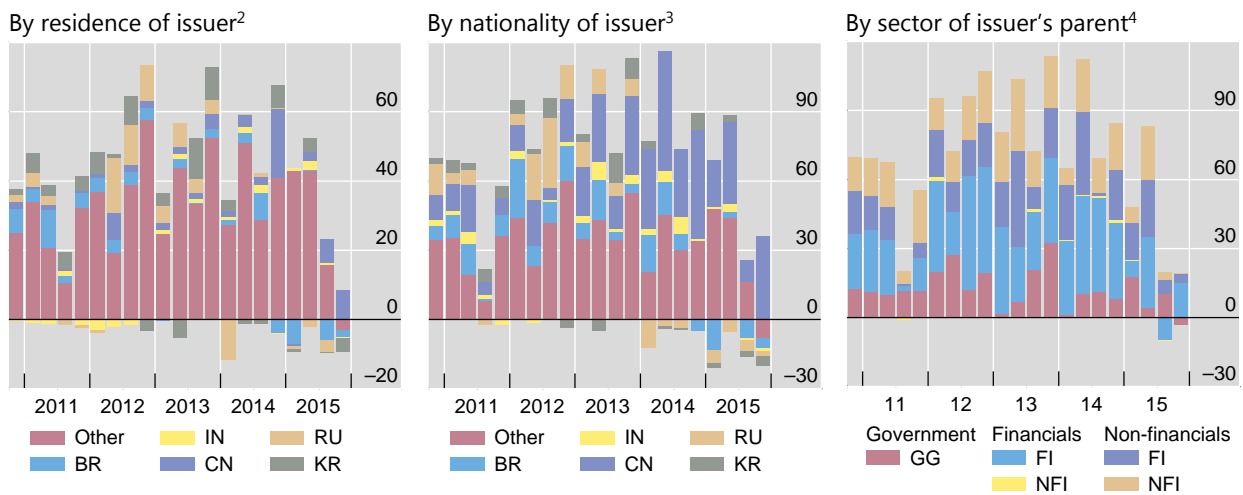
EUR = euro; USD = US dollar; JPY = yen; OTH = other currencies; GG = general government; FC = financial corporations; NFC = non-financial corporations; IO = international organisations.

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

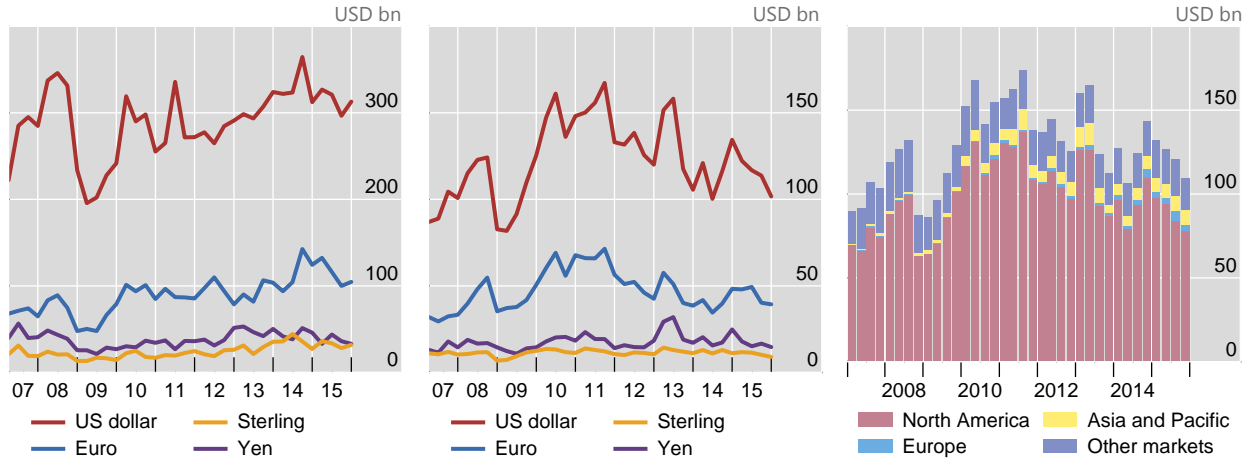
Graph D.1

Open interest, by currency¹

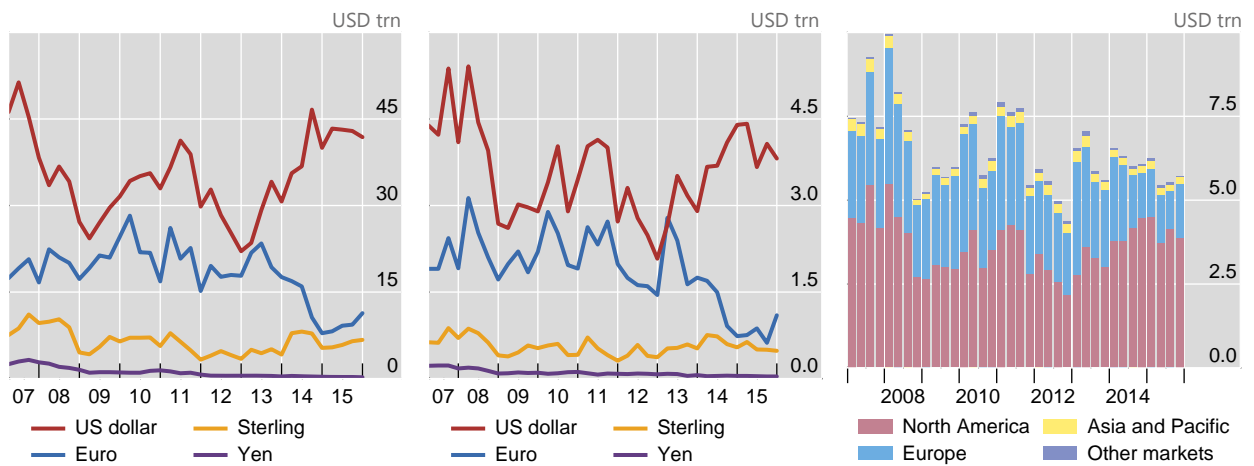
Daily average turnover, by currency²

Daily average turnover, by location of exchange²

Foreign exchange derivatives³



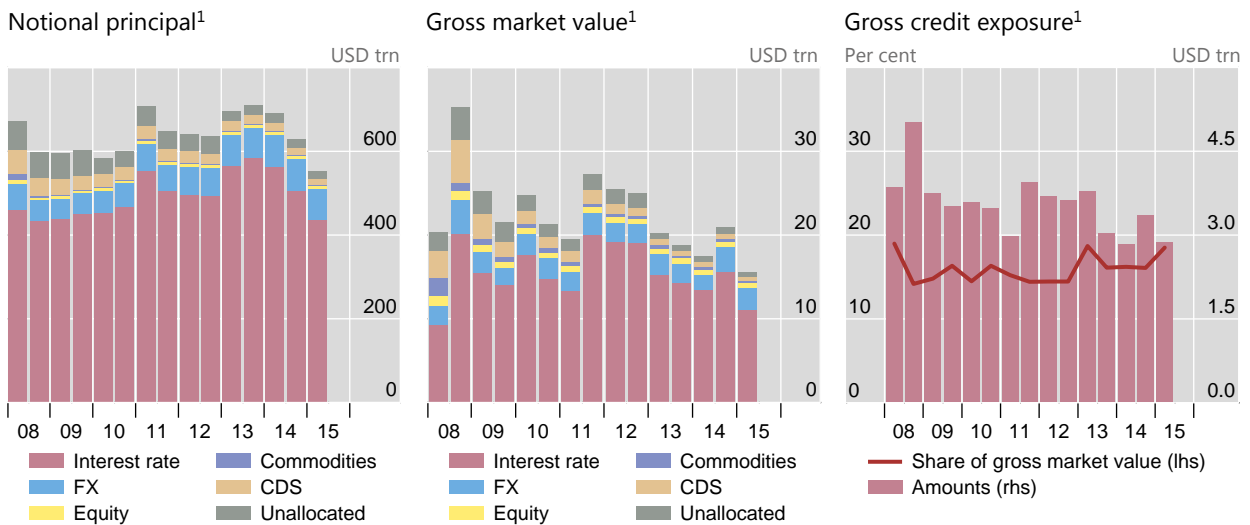
Interest rate derivatives³



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; The Options Clearing Corporation; BIS derivatives statistics.

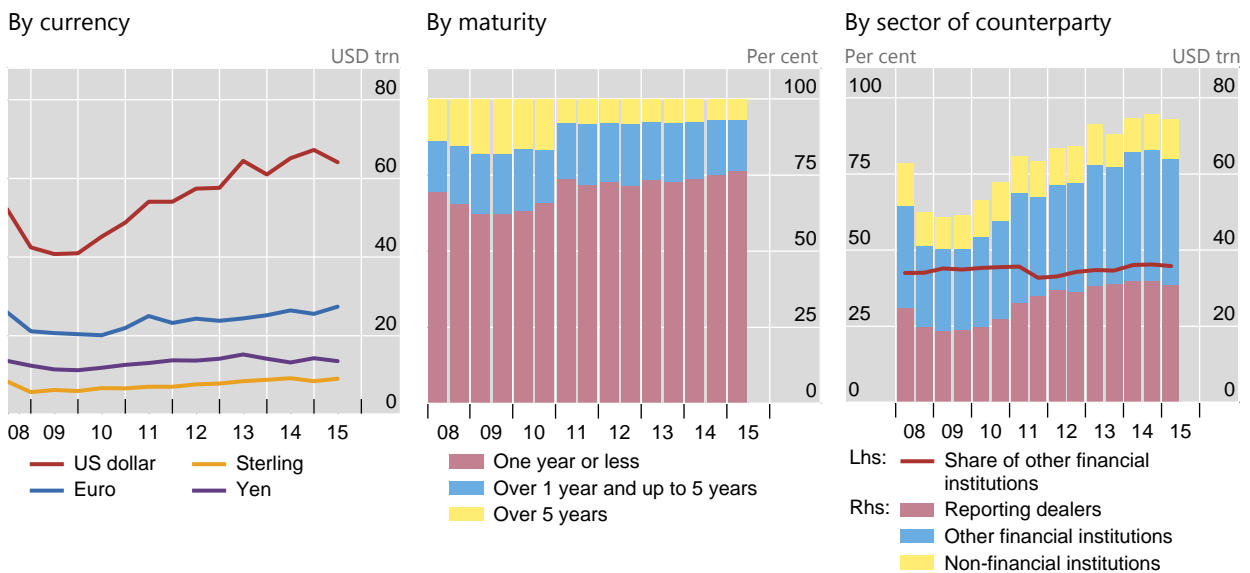


Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

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



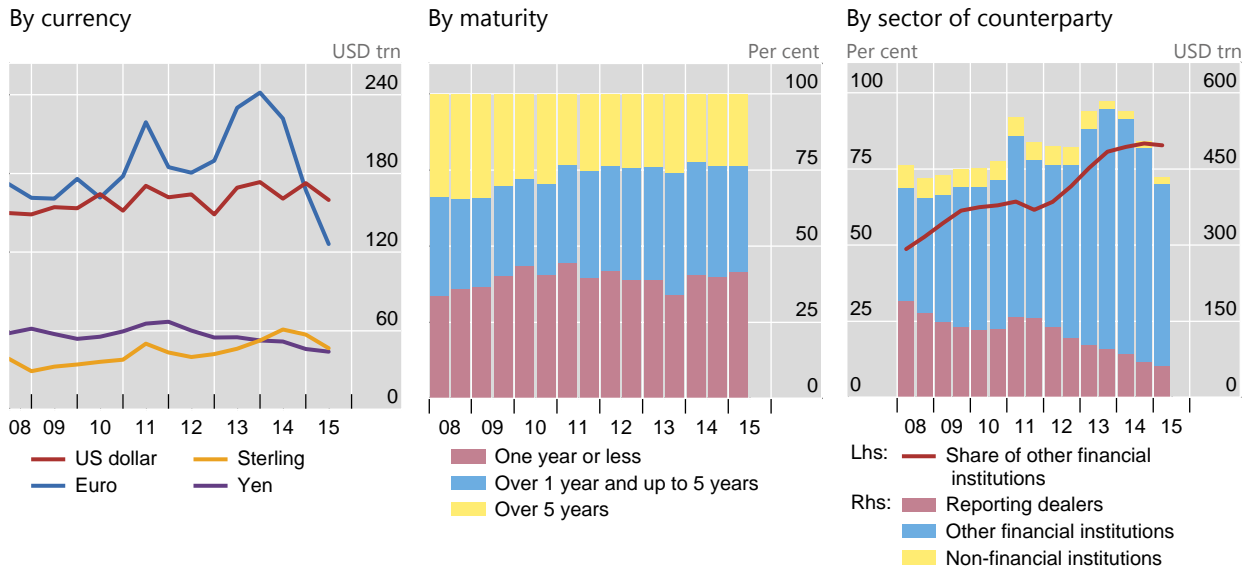
Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

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



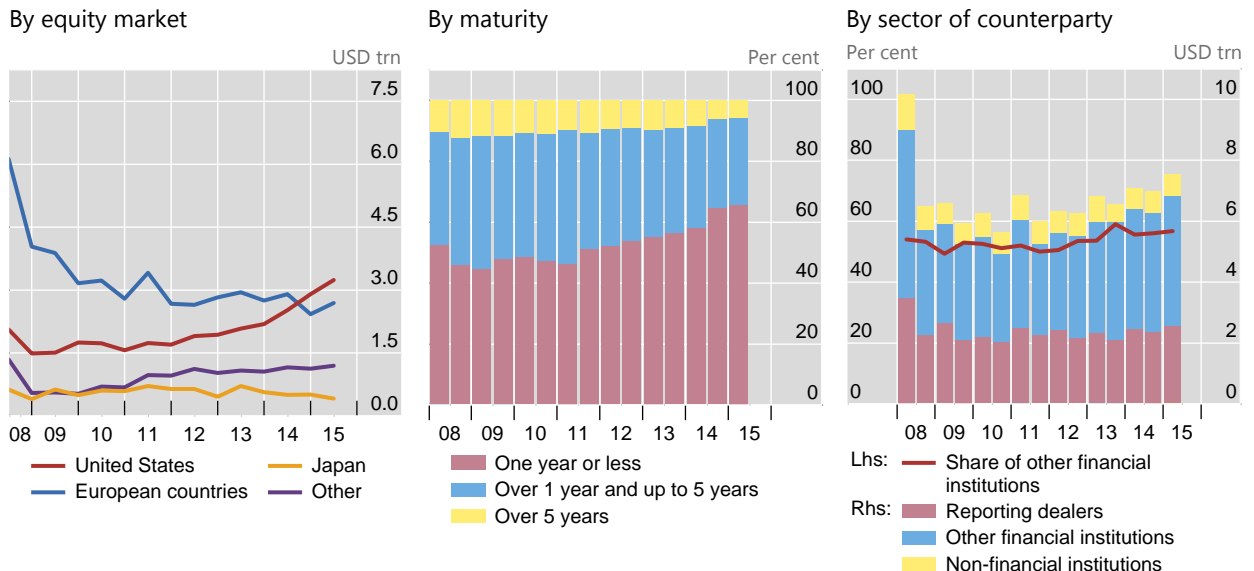
Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

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

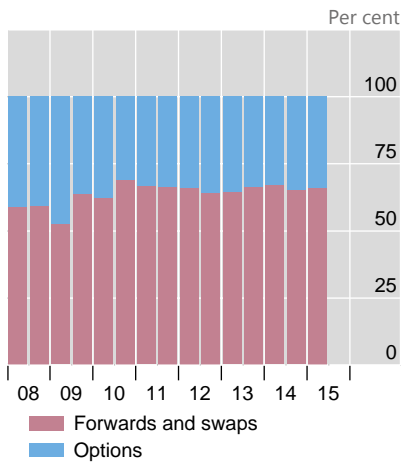
Graph D.5



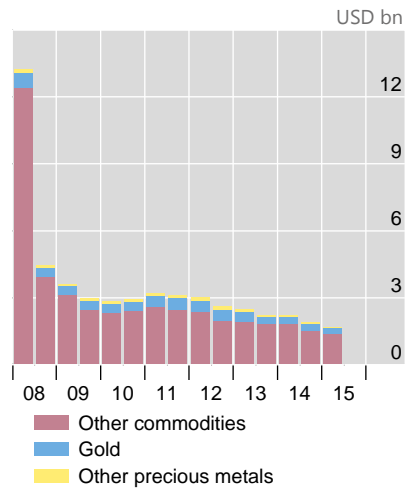
Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

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.

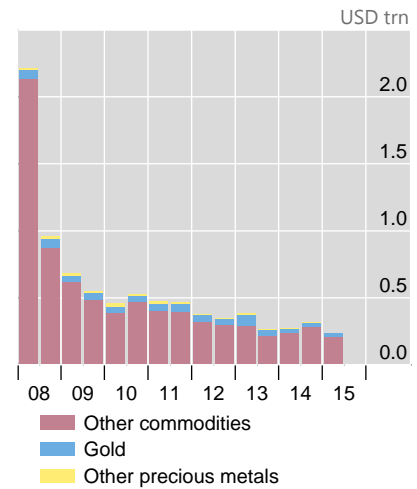
Notional principal, by instrument¹



Notional principal, by commodity¹



Gross market value, by commodity¹

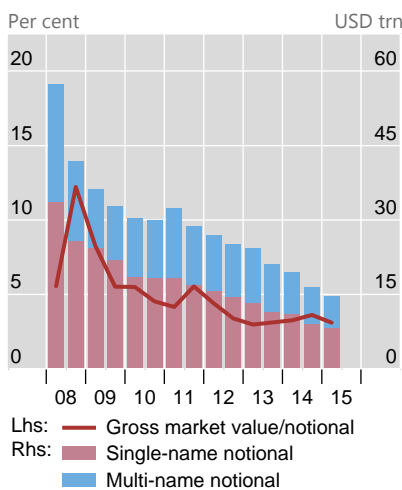


Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

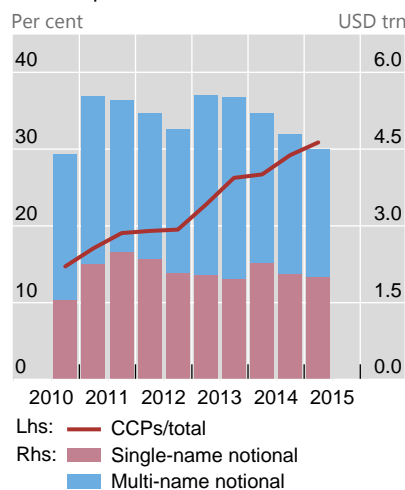
¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Credit default swaps¹

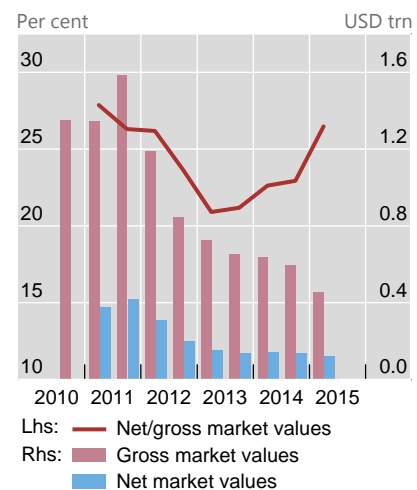
Notional principal



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.

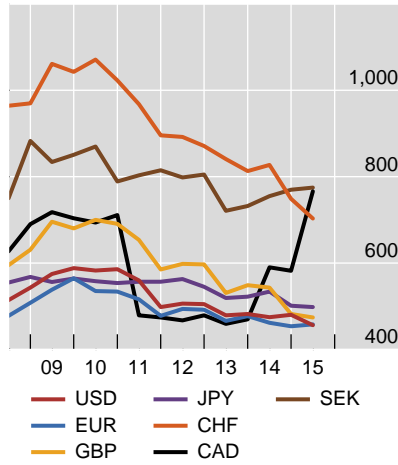
¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Concentration in global OTC derivatives markets

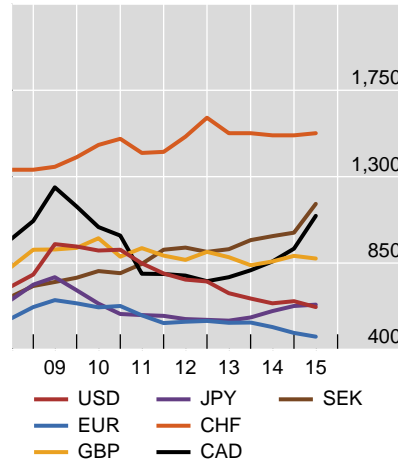
Herfindahl index¹

Graph D.8

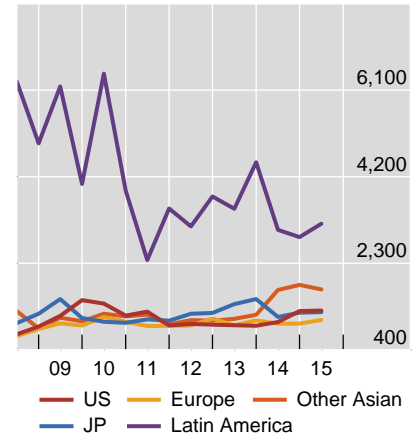
Foreign exchange derivatives²



Interest rate swaps



Equity-linked options



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

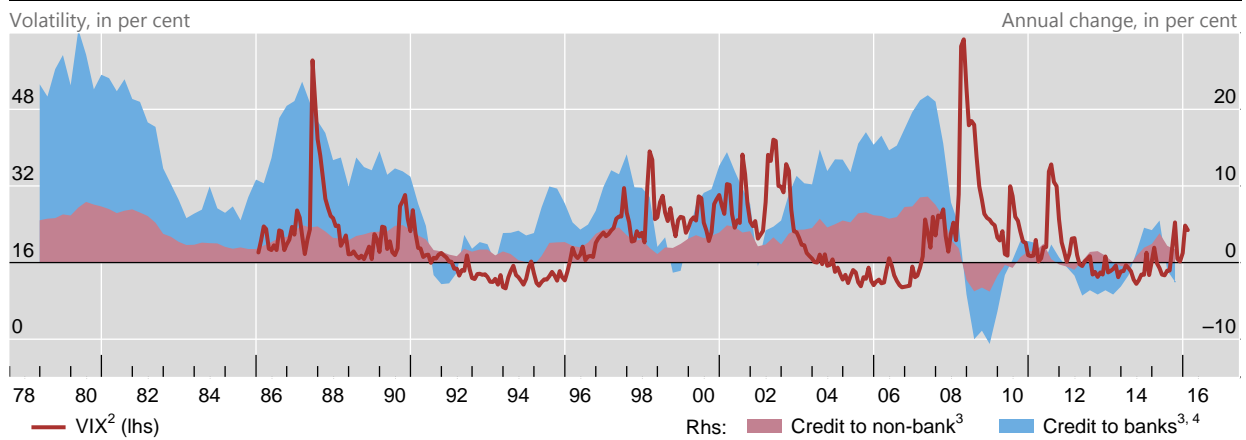
CAD = Canadian dollar; CHF = Swiss franc; EUR = euro; GBP = pound sterling; JPY = Japanese yen; SEK = Swedish krona; USD = US dollar. JP = Japan; US = United States.

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.

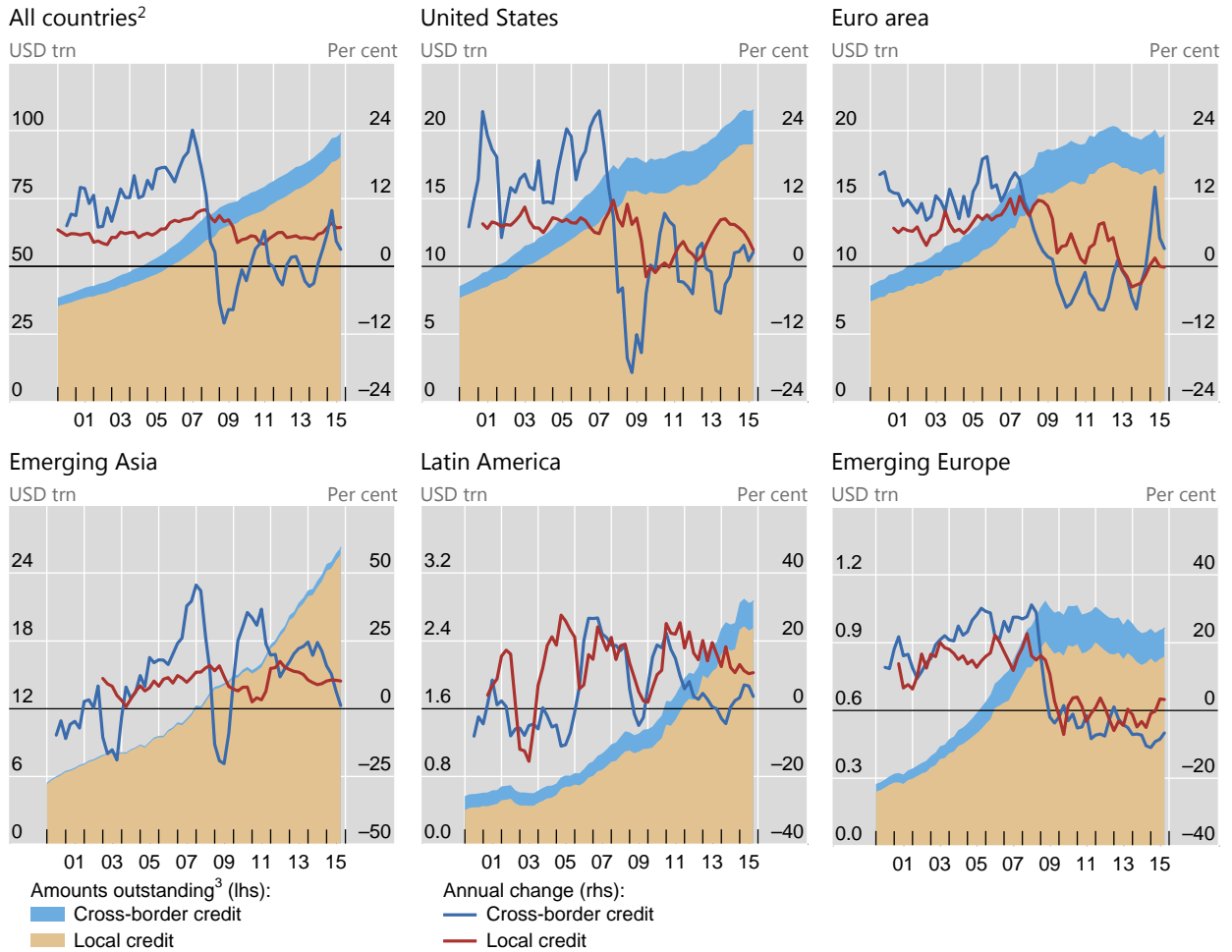
¹ LBS reporting banks' cross-border claims plus local claims in foreign currencies. ² VIX refers to the Chicago Board Options Exchange Market Volatility Index. It measures the implied volatility of S&P 500 index options. ³ Contribution to the annual percentage change in credit to all sectors. ⁴ Including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

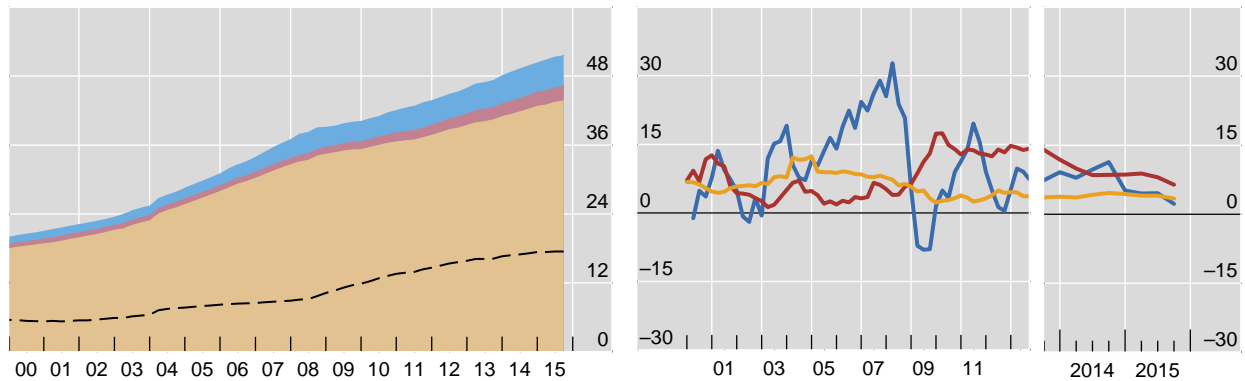
¹ Cross-border claims of LBS reporting banks plus local claims of all banks. Local claims are from national financial accounts and include credit extended by the central bank to the government. ² Sample of 52 countries. ³ Amounts outstanding at quarter-end. Amounts denominated in currencies other than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

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

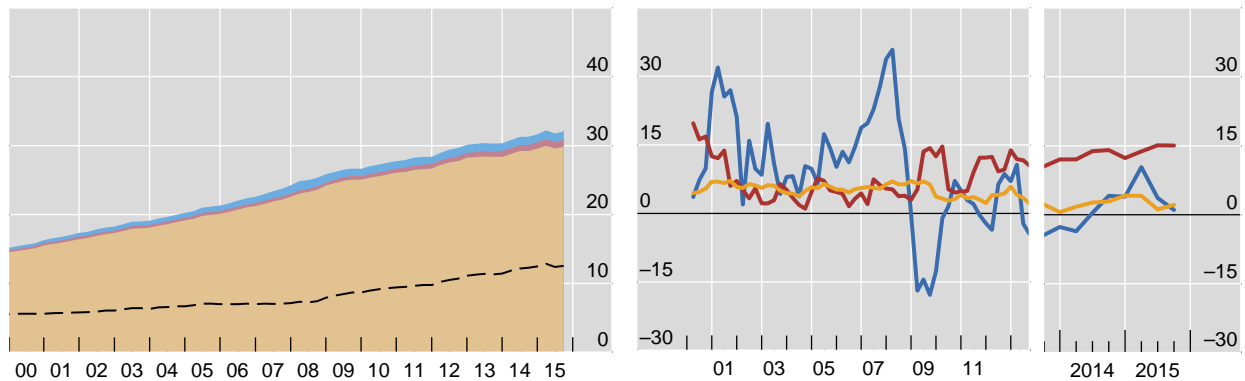
Amounts outstanding¹ (USD trn)

Annual change (per cent)

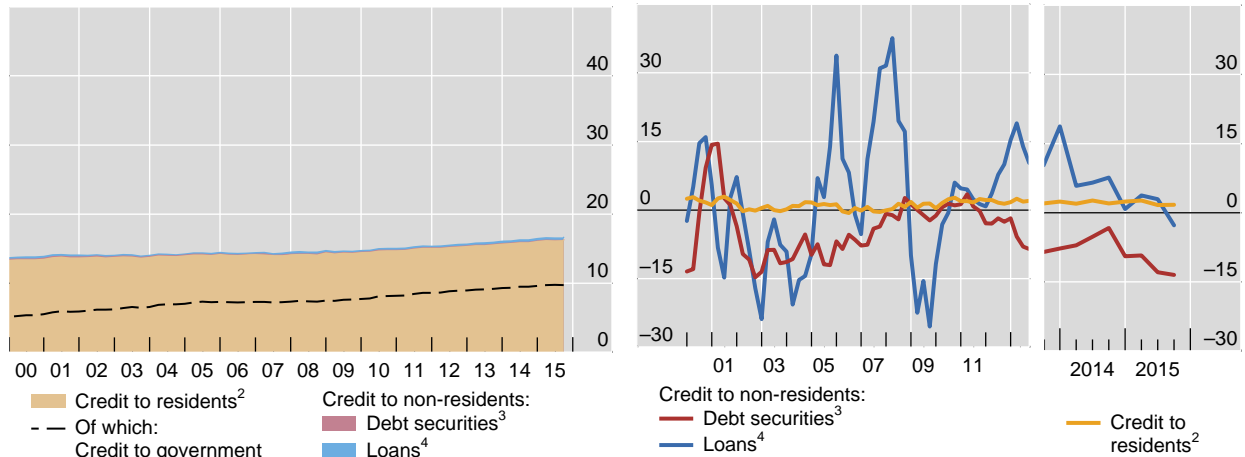
Credit denominated in US dollars (USD)



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-September 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.

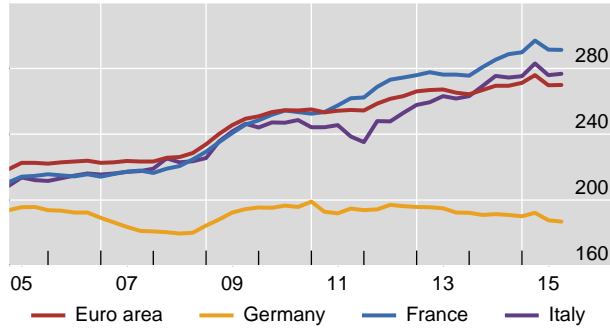
F Statistics on total credit to the non-financial sector

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

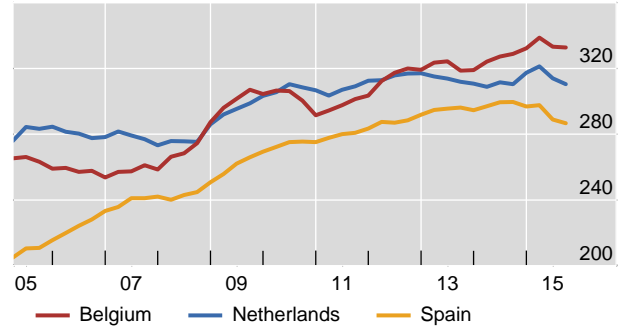
As a percentage of GDP

Graph F.1

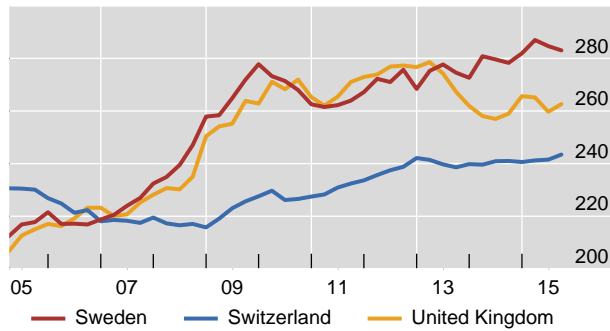
Euro area: aggregate and major countries



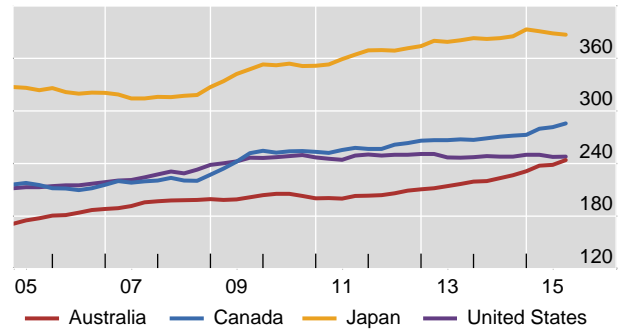
Euro area: other countries



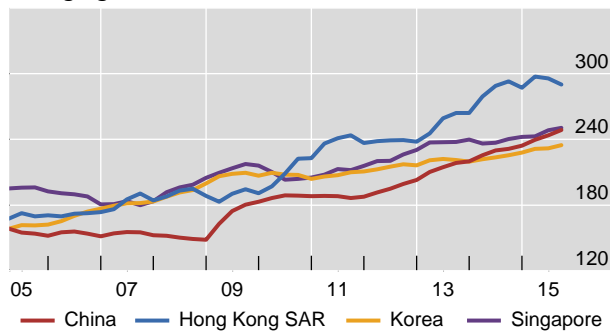
Other European countries



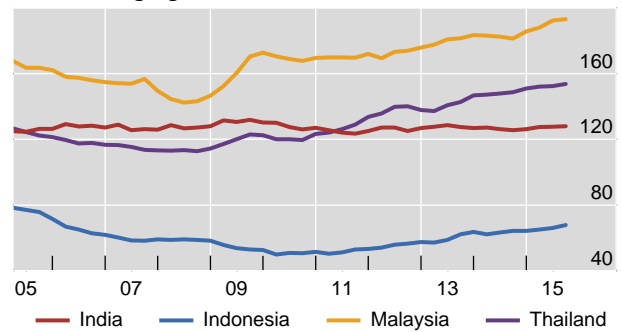
Major advanced economies



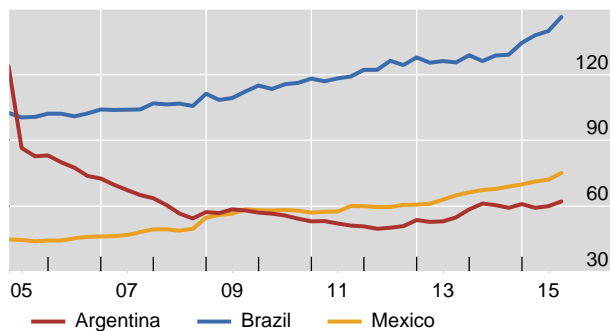
Emerging Asia



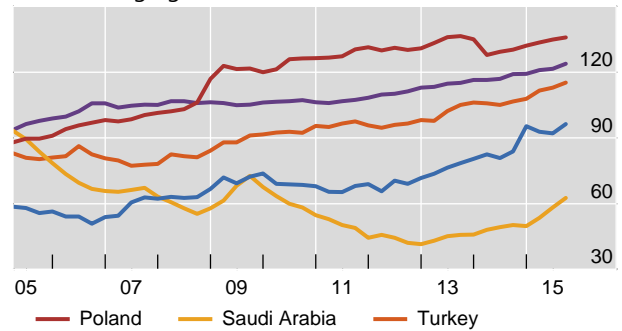
Other emerging Asia



Latin America



Other emerging market economies



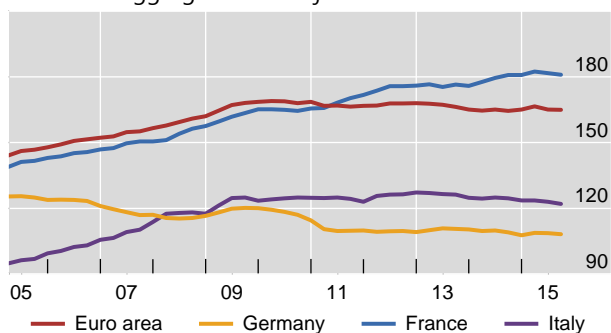
Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

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

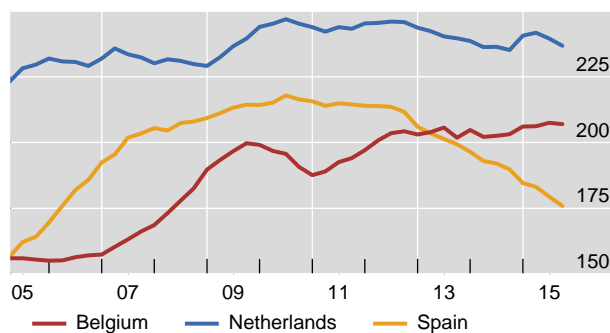
As a percentage of GDP

Graph F.2

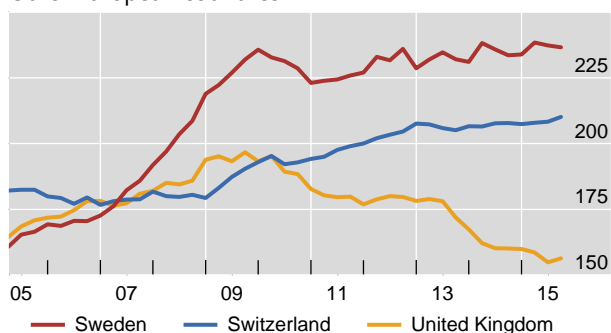
Euro area: aggregate and major countries



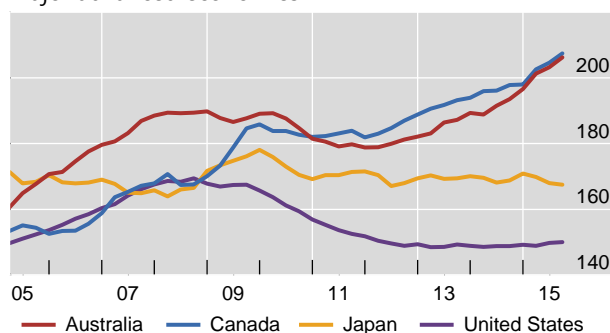
Euro area: other countries



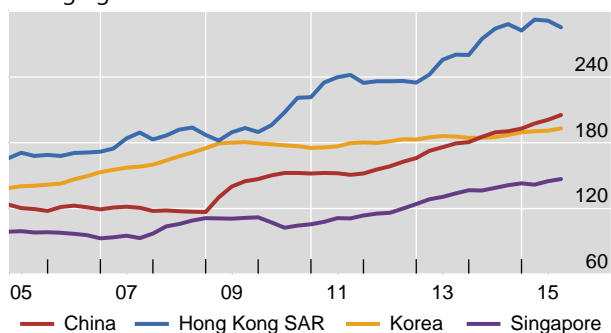
Other European countries



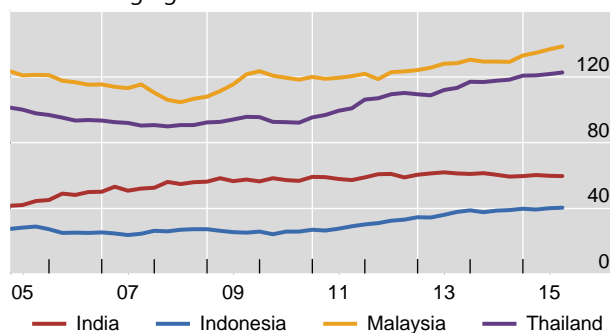
Major advanced economies



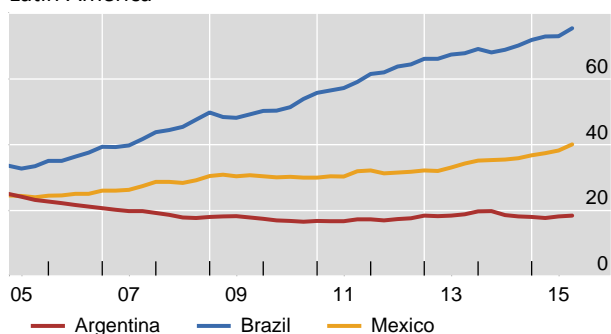
Emerging Asia



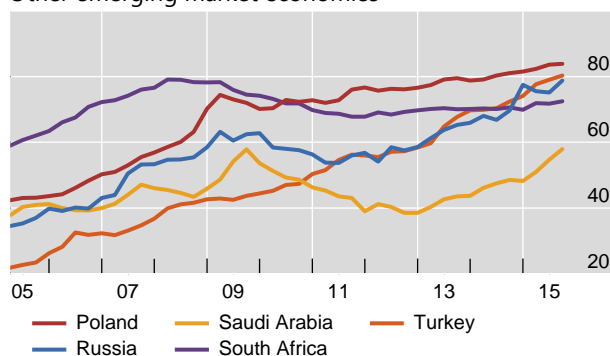
Other emerging Asia



Latin America



Other emerging market economies



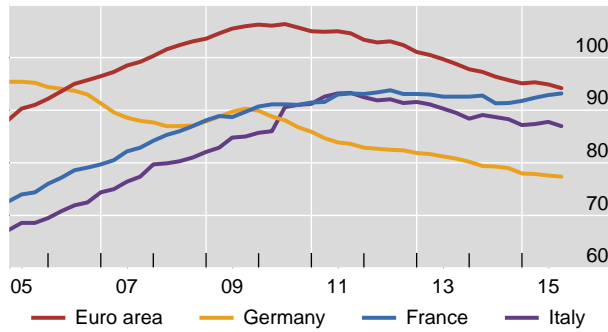
Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

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

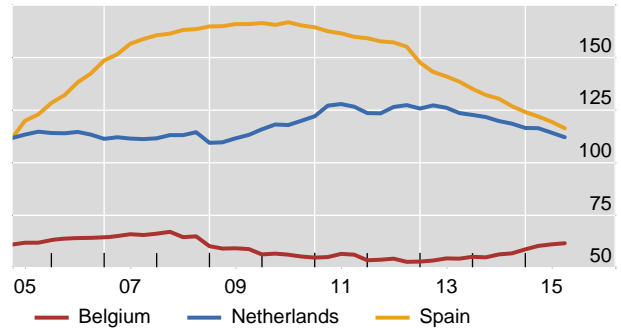
As a percentage of GDP

Graph F.3

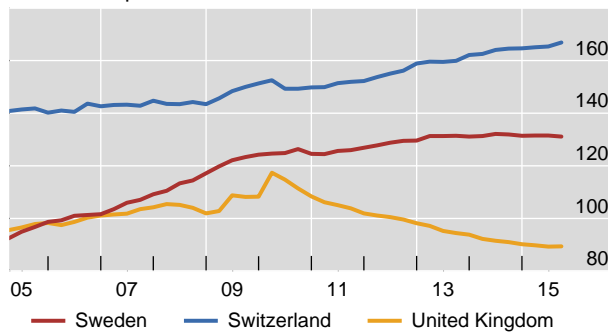
Euro area: aggregate and major countries



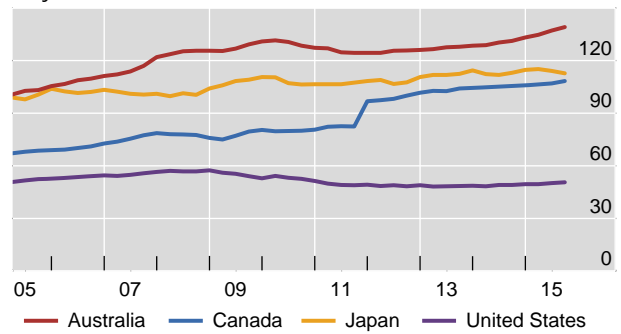
Euro area: other countries



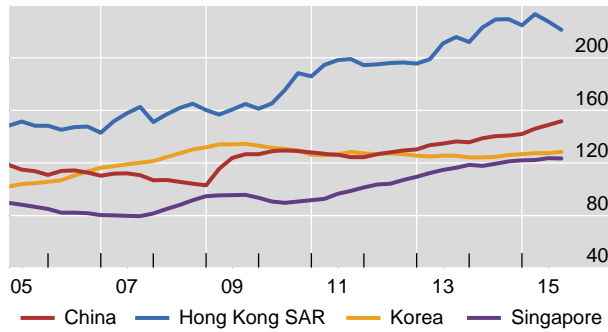
Other European countries



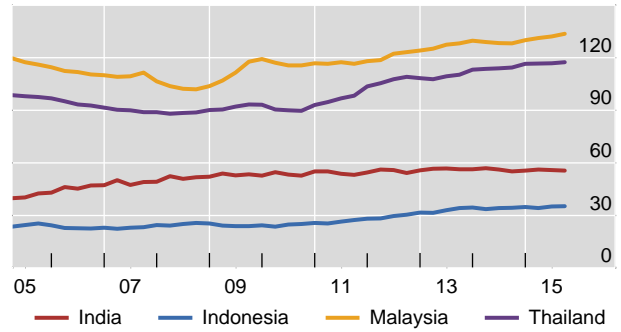
Major advanced economies



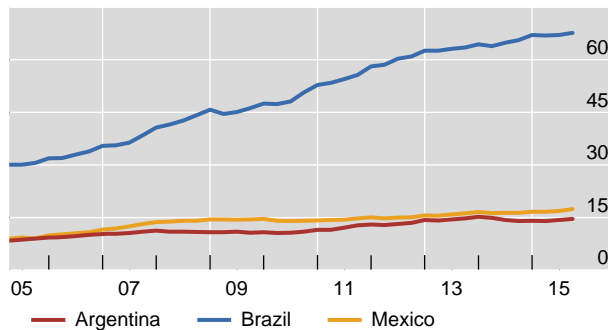
Emerging Asia



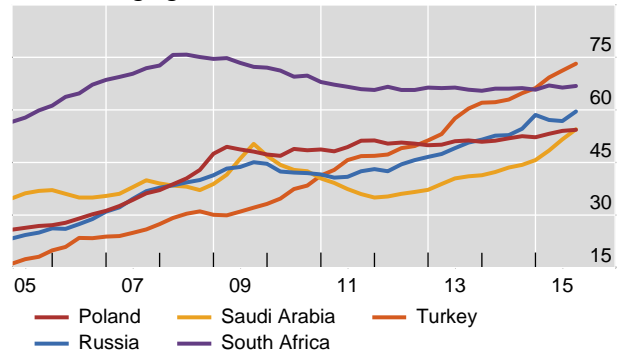
Other emerging Asia



Latin America



Other emerging market economies



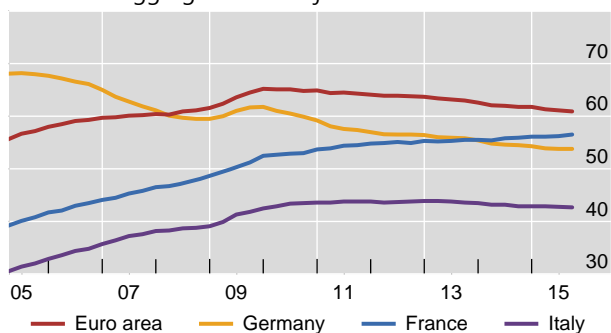
Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

Total credit to households (core debt)

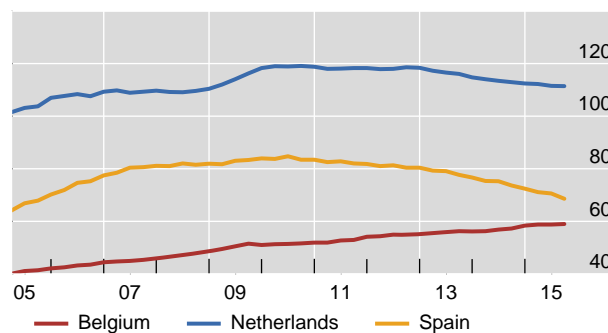
As a percentage of GDP

Graph F.4

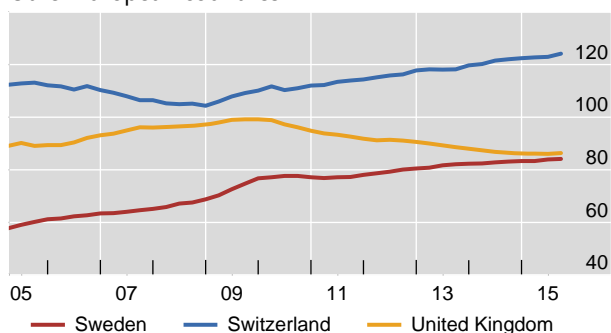
Euro area: aggregate and major countries



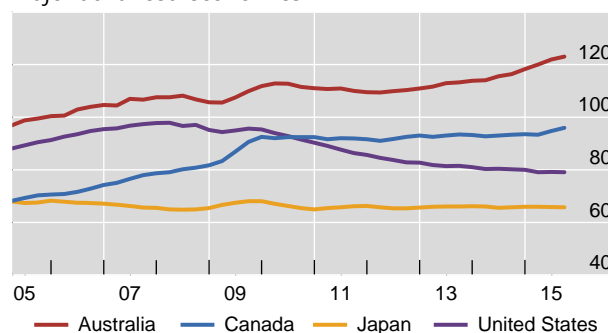
Euro area: other countries



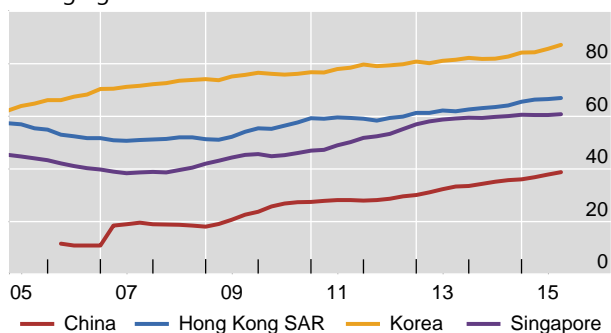
Other European countries



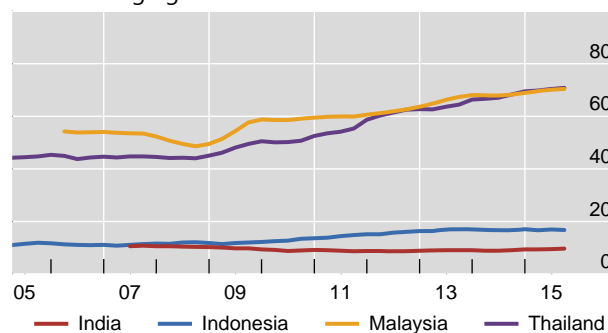
Major advanced economies



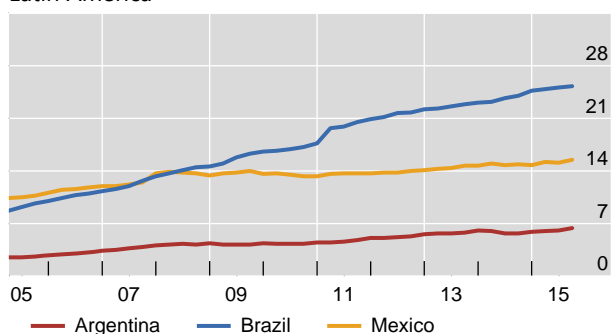
Emerging Asia



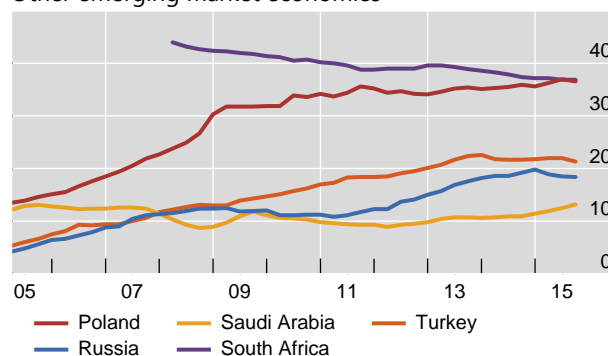
Other emerging Asia



Latin America



Other emerging market economies



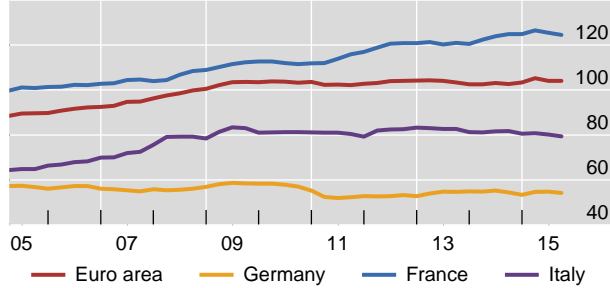
Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

Total credit to non-financial corporations (core debt)

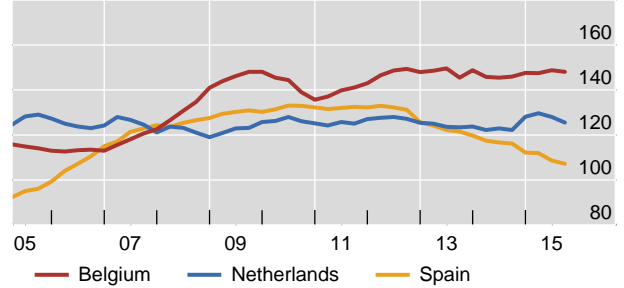
As a percentage of GDP

Graph F.5

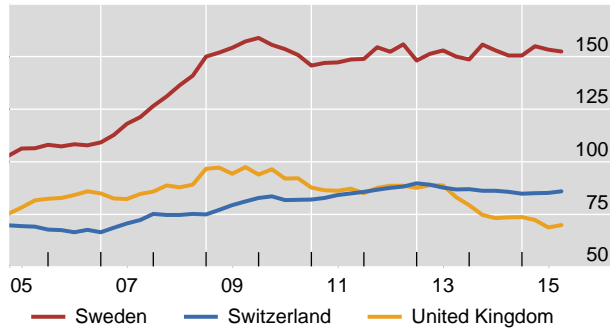
Euro area: aggregate and major countries



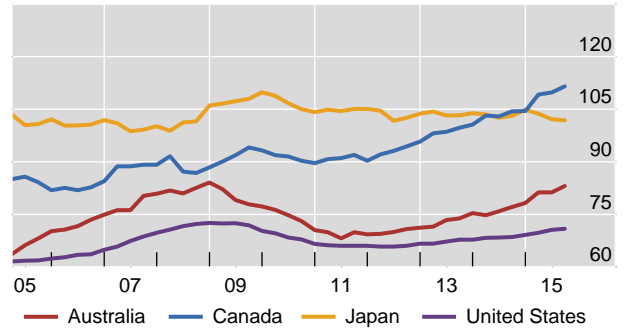
Euro area: other countries



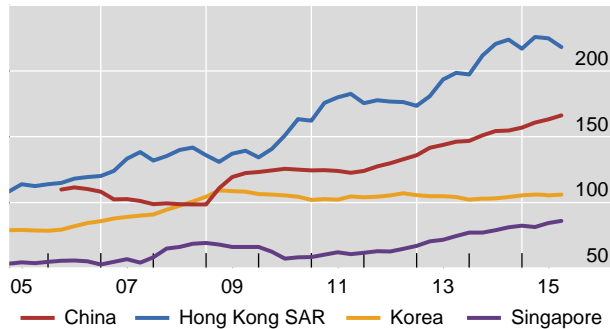
Other European countries



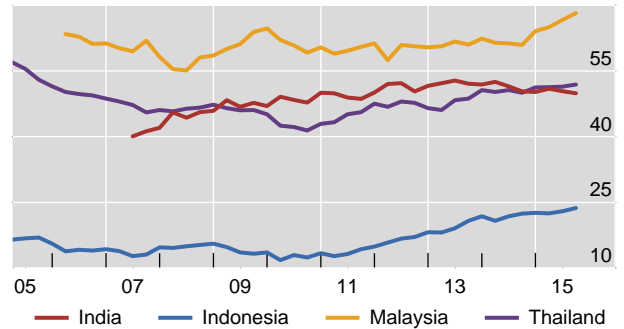
Major advanced economies



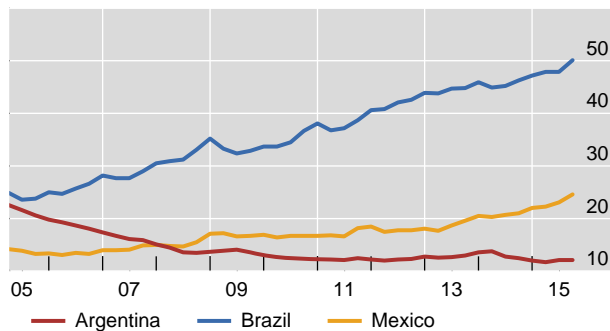
Emerging Asia



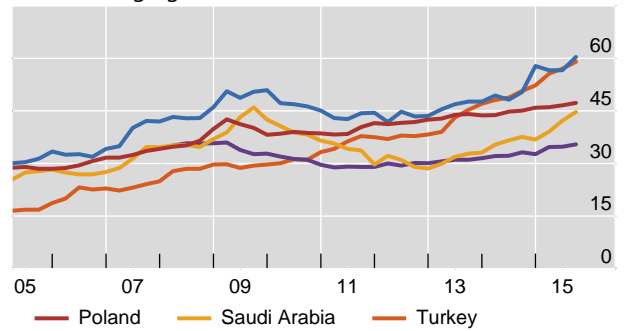
Other emerging Asia



Latin America



Other emerging market economies



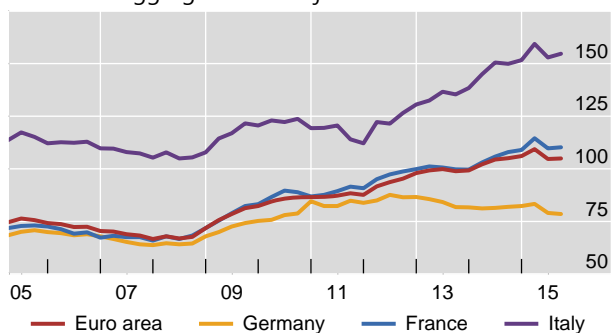
Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

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

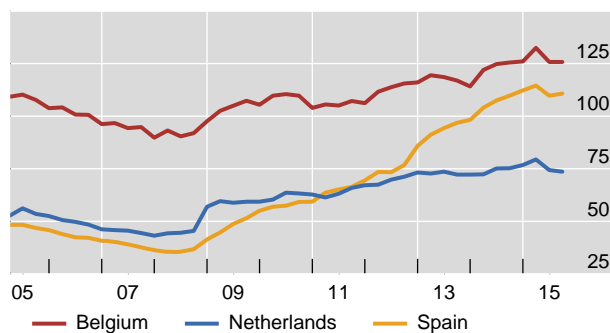
As a percentage of GDP

Graph F.6

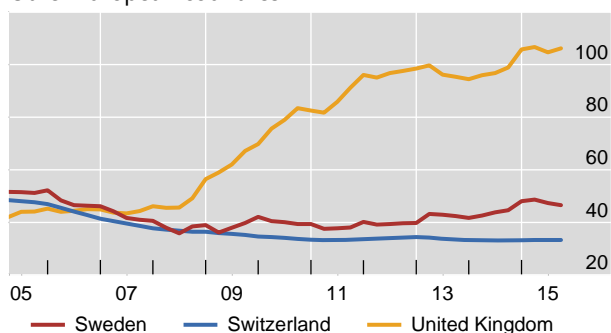
Euro area: aggregate and major countries



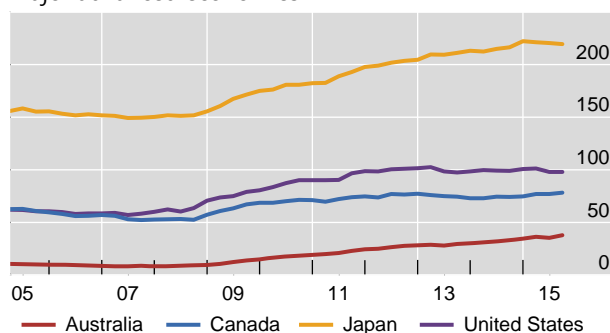
Euro area: other countries



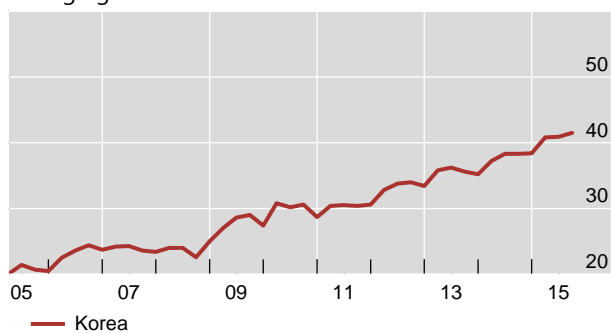
Other European countries



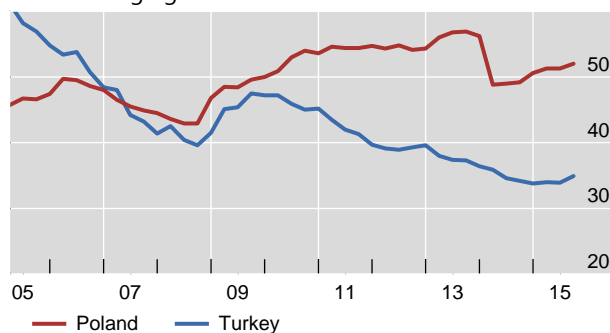
Major advanced economies



Emerging Asia



Other emerging market economies



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

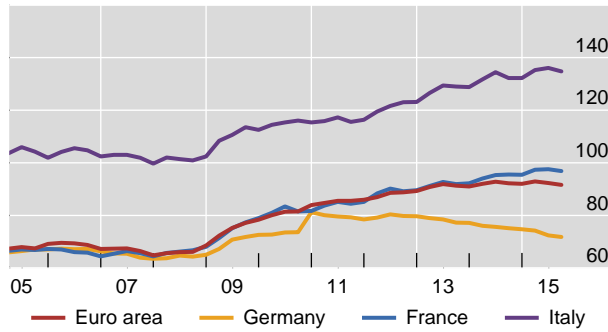
¹ Consolidated data for the general government sector.

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

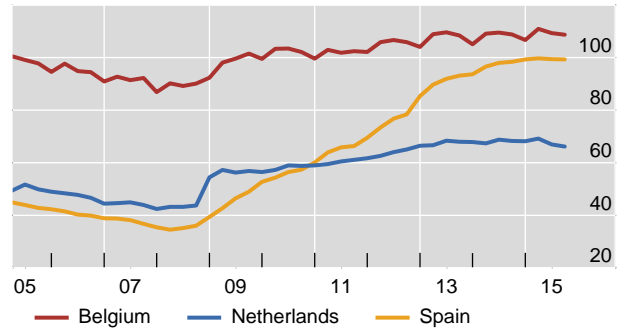
As a percentage of GDP

Graph F.7

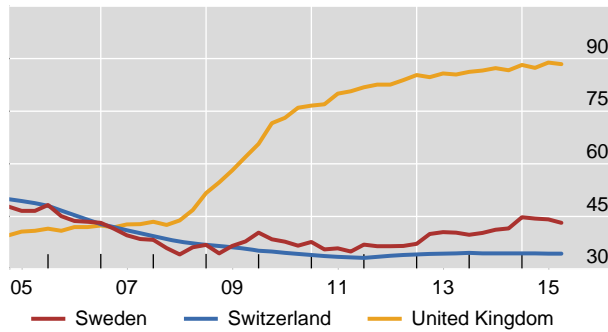
Euro area: aggregate and major countries



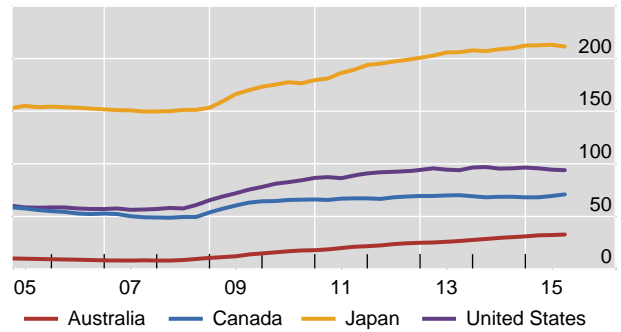
Euro area: other countries



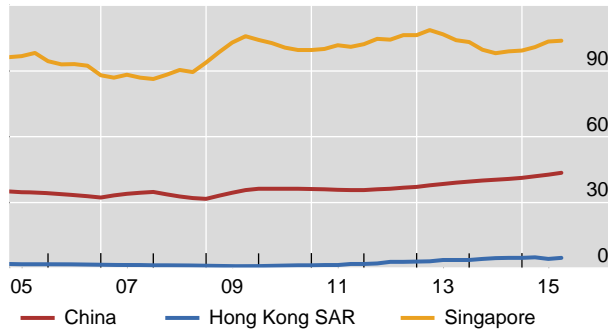
Other European countries



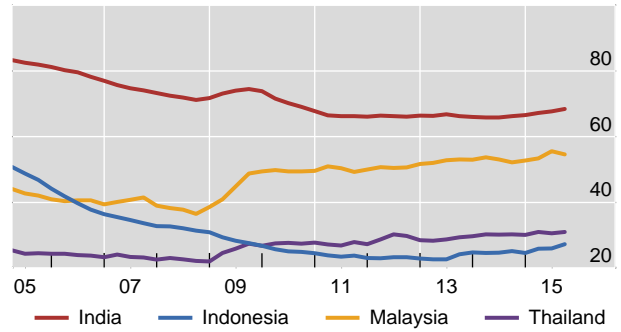
Major advanced economies



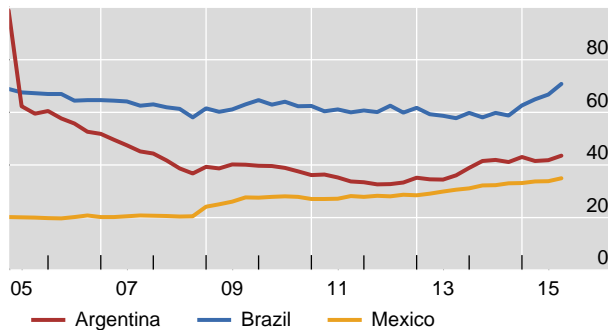
Emerging Asia



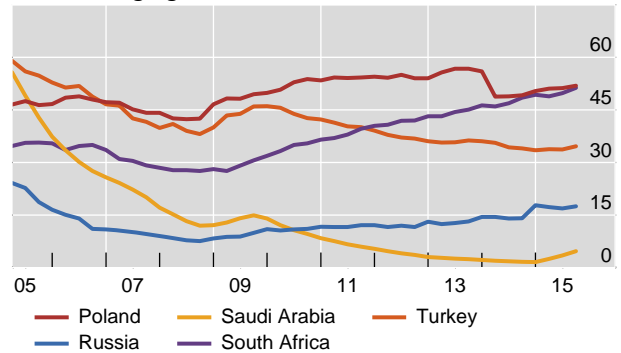
Other emerging Asia



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.

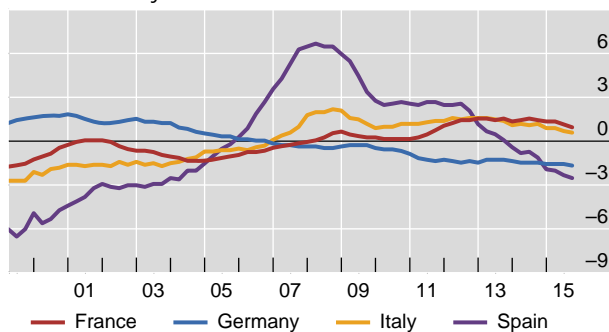
G Debt service ratios for the private non-financial sector

Debt service ratios of the private non-financial sector

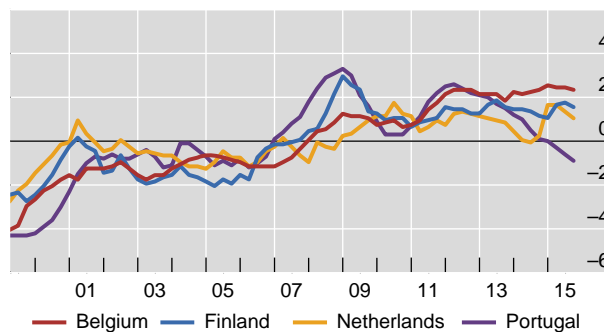
Deviation from country-specific mean; in percentage points¹

Graph G.1

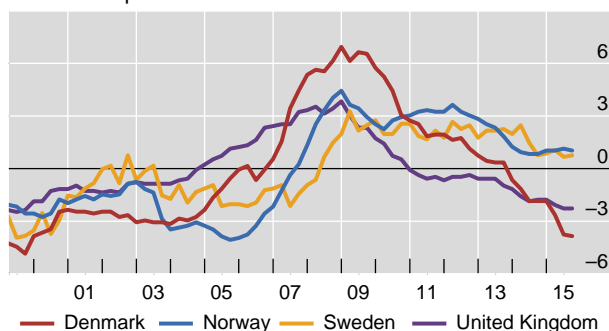
Euro area: major countries



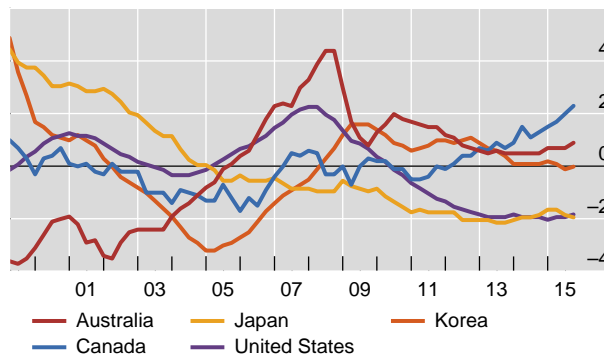
Euro area: other countries



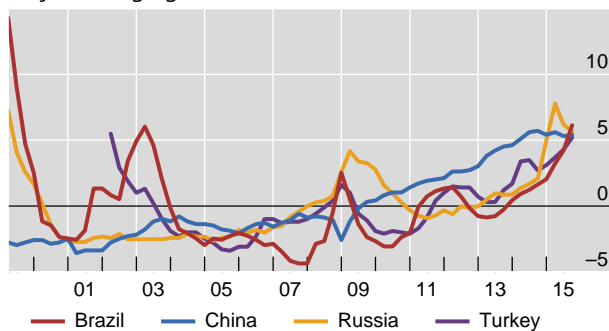
Other European countries



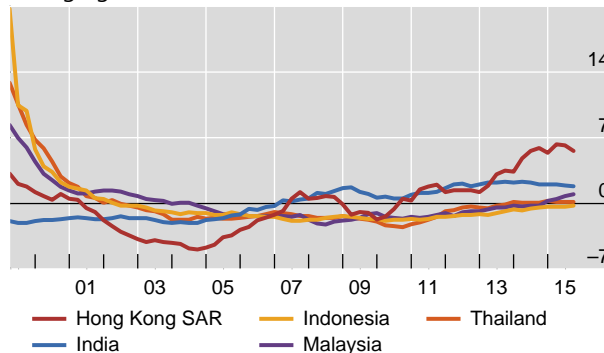
Other economies



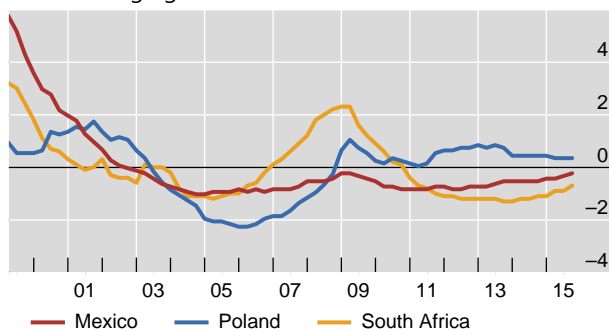
Major emerging markets²



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.

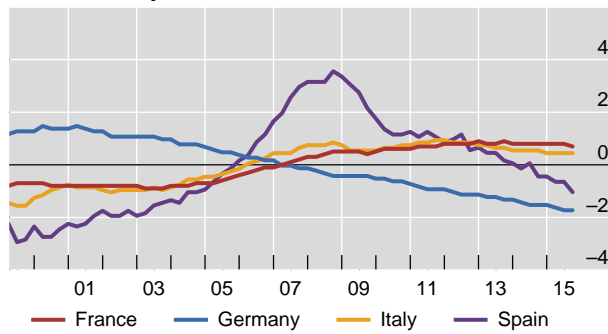
Further information on the BIS debt service ratio statistics is available at www.bis.org/statistics/dsr.htm.

Debt service ratios of households

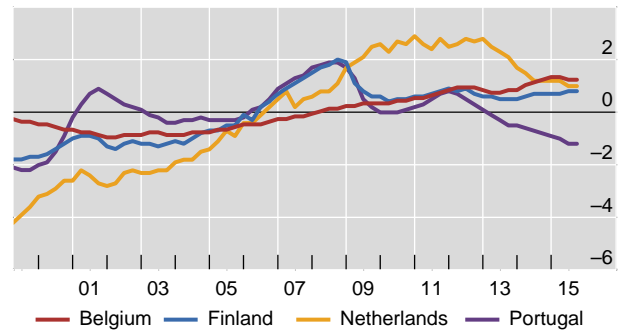
Deviation from country-specific mean; in percentage points¹

Graph G.2

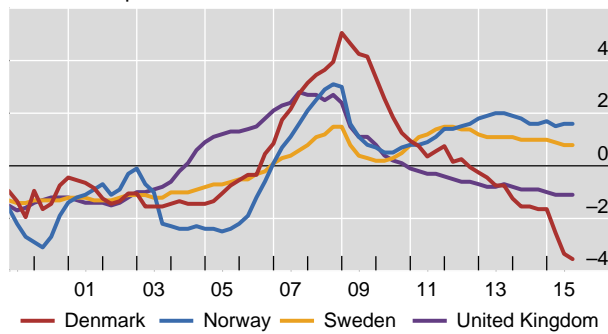
Euro area: major countries



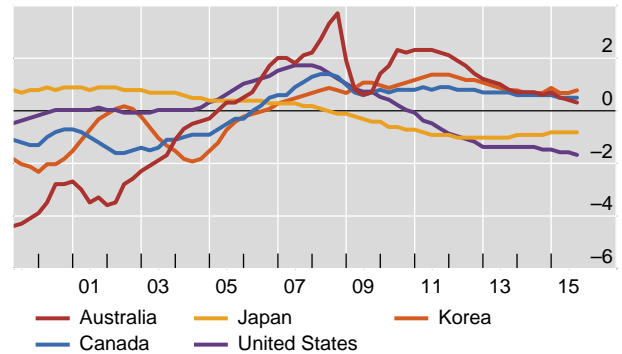
Euro area: other countries



Other European countries



Other economies



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

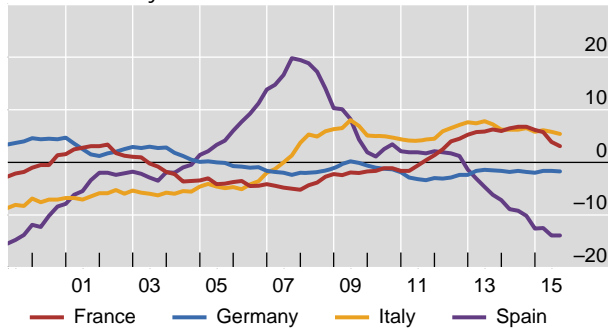
¹ Country-specific means are based on all available data from 1999 onwards.

Debt service ratios of non-financial corporations

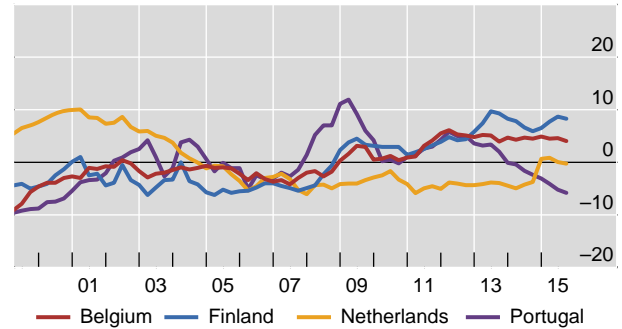
Deviation from country-specific mean; in percentage points¹

Graph G.3

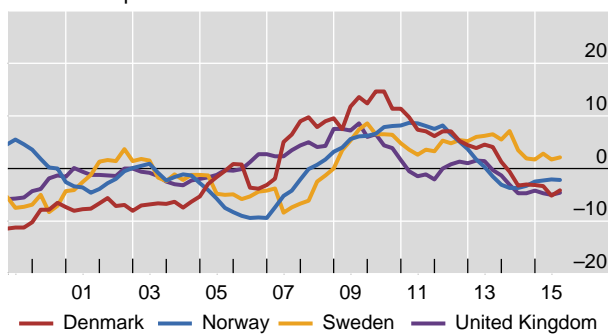
Euro area: major countries



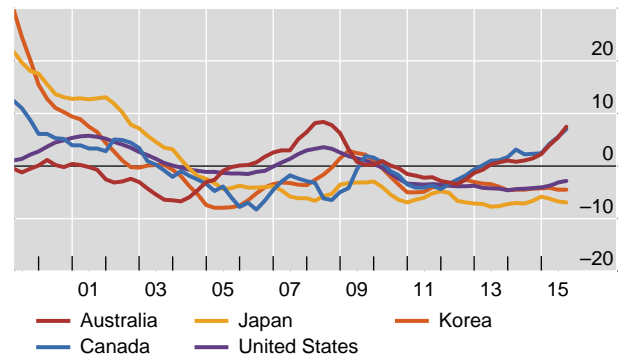
Euro area: other countries



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.

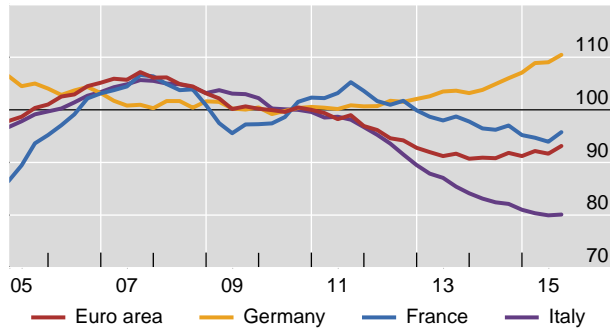
H Property price statistics

Real residential property prices

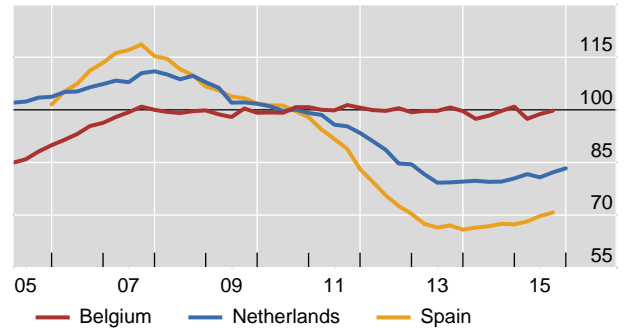
CPI-deflated; 2010 = 100

Graph H.1

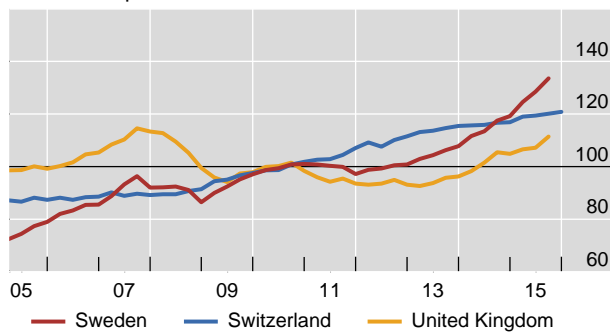
Euro area: aggregate and major countries



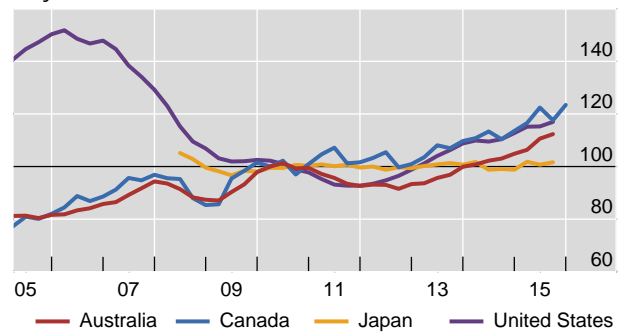
Euro area: other countries



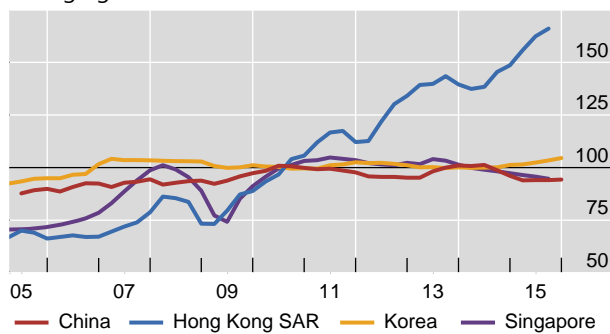
Other European countries



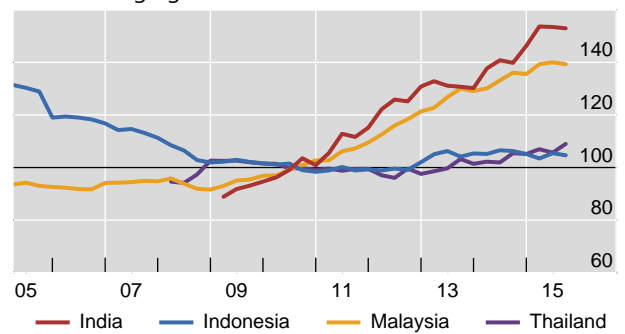
Major advanced economies



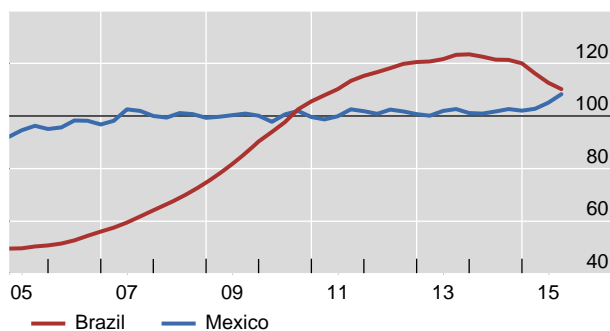
Emerging Asia



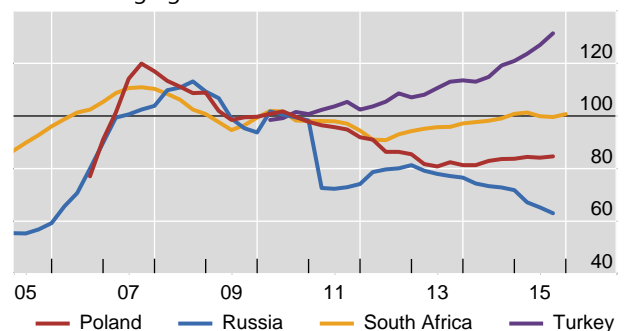
Other emerging Asia



Latin America



Other emerging market economies



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

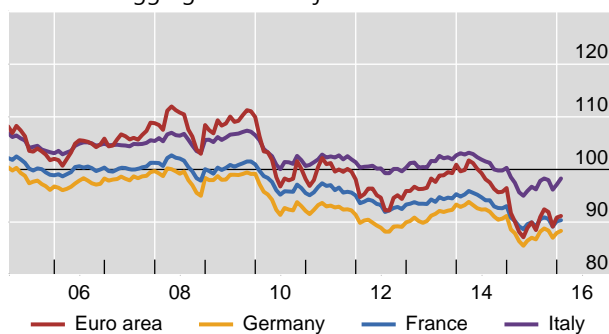
I Effective exchange rate statistics

Real effective exchange rates

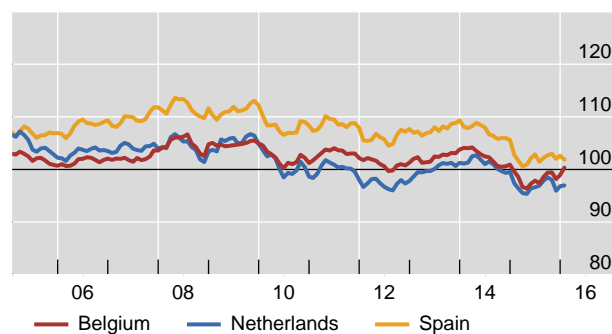
CPI-based; 1995–2005 = 100¹

Graph I.1

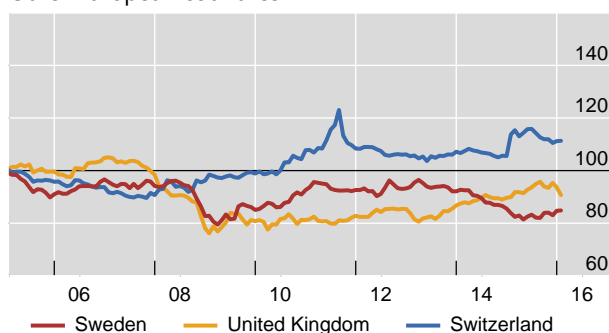
Euro area: aggregate and major countries



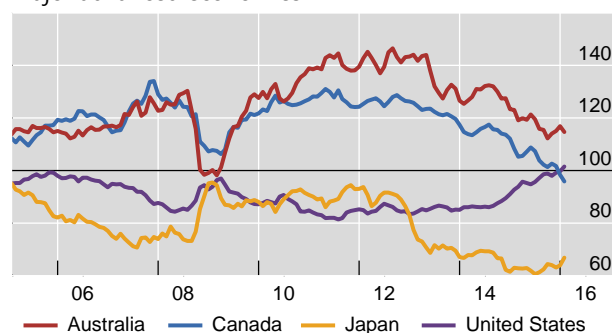
Euro area: other countries



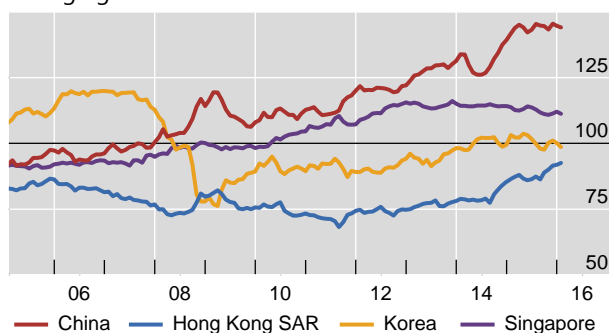
Other European countries



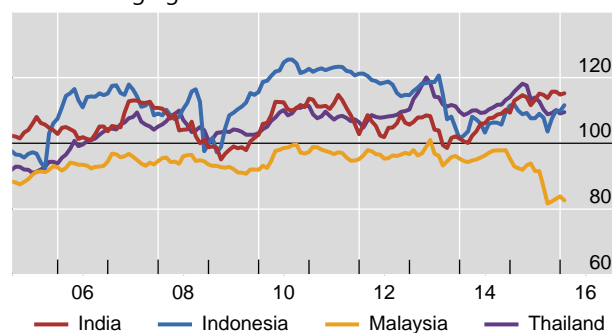
Major advanced economies



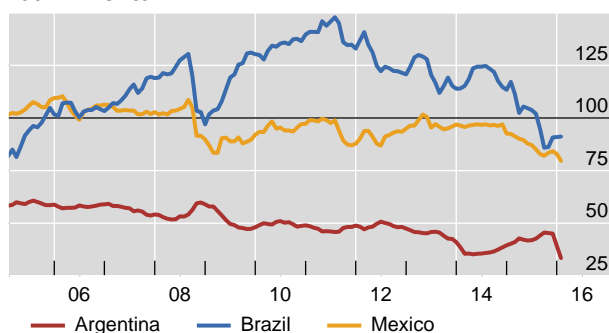
Emerging Asia



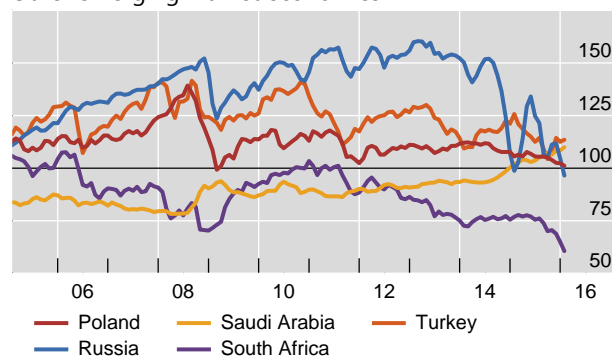
Other emerging Asia



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

December 2015	Dollar credit to emerging market economies	Robert Neil McCauley, Patrick McGuire & Vladyslav Sushko
December 2015	Calibrating the leverage ratio	Ingo Fender & Ulf Lewrick
December 2015	Central clearing: trends and current issues	Dietrich Domanski, Leonardo Gambacorta & Cristina Picillo
December 2015	Sovereign ratings of advanced and emerging economies after the crisis	Marlene Amstad & Frank Packer
September 2015	Introduction to BIS statistics	
September 2015	Enhanced data to analyse international banking	Stefan Avdjiev, Patrick McGuire & Philip Wooldridge
September 2015	A new database on general government debt	Christian Dembiermont, Michela Scatigna, Robert Szemere & Bruno Tissot
September 2015	How much income is used for debt payments? A new database for debt service ratios	Mathias Drehmann, Anamaria Illes, Mikael Juselius & Marjorie Santos
September 2015	International monetary spillovers	Boris Hofmann & Előd Takáts
September 2015	The rise of regional banking in Asia and the Pacific	Eli M Remolona & Ilhyock Shim
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

Recent BIS publications¹

BIS Working Papers

Booms and banking crises

Frederic Boissay, Fabrice Collard and Frank Smets

Banking crises are rare events that break out in the midst of credit intensive booms and bring about particularly deep and long-lasting recessions. This paper attempts to explain these phenomena within a textbook DSGE model that features a non-trivial banking sector. In the model, banks are heterogeneous with respect to their intermediation skills, which gives rise to an interbank market. Moral hazard and asymmetric information in this market may lead to sudden interbank market freezes, banking crises, credit crunches and severe recessions. Those "financial" recessions follow credit booms and are not triggered by large exogenous adverse shocks.

What drives inflation expectations in Brazil? Public versus private information

Waldyr D Areosa

This article applies a noisy information model with strategic interactions à la Morris and Shin (2002) to a panel from the Central Bank of Brazil Market Expectations System to provide evidence of how professional forecasters weight private and public information when building inflation expectations in Brazil. The main results are: (i) forecasters attach more weight to public information than private information because (ii) public information is more precise than private information. Nevertheless, (iii) forecasters overweight private information in order to (iv) differentiate themselves from each other (strategic substitutability).

Fiscal policy and the cycle in Latin America: the role of financing conditions and fiscal rules

Enrique Alberola-Ila, Iván Kataryniuk, Ángel Melguizo and René Orozco

A stronger macroeconomic position when the financial crisis erupted allowed Latin American economies to mitigate its impact through fiscal expansions, reversing the characteristic procyclical behaviour of fiscal policy. At the same time, in the last two decades fiscal rules have been extensively adopted in the region. This paper analyses the stabilising role of discretionary fiscal policy over time, and the role of fiscal financing conditions and fiscal rules in this evolution in a sample of eight Latin American economies. The analysis shows three main results: i) fiscal policies became countercyclical during the crisis, but they have turned procyclical again in recent years; ii) financing conditions are confirmed to be a key driver of the fiscal stance, but their relevance has recently diminished; and iii) fiscal rules are associated with a more stabilising role for fiscal policy.

Bank standalone credit ratings

Michael R King, Steven Ongena and Nikola Tarashev

We study a unique experiment to examine the importance of rating agencies' private information for bank shareholders. On July 20, 2011, Fitch Ratings refined their bank standalone ratings, which measure intrinsic financial strength, from a 9-point to a 21-point scale. This refinement did not affect their all-in ratings, which combine assessments of intrinsic strength and extraordinary sovereign support and provide an estimate of banks' creditworthiness. Thus, the impact of the standalone rating refinement was clearly limited to

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).

bank shareholders. We find evidence suggesting that the refinement resulted in higher than expected standalone ratings, but we find only weak evidence of ratings catering. We also find a positive relationship between stock price reactions and rating surprises, revealing that the rating refinement delivered useful information about the importance of bank characteristics for assessing intrinsic financial strength.

How do global investors differentiate between sovereign risks? The new normal versus the old

Marlene Amstad, Eli M Remolona and Jimmy Shek

When global investors go into emerging markets or get out of them, how do they differentiate between economies? Has this behaviour changed since the crisis of 2008 to reflect a "new normal"? We consider these questions by focusing on sovereign risk as reflected in monthly returns on credit default swaps (CDS) for 18 emerging markets and 10 developed countries. Tests for breaks in the time series of such returns suggest a new normal that ensued around October 2008 or soon afterwards. Dividing the sample into two periods and extracting risk factors from CDS returns, we find an "old normal" in which a single global risk factor drives half of the variation in returns and a new normal in which that risk factor becomes even more dominant. Surprisingly, in both the old and new normal, the way countries load on this factor depends not so much on economic fundamentals as on whether they are designated an emerging market.

Self-oriented monetary policy, global financial markets and excess volatility of international capital flows

Ryan Niladri Banerjee, Michael B Devereux and Giovanni Lombardo

This paper explores the nature of macroeconomic spillovers from advanced economies to emerging market economies (EMEs) and the consequences for independent use of monetary policy in EMEs. We first empirically document the effects of US monetary policy shocks on a sample group of EMEs. A contractionary monetary shock leads a retrenchment in EME capital flows, a fall in EME GDP, and an exchange rate depreciation. We construct a theoretical model which can help to account for these findings. In the model, macroeconomic spillovers are exacerbated by financial frictions. We assess the extent to which domestic monetary policy can mitigate the negative spillovers from foreign shocks. Absent financial frictions, international spillovers are minor, and an inflation targeting rule represents an effective policy for the EME. With frictions in financial intermediation, however, spillovers are substantially magnified, and an inflation targeting rule has little advantage over an exchange rate peg. However, an optimal monetary policy markedly improves on the performance of naive inflation targeting or an exchange rate peg. Furthermore, optimal policies don't need to be coordinated across countries. Under the specific set of assumptions maintained in our model, a non-cooperative, self-oriented optimal policy gives results very similar to those of a global cooperative optimal policy.

International trade finance and the cost channel of monetary policy in open economies

Nikhil Patel

This paper models the interaction between international trade finance and monetary policy in open economies and shows that trade finance affects the propagation mechanism of all macroeconomic shocks that are identified to be drivers of business cycles in advanced economies. The model is estimated with Bayesian techniques using output, price and bilateral trade data from the US and the Eurozone. The estimation exercise shows that trade finance conditions, which in turn are driven by US interest rates, are critical in explaining economic fluctuations. Quantitatively, trade finance has a larger impact on spill over effects of shocks to foreign countries, implying that incorporation of trade finance is particularly important when modelling small open economies.

Sovereign yields and the risk-taking channel of currency appreciation

Boris Hofmann, Ilhyock Shim and Hyun Song Shin

Currency appreciation against the US dollar is associated with the compression of emerging market economy (EME) sovereign yields. We find that this yield compression is due to reduced risk premiums rather than expectations of interest rates already priced into forward

rates. We explore a model which ties together dollar credit to EME corporates, sovereign tail risks and global investor portfolio adjustments driven by economic capital constraints. Consistent with our model, we find no empirical association between currency appreciation and sovereign spreads when we use the trade-weighted effective exchange rate that is unrelated to the US dollar.

Exchange rates and monetary spillovers

Guillaume Plantin and Hyun Song Shin

When does the combination of flexible exchange rates and domestic inflation-oriented monetary policy guarantee insulation from global financial conditions? We examine a dynamic global game model of international portfolio flows where, for some combination of parameters, the unique equilibrium exhibits the observed empirical feature that currency appreciation goes hand-in-hand with lower domestic interest rates and higher credit growth. When reversed, tighter monetary conditions go hand-in-hand with capital outflows and currency depreciation.

Is macroprudential policy instrument blunt?

Katsurako Sonoda and Nao Sudo

Since the global financial crisis of 2008, macroprudential instruments have attracted an increasing amount of attention as potentially the best tools for stabilizing boom-and-bust cycles. This is because, in contrast to short-term interest rates, macroprudential instruments are regarded as particularly precise tools that act only on the area of concern. In this paper, we conduct an empirical examination to determine if this is the case by studying relevant areas of the Japanese economy from the 1970s to 1990s. We focus on a policy instrument called Quantitative Restriction (QR) implemented by the government. QR explicitly required banks to curb their lending to the real estate industry and related activities, and was used in the wake of the credit boom. We construct shocks to QR using narrative records of the government, and estimate their impact on the macroeconomy. We find that QR affected the aggregate economy as well as the real estate sector and land prices. In order to see why QR was a "blunt" instrument, we conduct a cross-sectional analysis using individual bank data and disaggregated industry group data. We find evidence that shocks to QR affected the aggregate economy by damaging the balance sheets of banks and non-financial firms.

Interbank networks in the national banking era: their purpose and their role in the panic of 1893

Charles W Calomiris and Mark A Carlson

The unit banking structure of the United States gave rise to a uniquely important interbank correspondent network, which linked banks throughout the country during the National Banking Era. During normal times, these interbank network relationships provided banks with access to money markets, facilitated payment processing, and helped banks meet legal reserve requirements. We collect and analyse data on individual correspondent relationships of national banks to map the structure of the network, identify the factors that led banks to adopt different correspondent network structures, and examine the consequences of network choices for bank liquidity risk. Banks' network profiles differed according to the range of services they needed or provided to their customers. For instance, banks providing more checking services focused their interbank relationships on banks in New York City, which was central to the payment clearing system. Location characteristics also mattered; banks in areas with more manufacturing firms maintained more network connections. Differences in network profiles propagated liquidity risk during the Panic of 1893, one of the most severe panics of the National Banking Era. Banks with relatively high two-sided interbank liquidity risk - those that both held more of their liquid assets with their correspondents and were funded to a greater extent by the deposits of other banks - were more likely to close. New York City banks suspended convertibility during the crisis. Banks that relied more heavily on New York correspondents as a source of liquidity were more likely to close.

Labour reallocation and productivity dynamics: financial causes, real consequences

Claudio Borio, Enisse Kharroubi, Christian Upper and Fabrizio Zampolli

We investigate the link between credit booms, productivity growth, labour reallocations and financial crises in a sample of over twenty advanced economies and over forty years. We produce two key findings. First, credit booms tend to undermine productivity growth by inducing labour reallocations towards lower productivity growth sectors. A temporarily bloated construction sector stands out as an example. Second, the impact of reallocations that occur during a boom, and during economic expansions more generally, is much larger if a crisis follows. In other words, when economic conditions become more hostile, misallocations beget misallocations. These findings have broader implications: they shed light on the recent secular stagnation debate; they provide an alternative interpretation of hysteresis effects; they highlight the need to incorporate credit developments in the measurement of potential output; and they provide a new perspective on the medium- to long-run impact of monetary policy as well as its ability to fight post-crisis recessions.

Managing price and financial stability objectives - what can we learn from the Asia-Pacific region?

Soyoung Kim and Aaron Mehrotra

The international financial crisis led many central banks to adopt explicit financial stability objectives. This raises the question of how central banks deal with policy trade-offs resulting from potential conflicts between price and financial stability objectives. We analyse this issue in the Asia-Pacific region, where many economies with inflation targeting central banks have adopted macroprudential policies in order to safeguard financial stability. Using structural vector auto regressions that identify both monetary and macroprudential policy actions, our results highlight similarities in the effects of monetary and macroprudential policies on the real economy. Tighter macroprudential policies used to contain credit growth have also had a negative impact on output and inflation. The similar effects of monetary and macroprudential policies could create challenges for policy, given the frequency of episodes where low inflation coincides with buoyant credit growth.

Mortgage risk and the yield curve

Aytek Malkhozov, Philippe Mueller, Andrea Vedolin and Gyuri Venter

We study the feedback from the risk of outstanding mortgage-backed securities (MBS) on the level and volatility of interest rates. We incorporate the supply shocks resulting from changes in MBS duration into a parsimonious equilibrium dynamic term structure model and derive three predictions that are strongly supported in the data: (i) MBS duration positively predicts nominal and real excess bond returns, especially for longer maturities; (ii) the predictive power of MBS duration is transitory in nature; and (iii) MBS convexity increases interest rate volatility, and this effect has a hump-shaped term structure.

The supply side of household finance

Gabriele Foà, Leonardo Gambacorta, Luigi Guiso and Paolo Emilio Mistruilli

We propose a new, data-based test for the presence of biased financial advice when households choose between fixed and adjustable rate mortgages. If households are wary, the relative cost of the two types should be a sufficient statistic for a household contract choice: the attributes of the bank that makes the loan should play no role. If households rely on banks' advice to guide their choice, banks may be tempted to bias their counsel to their own advantage. In this case bank-specific supply characteristics will play a role in the household's choice above any role they play through relative prices. Testing this hypothesis on a sample of 1.6 million mortgages originated in Italy between 2004 and 2010, we find that the choice between adjustable and fixed rates is significantly affected by change in banks' supply factors, especially in periods during which banks do not change the relative price of the two mortgage types. This supports the view that banks are able to affect customers' mortgage choices not only by pricing but also through an advice channel.

Commercial bank failures during The Great Recession: the real (estate) story **Adonis Antoniadis**

The primary driver of commercial bank failures during the Great Recession was exposure to the real estate sector, not aggregate funding strains. The main "toxic" exposure was credit to non-household real estate borrowers, not traditional home mortgages or agency MBS. Private-label MBS contributed to the failure of large banks only. Failed banks skewed their portfolios towards product categories that performed poorly on aggregate. In addition, within each product category they held assets of lower quality than those held by survivor banks.

Basel Committee on Banking Supervision

General guide to account opening **February 2016**

The Basel Committee on Banking Supervision has revised the General guide to account opening, first published in 2003.

The Basel Committee issues this guide as an annex to the guidelines on the Sound management of risks related to money laundering and financing of terrorism • , which was first published in January 2014. These guidelines revised, updated and merged two previous publications of the Basel Committee, issued in 2001 and 2004.

Most bank-customer relationships start with an account-opening procedure. The customer information collected and verified at this stage is crucial to the bank in order for it to fulfil its AML/CFT obligations, both at the inception of the customer relationship and thereafter, but it is also useful in protecting it against potential abuses, such as fraud or identity theft. The policies and procedures for account opening that all banks need to establish must reflect AML/CFT obligations.

The revised version of the General guide to account opening and customer identification takes into account the significant enhancements to the Financial Action Task Force (FATF) Recommendations and related guidance. In particular, it builds on the FATF Recommendations, as well as on two supplementary FATF publications specifically relevant for this guide: Guidance for a risk-based approach: The banking sector and Transparency and beneficial ownership, both issued in October 2014.

As for the remainder of the guidelines, the content of the proposed guide is in no way intended to strengthen, weaken or otherwise modify the FATF standards. Rather, it aims to support banks in implementing the FATF standards and guidance, which requires the adoption of specific policies and procedures, in particular on account opening.

A consultative version was issued in July 2015. The Basel Committee wishes to thank all those who took the trouble to express their views during the consultation process.

Minimum capital requirements for market risk **January 2016**

The 2007–08 period of severe market stress exposed weaknesses in the framework for capitalising risks from trading activities. In 2009, the Committee introduced a set of revisions to the Basel II market risk framework to address the most pressing deficiencies. A fundamental review of the trading book was also initiated to tackle a number of structural flaws in the framework that were not addressed by those revisions. This has led to the revised market risk framework, which is a key component of the Basel Committee's reform of global regulatory standards in response to the global financial crisis.

The purpose of the revised market risk framework is to ensure that the standardised and internal model approaches to market risk deliver credible capital outcomes and promote consistent implementation of the standards across jurisdictions. The final standard

incorporates changes that have been made following two consultative documents published in October 2013 and December 2014 and several quantitative impact studies.

The key features of the revised framework include:

- A revised boundary between the trading book and banking book
- A revised internal models approach for market risk
- A revised standardised approach for market risk
- A shift from value-at-risk to an expected shortfall measure of risk under stress
- Incorporation of the risk of market illiquidity

An explanatory note has been published to provide a non-technical description of the rationale and main features of the January 2016 revisions to the market risk framework.

The revised market risk framework comes into effect on 1 January 2019.

**Guidance on the application of the Core principles for effective banking supervision to the regulation and supervision of institutions relevant to financial inclusion
December 2015**

This consultative document builds on past work by the Committee to elaborate additional guidance in the application of the Committee's Core principles for effective banking supervision to the supervision of financial institutions engaged in serving the financially unserved and underserved. This includes a report of the Range of practice in the regulation and supervision of institutions relevant to financial inclusion, and expands on Microfinance activities and the Core Principles for Effective Banking Supervision.

The proposed Guidance identifies 19 of the total 29 Core Principles where additional guidance is needed, and both Essential Criteria and Additional Criteria which have specific relevance to the financial inclusion context. The Guidance is intended to be useful to both BCBS member and non-member jurisdictions, including those jurisdictions in which supervisors are striving to comply with the Core Principles and who may implement this Guidance gradually over time.

The Committee welcomes comments on this consultative document. Comments should be uploaded here by Thursday 31 March 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.

**Guidance on credit risk and accounting for expected credit losses
December 2015**

This document sets out supervisory guidance on sound credit risk practices associated with the implementation and ongoing application of expected credit loss (ECL) accounting frameworks. The move to ECL accounting frameworks by accounting standard setters is an important step forward in resolving the weakness identified during the recent financial crisis that credit loss recognition was too little, too late. It is also consistent with the April 2009 call by G20 Leaders for accounting standard setters to "strengthen accounting recognition of loan loss provisions by incorporating a broader range of credit information".

This guidance, which should be viewed as complementary to the accounting standards, presents the Committee's view of the appropriate application of ECL accounting standards. It provides banks with supervisory guidance on how the ECL accounting model should interact with a bank's overall credit risk practices and regulatory framework, but does not set out regulatory capital requirements on expected loss provisioning under the Basel capital framework.

The failure to identify and recognise increases in credit risk in a timely manner can aggravate underlying weaknesses in credit quality, adversely affect bank capital adequacy, and hinder appropriate risk assessment and control of a bank's credit risk exposure. The bank risk management function's involvement in the assessment and measurement of accounting ECL

is essential to ensuring adequate allowances in accordance with the applicable accounting framework.

In June 2006, the Basel Committee issued supervisory guidance on Sound credit risk assessment and valuation for loans to address how common data and processes may be used for credit risk assessment, accounting and capital adequacy purposes and to highlight provisioning concepts that are consistent in prudential and accounting frameworks. This document replaces the Committee's previous guidance.

Identification and measurement of step-in risk - consultative document December 2015

The objective of the proposals included in the Consultative Document Identification and measurement of step-in risk is to mitigate potential spillover effects from the shadow banking system to banks. This work falls within the G20 initiative to strengthen the oversight and regulation of the shadow banking system and mitigate the associated potential systemic risks.

Step-in risk refers to the risk that a bank will provide financial support to an entity beyond, or in the absence of, its contractual obligations should the entity experience financial stress. The proposals would form the basis of an approach for identifying, assessing and addressing step-in risk potentially embedded in banks' relationships with shadow banking entities (although without limiting the proposals to specific entities).

To capture and address such risk, the focus is on the identification of unconsolidated entities to which a bank may nevertheless provide financial support, in order to protect itself from any adverse reputational risk stemming from its connection to the entities. The proposals also include potential approaches that could be used to reflect step-in risk in prudential measures. Further consideration is being given to how the proposals should be incorporated into the regulatory framework and their potential impact.

The Committee welcomes comments from the public on all aspects of the proposals described in this document by Thursday 17 March 2016 using the following link: www.bis.org/bcbs/commentupload.htm. All comments will be published on the Bank for International Settlements website unless a respondent specifically requests confidential treatment.

Progress in adopting the Principles for effective risk data aggregation and risk reporting December 2015

This is the Basel Committee's third progress report on banks' adoption of the Committee's Principles for effective risk data aggregation and risk reporting. Published in 2013, the Principles have the objective of strengthening risk data aggregation and risk reporting at banks to improve their risk management practices and decision-making processes. Firms designated as global systemically important banks (G-SIBs) are required to implement the Principles in full by 2016.

This report reviews banks' progress in 2015. G-SIBs are increasingly aware of the importance of this topic and have moved towards implementing the Principles. Nevertheless, important challenges remain. This report makes additional recommendations to promote adoption of the Principles, including:

- Supervisors should conduct more in-depth/specialised examinations on data aggregation requirements to evaluate weaknesses;
- Banks should have governance arrangements in place for manual processes; and
- Banks' compliance with the Principles should be subject to an independent evaluation in early 2016.

The Principles apply initially to all global systemically important banks. In addition, the Committee recommends that national supervisors apply the Principles to institutions identified as domestic systemically important banks three years after their designation.

Revisions to the Standardised Approach for credit risk - second consultative document December 2015

The second consultative document on Revisions to the Standardised Approach for credit risk forms part of the Committee's broader review of the capital framework to balance simplicity and risk sensitivity, and to promote comparability by reducing variability in risk-weighted assets across banks and jurisdictions.

These proposals differ in several ways from an initial set of proposals published by the Committee in December 2014. That earlier proposal set out an approach that removed all references to external credit ratings and assigned risk weights based on a limited number of alternative risk drivers. Respondents to the first consultative document expressed concerns, suggesting that the complete removal of references to ratings was unnecessary and undesirable. The Committee has decided to reintroduce the use of ratings, in a non-mechanistic manner, for exposures to banks and corporates. The revised proposal also includes alternative approaches for jurisdictions that do not allow the use of external ratings for regulatory purposes.

The proposed risk weighting of real estate loans has also been modified, with the loan-to-value ratio as the main risk driver. The Committee has decided not to use a debt service coverage ratio as a risk driver given the challenges of defining and calibrating a global measure that can be consistently applied across jurisdictions. The Committee instead proposes requiring the assessment of a borrower's ability to pay as a key underwriting criterion. It also proposes to categorise all exposures related to real estate, including specialised lending exposures, under the same asset class, and apply higher risk weights to real estate exposures where repayment is materially dependent on the cash flows generated by the property securing the exposure.

This consultative document also includes proposals for exposures to multilateral development banks, retail and defaulted exposures, and off-balance sheet items. The credit risk standardised approach treatment for sovereigns, central banks and public sector entities are not within the scope of these proposals. The Committee is considering these exposures as part of a broader and holistic review of sovereign-related risks.

The Committee welcomes comments on all aspects of this consultative document and the proposed standards text. Comments on the proposals should be uploaded here by Friday 11 March 2016. All comments will be published on the website of the Bank for International Settlements unless a respondent specifically requests confidential treatment.

Committee on the Global Financial Systems

Fixed income market liquidity January 2016

Fixed income markets are in a state of transition. Dealers have continued to cut back their market-making capacity in many jurisdictions. Demand for market-making services, in turn, continues to grow. This report - prepared by a Study Group chaired by Denis Beau (Bank of France) - explores recent trends in fixed income market liquidity, following up on earlier analysis by the CGFS (see CGFS Publications, no 52).

Thus far, the effects of diverging trends in the supply of and the demand for liquidity services have not manifested themselves in the price of immediacy services but rather they are reflected in possibly increasingly fragile liquidity conditions. Key drivers of current trends in liquidity include the expansion of electronic trading, dealer deleveraging, possibly reinforced by regulatory reform, and unconventional monetary policies. Given the transitional state of fixed income markets, regulators appear to be facing a short-term trade-off between less risk-taking by banks and more resilient market liquidity. Yet, in the medium term, measures to bolster market intermediaries' risk-absorption capacity will strengthen systemic stability, including through a more sustainable supply of immediacy services. Overall, the report

underscores the need for a close monitoring of liquidity conditions as well as an ongoing assessment of how new liquidity providers and trading platforms are affecting the distribution of risks among market participants.

Committee on Payments and Market Infrastructures

Clearing of deliverable FX instruments

February 2016

The Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) have issued this statement on the clearing of deliverable FX instruments by CCPs. The statement clarifies the expectations of CPMI and IOSCO - as originally set out in the Principles for Financial Market Infrastructures - with respect to CCP clearing of deliverable FX instruments and the associated models for effecting their settlement.

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

December 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.

Harmonisation of the Unique Product Identifier - consultative report

December 2015

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

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

This consultative report is one part of the CPMI-IOSCO Harmonisation Group's response to its mandate. It makes proposals for the harmonised global UPI, whose purpose is to uniquely identify OTC derivatives products that authorities require to be reported to TRs. The UPI would consist of a product classification system and associated code. The focus of this report is the product classification system.

The report seeks general and specific comments and suggestions from respondents by 24 February 2016, to be sent to both the CPMI secretariat and the IOSCO secretariat.

Besides this consultative report, the CPMI and IOSCO have already issued a consultative report on Harmonisation of the Unique Transaction Identifier and Harmonisation of key OTC derivatives data elements (other than UTI and UPI) - first batch and plan to issue a separate consultative report on the UPI code as well as consultative reports on further batches of key data elements (other than UTI and UPI) in the coming months.

Implementation monitoring of PFMI: Level 2 assessment report for Australia

December 2015

The Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) continue to closely monitor the implementation of the Principles for financial market infrastructures (PFMI). The principles

within the PFMI (the Principles) set expectations for the design and operation of key financial market infrastructures (FMIs) to enhance their safety and efficiency, and, more broadly, to limit systemic risk and foster transparency and financial stability. The Principles apply to all systemically important payment systems (PSs), central securities depositories (CSDs), securities settlement systems (SSSs), central counterparties (CCPs) and trade repositories (TRs) (collectively FMIs). These FMIs collectively clear, settle and record transactions in financial markets. In line with the G20's expectations, CPMI and IOSCO members have committed themselves to implementing and applying the PFMI in their respective jurisdictions.

This report presents the conclusions drawn by the CPMI and IOSCO from a Level 2 assessment of whether, and to what degree, the legal, regulatory and oversight frameworks, including rules and regulations, any relevant policy statements, or other forms of implementation applied to systemically important PSs, CSDs/SSSs, CCPs and TRs in Australia, are complete and consistent with the Principles.

Conducted as a peer review during 2015, this Level 2 assessment reflects the status of the Australian legal, regulatory and oversight framework as of 15 May 2015. Accordingly, assessment ratings reflect the implementation measures in place as of 15 May; other measures that were introduced after this date, or other material developments, are noted where relevant but were not considered in assigning ratings of consistency.

The authorities responsible for regulation, supervision and oversight of FMIs in Australia are the Reserve Bank of Australia (RBA) and the Australian Securities and Investments Commission (ASIC). The RBA has sole responsibility for PSs, while ASIC has sole responsibility for TRs. ASIC and the RBA have co-regulatory responsibilities for CCPs and CSDs/SSSs based on the legal framework of the Corporations Act. The RBA is responsible for ensuring compliance with the Financial Stability Standards and reduction of systemic risk, while ASIC is responsible for ensuring compliance with the remaining obligations under the Corporations Act.

Overall, the assessment found that Australia has consistently adopted most of the Principles in all types of FMI. The RBA and ASIC took differing approaches to the adoption of the PFMI, which reflect their different approaches to policy and rule-making. For PSs, the RBA's adoption of the Principles through a policy statement was assessed to be consistent and complete. For CCPs and CSDs/SSSs, the RBA and ASIC have largely adopted the Principles consistently, with three areas that were found to be broadly consistent. For TRs, while ASIC's rules do not always mirror the language and structure of the Principles, the relevant requirements were found generally to have been implemented in a consistent or broadly consistent way - with five areas of broad consistency.

Implementation monitoring of PFMI: Assessment and review of application of Responsibilities for authorities November 2015

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

This report presents the findings of the CPMI-IOSCO assessment of the completeness and consistency of frameworks and outcomes arising from jurisdictions' implementation of the Responsibilities for authorities in the PFMI. The assessments covered implementation of the Responsibilities across all financial market infrastructure (FMI) types in 28 participating jurisdictions. The work on the Responsibilities was carried out as a peer review during 2015 and the assessment ratings for each jurisdiction reflect the implementation measures in place as at 9 January 2015; other measures implemented after this date, or other material developments, are noted where relevant but were not considered when assigning ratings of observance.

Overall, the assessment revealed that a majority of the jurisdictions had achieved a high level of observance of the Responsibilities. Of the 28 jurisdictions assessed, 16 fully observed the five Responsibilities for all FMI types; an additional two jurisdictions either fully or broadly observed each of the five Responsibilities for all FMI types.

With respect to specific FMI types, jurisdictions most frequently fell short of a fully observed rating in the case of trade repositories (TRs). Five of the participating jurisdictions had TR regimes that were still in development and were therefore determined to be "not ready for assessment". In addition, several other jurisdictions lacked clear criteria and/or fully disclosed policies to support their regulation, supervision and oversight of TRs.

With respect to specific Responsibilities, considerable variability was observed in implementation measures for the Responsibility on cooperation with other authorities. This was due partly to the fact that many cooperative arrangements are new, but may in some cases also reflect different interpretations among authorities of the expectations in this area.

CPMI and IOSCO will review the Responsibilities in light of the findings of this assessment and consider the need for additional guidance. Further, as jurisdictions gain greater experience with cooperative arrangements, particularly cross-border arrangements for central counterparties (CCPs) and TRs, CPMI and IOSCO expect to consider new developments as part of a follow-up exercise to this report.

Markets Committee

Electronic trading in fixed income markets

Publications No 7 January 2016

Electronic trading has become an increasingly important part of the fixed income market landscape. It has enabled a pickup of automated trading in the most liquid market segments. Innovative trading venues and protocols - reinforced by changes in the nature of intermediation - have proliferated, and new market participants have emerged.

These recent changes have resulted in a transformation of the market structure, the process of price discovery and nature of liquidity provision. This report - prepared by a Study Group chaired by Joachim Nagel (Deutsche Bundesbank) - explores how ongoing developments are affecting market structure and functioning. It also discusses challenges for policymakers at the current juncture.

Drawing on a survey of trading platforms, the report sheds light on the evolution of trading volumes and usage of trading protocols in various market segments. The report further explores how electronification may be affecting market quality. Electronic and automated trading overall tends to have a positive impact in terms of market quality, but there are exceptions. There is a risk that liquidity may have become less robust and prices more sensitive to order flow imbalances. Electronic trading, in particular automated and high-frequency trading, also poses a number of challenges to policymakers, including the need to monitor its effect on market liquidity and functioning and to ensure appropriate governance of automated trading.

Speeches

The movie plays on: a lens for viewing the global economy

Speech by Mr Claudio Borio, Head of the Monetary and Economic Department of the BIS, at the FT Debt Capital Markets Outlook, London, 10 February 2016.

This presentation suggests an alternative lens through which to view the global economy's struggle to achieve sustainable and balanced growth, reflecting a failure to prevent the build-up and collapse of hugely damaging financial booms and busts. A symptom of the current malaise can be seen in interest rates that have been exceptionally low for an exceptionally long time, with a record high amount of global sovereign debt trading at negative yields. To break out of this trap, there is a need to take a longer-term view and rebalance policies towards structural measures, abandoning the debt-fuelled growth model that has brought us to the current predicament

Credit, commodities and currencies

Lecture by Mr Jaime Caruana, General Manager of the BIS, at the London School of Economics and Political Science, London, 5 February 2016

The global economy finds itself at the centre of three major economic developments: disappointing economic growth, especially in emerging economies; large shifts in exchange rates; and a sharp fall in commodity prices. These should not be seen as one-off shocks or headwinds but manifestations of a major realignment of economic and financial forces.

This emphasises the need to take a long-term perspective on economic developments and in policy responses and to consider the cumulative evolution of stocks, such as the stock of debt. Total debt in the global economy, including public debt, has increased significantly since the crisis (end of 2007).

These transitions and realignments inevitably bring short-term discomfort in the financial markets. But depending on the policy responses, they could eventually allow renewed and, above all, more sustainable and resilient growth, both in advanced economies and in a number of key emerging economies.

Seven don'ts and one hope: The nexus between prudential and monetary policies

Speech by Mr Claudio Borio, Head of the Monetary and Economic Department of the BIS, at the SUERF-Deutsche Bundesbank-IMFS Conference on "SSM at 1", Frankfurt, 3-4 February 2016.

In the hope of edging closer to taming the financial cycle, this presentation puts forward seven suggested "don'ts": don't oversimplify the distinction between micro- and macroprudential policy; don't underestimate the role of capital as the basis for lending; don't set overly ambitious goals for macroprudential frameworks during busts; don't regard the length of the financial cycle as a reason to forget monetary policy; don't overlook the impact of the financial cycle on productivity growth; don't think of a financial stability-oriented monetary policy simply as "leaning-against-the wind"; don't presume that even monetary and prudential policies combined can tame the financial cycle.

Old and new challenges for 2016 and beyond: strengthening confidence by re-anchoring long-term expectations

Speech by Mr Luiz Awazu Pereira da Silva, Deputy General Manager of the BIS, at the Lamfalussy Lecture Series: Professor Lamfalussy Commemorative Conference, Budapest, 1 February 2016.

The global financial crisis challenged how we analyse and conduct economic policy. While we understand global financial cycles much better and managed to avoid a repeat of the Great Depression, we are still stuck in a volatile low-growth environment. One reason is a lack of "confidence" in a structural sense: markets still cannot firm up their expectations about what is a long-term sustainable growth rate, a reasonable return on savings and on how to price assets. Hence, they remain unanchored and volatile. We need to help re-anchor them first by

showing a roadmap toward the gradual normalisation of monetary conditions. And we need also to go beyond that, and show the need to undertake the necessary "structural reforms" to make our socio-economic contracts more sustainable and resolve uncertainties about present and intergenerational resources allocation - uncertainties that increase risk premia and dampen growth perspectives. If we strengthen confidence and re-anchor long-term market expectations, we will help the financing of the real economy and contribute in the long term to a more TFP-based sustainable growth.

Persistent ultra-low interest rates: the challenges ahead

Closing speech by Mr Jaime Caruana, General Manager of the BIS, at the Bank of France-BIS Farewell Symposium for Christian Noyer, Paris, 12 January 2016.

It is a great pleasure and privilege for the BIS to co-organise and to participate in this symposium in honour of Christian Noyer.

Christian has served as a central banker in an era of unprecedented challenges. One major challenge was the establishment of the euro, to which Christian made a major contribution as Vice-President of the ECB.

Those were quite exciting days, but in retrospect they were really days of tranquillity. A far greater challenge for central banks, and for Christian as Governor of the Bank of France, has been the management of the various stages of financial and economic crisis since 2008.

The excellent presentations and discussions we have here today illustrate not only the complexity of this period, but also the amount of work that has been done to help understand the many puzzles and challenges - as François Villeroy de Galhau put it in his opening remarks¹ - and how to address them.

It is beyond doubt that the swift actions of central banks when the crisis first hit were crucial for preventing a financial and economic meltdown. As Christian himself has emphasised,² an important element of this crisis response was the close cooperation among central banks, through constant dialogue and, more concretely, cooperative actions such as the establishment of currency swap lines.

As the acute phase of the crisis is now well behind us, the key question becomes how central banks can best support the recovery, to make it not only more robust than what we have seen so far but also sustainable. This has proven to be a very challenging question. In the aftermath of the crisis, central banks have had to operate in uncharted waters, characterised by low growth, below-target inflation and unusually low interest rates - as well as financial fragility and rising debt.

In one of his speeches, Christian has highlighted the need to broaden the spectrum of views available to policymakers in order to avoid "groupthink" and "intellectual capture".³ In this vein, the debates we have here today are important because there is not yet the necessary convergence of minds about the right analytical framework to use for understanding the new reality we face. Central banks have been working hard to update their analytical tools, and so have international organisations such as the IMF.

The BIS, as well, has played a part. Under the guidance of our Board, chaired by Christian until late last year, and in collaboration with the various Basel-based international committees, we have been promoting the exchange of views and cooperation in different areas.

Our own research has also been striving to better understand the phenomenon of low growth, low inflation and low rates - as well as its complex relationship with financial booms and busts (ie financial cycles). We have sought to contribute to the debates by bringing a perspective that is longer-term than the typical policy horizon. As such, we put less emphasis on the cyclical aspects of aggregate demand, and pay more attention to the more entrenched impediments to growth - factors that are slow-moving but whose effects cumulate over time. In particular, we focus on impaired balance sheets and resource misallocations. Since these impediments cannot ultimately be removed exclusively by expansionary monetary policy, prolonged monetary easing alone may not succeed in reviving economic dynamism. A combination of policies will be required.

And from this longer-horizon perspective, we see persistently low or negative interest rates - which are the result of not only central bank actions but also market participants' perceptions - as not a sustainable equilibrium, but rather at least in part a disequilibrium phenomenon. Let me briefly elaborate.

Why are interest rates so low?

In the BIS view, the recession that accompanied the Great Financial Crisis was not a typical postwar business cycle recession. Rather, it was a balance sheet recession, associated with the bust phase of the financial cycle.

Balance sheet recessions commonly coincide with permanent output losses and weak recoveries. The permanent output losses after the financial bust reflect, to a considerable extent, the fact that output growth was unsustainable during the preceding boom.

Two legacies of the boom require further analysis. One is the combination of a debt overhang and disruptions to financial intermediation. This is quite well known. A lot of work has been done in the wake of the crisis to improve the workings of the financial system.

The other, perhaps less well analysed so far, is the drag on growth that arises from the resource misallocations that occur during the credit boom. Recent BIS research using data from 21 advanced economies since 1979 finds evidence that credit booms undermine productivity growth, primarily through the misallocation of resources.⁴ During periods of strong credit growth, workers shift to sectors with lower productivity gains, notably construction. This reallocation depresses aggregate productivity growth and thus potential output.

Importantly, even though the misallocations take place during the boom, their effects linger on and become much more impactful if a financial crisis materialises, as the economy then needs to shift workers away from the previously overextended sectors. Our analysis suggests that the magnitude of these effects is not negligible.⁵

What does all this imply for interest rates?

Clearly, monetary policy is essential in a crisis for stabilising the financial system and the macroeconomy. But in the wake of a balance sheet recession, where weak demand may not be the only problem, monetary easing cannot be the only answer.

If we accept that some deeper, often country-specific, impediments to growth are at work, then the appropriate policy response needs to include measures such as determined balance sheet repair and structural reforms to facilitate resource reallocations. A resilient financial system and flexible economy make monetary policy more efficient. Moreover, relying too much on the support from monetary policy may, over time, weaken the incentives for other actors to address the underlying problems through repairs and reforms. If this reliance persists, low rates could become self-validating. This is a key concern.

There are other concerns as well. As mentioned by a number of speakers today, a prolonged period of very low interest rates can have unintended consequences in the financial sector: erosion of interest margins for financial institutions, incentive for excessive financial risk-taking, asset price inflation, etc.

There can also be consequences in the real sector. For example, as people in ageing societies worry more about their retirement, persistently low interest rates may increase precautionary savings and weaken consumption. Analogously, funding deficits in corporate pension plans may constrain companies' capacity to make new investments. These effects warrant further investigation.

Furthermore, there are spillovers and spillbacks. Persistently low interest rates in the core advanced economies have spilled over to other economies less affected by the crisis. These spillovers work through various channels: from investors' search for yield and co-movements in global bond markets to policy reactions to avoid large interest rate differentials. These spillovers can fuel the build-up of financial imbalances in the receiving economies. Rapidly rising property prices, expanding credit and increasing indebtedness, including in foreign

currency debt, point to such imbalances. When these economies enter the late stages of the boom, their vulnerabilities may spill back to the originating economies.

Challenges ahead

What are the challenges ahead?

As mentioned by Stan Fischer, quantifying the trade-offs is a challenge.⁶ Part of the difficulty in assessing the costs and benefits of alternative policies is that the traditional analytical frameworks do not take enough account of the endogenous build-up of financial imbalances, which may accumulate slowly but then assert themselves quite powerfully. As such, these frameworks tend to underestimate the influence of monetary policy on the financial cycle. They also tend to underestimate the international dimension, in the form of policy spillovers and spillbacks.

This suggests that we need to develop better analytical frameworks that can allow us to study the interaction between finance and macroeconomics. In addition to taking a long-term perspective, this effort will require two things.

One is to think holistically. A holistic approach to macroeconomic and financial stability will involve a suite of policies: prudential, macroprudential, monetary and fiscal policies - and no less importantly, structural reforms. Since the interest rate determines the universal price of leverage in a given currency, monetary policy is a key factor in the financial cycle. A holistic approach would call for a monetary policy that responds more symmetrically to the financial cycle to help contain financial imbalances. Fiscal policy, for its part, should ideally create some additional fiscal space during financial booms in order to have enough capacity to address financial busts. All this will have to be complemented with a greater degree of attention to the slow-moving factors that sap productivity. Such drags on long-term growth tend to be not visible during financial booms, but become apparent during the busts.

The other requirement is to think globally. An important element for greater global financial stability is a better appreciation of cross-border spillovers in the conduct of national policies. Importantly, thinking global is not incompatible with central banks' domestic mandates - consider it a kind of enlightened self-interest. In improving our collective understanding of how spillovers and spillbacks work, central bank dialogue and cooperation are essential ingredients.

Conclusion

Let me conclude by noting that, in confronting and tackling these challenges, we would be well advised to follow Christian's example and his work - always inspired by pragmatism, inclusiveness, cooperation and good governance. Indeed, Christian has been a key player in crisis management, in endeavours to improve policy frameworks and in strengthening central bank cooperation.

Christian, you have worked steadily and effectively for the collective good of this community. As BIS Chairman, you gave direction and guidance in times when central banks faced unprecedented challenges. Under your chairmanship, many initiatives that are crucial for the BIS itself and for its collaboration with central banks and other institutions came to fruition. We have to build on to this work and to nurture the close cooperation among central banks in order to successfully meet the challenges of the future.

In closing this symposium, I would like to thank the Bank of France for inviting the BIS to be a part of this special event and for the excellent organisation. Many thanks also to the speakers. But most of all, I want to thank you, Christian. We as a community owe you an enormous debt. It is a debt of gratitude - the only type of debt we won't mind having more of! We wish you all the best in your future endeavours.

Where's the inflation, Mr Shin?

Interview with Mr Hyun Song Shin, Economic Adviser and Head of Research of the BIS, Frankfurter Allgemeine Zeitung, 27 December 2015.

Hyun Song Shin, Economic Adviser and Head of Research of the BIS, explains why prices are not rising despite the glut of money and why the situation is nonetheless dangerous.

Mr Shin, everybody expected to see inflation this year, but prices are hardly rising. What's happened?

Economists are still struggling to figure out the full story on inflation. The simple stories that people tell are no longer adequate. These simple stories are domestic and short-term: If the economy is depressed, you have low inflation. If the economy is overheated, you have high inflation. We are realising that this cannot be the full story. Otherwise we should be seeing higher inflation by now.

Inflation is only 0.2% in Europe and 0.5% in the US, although the central banks are doing everything in their power to drive it up to 2%. What's going wrong?

Inflation is not only a domestic and short-term phenomenon - the kind of phenomenon monetary policy can influence. Inflation also depends on global and long-term factors. The most important story is global. Ultimately, inflation is falling nearly everywhere in the world.

Why?

In the short term, that's down to the fall in the price of oil and other commodities. The low oil price lowers the price for fuel and thereby affects inflation. But there are important long-term stories as well.

For example?

Globalisation and demography. When the emerging economies started to produce for the world markets, we suddenly had a lot more supply, a so-called supply shock, which put pressure on prices and kept them low. That is one global long-term story. Then there are the long-term domestic factors. Even in countries that are not so open to the world market, we have seen inflation falling. One possible reason is demography - although some economists disagree. If you have an old population, there is a greater need to save. That leads to less consuming, so lower demand, which in turn leads to subdued inflation. You can see that in Japan, for example.

How do central banks fit into this story?

If you have a short-term view of the world and believe that a short-term lack of demand is the main reason for low inflation, this is where central banks play a role. You would say: Inflation is not close to 2%, so we have to use expansive monetary policy to help replace this missing demand. But that is too simple, as discussed already. There are multiple factors that alter inflation; not all of them can be influenced by central banks.

Is that a problem?

If you are trying to hit an inflation target irrespective of the state of the economy, you may be introducing other distortions into the financial system that will be ultimately more damaging.

So do we perhaps not have any need for rising prices, inflation?

People tend to associate inflation with situations like the Great Depression. They believe: If you hit deflation, ie falling prices, this will trigger a chain reaction which will lead to some very bad outcomes: a deflationary spiral where prices go down further and further. The problem is that there is little empirical evidence for this phenomenon outside the Great Depression. If you look at recent cases of deflation, you cannot find this spiral. Nor does history support the conclusion that low inflation is always associated with low output and is a sign of a depressed economy.

So everybody is wrong? All those economists and central bankers who feared a situation like the Great Depression after the financial crisis?

The Great Depression was a very singular event. You cannot generalise it. Switzerland, for example, has had a mild deflation during the last few years and the economy is not doing badly. The idea that if inflation hits zero, the economy comes to an immediate standstill, is simply not true.

ECB president Mario Draghi has been trying all year to reach the inflation target of "under, but close to 2%" the whole year. Is he wrong?

I cannot comment on the actions of individual central bankers, but I should say I am not against inflation targets for central banks. They have been a major achievement in making monetary policy more systematic. But the problem starts when inflation is the only goal and we take actions in order to bring back inflation which have side effects.

What are the dangers?

To understand them, we have to think globally. Central banks have an influence on exchange rates and debt, both domestically and in other countries. For example, if monetary policy in the US is expansionary, the dollar depreciates. For other countries, dollars are consequently cheaper and they borrow more in dollars, so the debt in dollars outside the United States goes up. The same happens in Europe. When the euro depreciates, as it has done this year, then foreigners borrow more in euros.

Foreigners borrowing in dollars and euros? That doesn't sound like a danger.

But it can be over a longer horizon. Emerging markets have been borrowing a great deal in US dollars. \$9.8 trillion is the amount that non-banks outside the United States have borrowed in dollars. Of that, \$3.3 trillion has gone to emerging economies. This has happened because the dollar has been depreciating for many years. Now the dollar is going back up again. And that is causing problems. Many of the projects that were financed with dollar debt are now being stopped or reversed.

Is that one of the reasons why China is having economic problems at the moment?

Not just China. Corporate investment has been very important for emerging markets, especially for oil and gas firms. If that slows down because dollar debt gets more expensive, then growth also slows down.

What does that mean for us?

The slower growth in emerging markets is exerting a drag on global growth. For example, this year. One of the reasons why US policymakers have been so concerned about global developments has been the slow growth in emerging markets - which hasn't come out of the blue. It is the result of monetary policy.

Central banks caused China's problems?

That is too simple. There are several causes. But monetary policy is one of them.

What concerns you most? That central banks are buying large amounts of government bonds - so-called "quantitative easing" (QE)?

It is not just QE. We have to think about what happened before the 2008 crisis. Central bankers concentrated purely on stabilising output and inflation. They did not think much about the ever accumulating debt and leverage. When that unwound, it hit back and undermined domestic stability as well. That has to change. Whoever thinks "what happens outside my borders does not matter to me" is being short-sighted. We are living in a global village. Keeping your own house in order is inseparable from keeping the neighbourhood in order.

The US central bank, the Fed, last week ushered in a small revolution, raising interest rates after a seven-year low-interest phase. What will happen now?

We are now going through a realignment of global forces. Imagine a table with an array of compasses. All of the needles are pointing in the same direction. But then you move the pole, and all the needles are shifting. That is exactly what is happening at the moment. The needles are financial market prices, growth rates, debt levels. The monetary stance is the pole, and it is shifting all of those needles at the same time. That has an enormous impact.

Should we be afraid of what the new year will bring?

We are looking ahead to a major realignment, just as I said. That is going to have real economy knock-on effects. We are already seeing some effects in the form of lower commodity prices. That is a boost for demand for many countries, like a tax cut. But if you are a commodity producer, this is a very negative shock. Falling commodity prices will also keep inflation low. Whether we will see still larger disruptions depends very much on financial regulation and banking supervision. If they have been rigorous enough, this could mitigate the effect.

German investors are concerned that interest rates are so low. They blame the ECB and Mario Draghi for this. Is that right?

Low interest rates are an intended effect of monetary policy. You can see that long-term rates in Europe are going down, including in Germany. It is no accident that this started in the middle of 2014, when there was first talk of the central bank buying government bonds in large amounts.

Are low interest rates a cause for concern - also for our economy?

Low interest rates can be distortionary. The risk of them falling lower becomes much larger. One could get into a circle. Like a dog chasing its tail.

How so?

It's like in the poem by Stevie Smith, Not waving, but drowning. The idea of the poem is: Here is a drowning man waving in the water and the people think: Oh, he's waving. But in reality, he is drowning. The same can happen with low interest rates. In standard textbooks, they are considered a good thing, stimulating the economy, a sign of exuberance. But there is the possibility that low rates can be a sign of distress and low returns as well. If rates stay low for a long time, this will eat into the profitability of insurance companies and the solvency of pension funds. They will, in the search for yield, look to buy longer-term assets, which will lower rates even further. In Europe, interest rates fell very fast in 2014 and the early part of 2015.

Then Europe is not waving but drowning?

If you mean interest rates: Yes, on that count, Europe is closer to drowning than to waving. If you mean the real economy: No, the European economy is doing better.

“Sudden floods” and sudden stops of capital flows in an environment of ultra-low interest rates: an equal opportunity menace for emerging market and advanced economies alike

Remarks by Mr Luiz Awazu Pereira da Silva, Deputy General Manager of the BIS, at the 51st SEACEN Governors' High-Level Seminar, Manila, 26 November 2015.

<http://www.bis.org/speeches/sp151216.pdf>

Exchange rates and the transmission of global liquidity

Speech by Mr Hyun Song Shin, Economic Adviser and Head of Research of the BIS, at the Bank of Korea-IMF conference "Leverage in Asia: Lessons from the Past, What's New Now?, and Where to Watch Out For?", Seoul, 11 December 2015.

What is the economic impact of currency depreciation? Is it expansionary or contractionary? Traditional arguments in the spirit of the Mundell-Fleming model suggest that it is expansionary as it boosts net exports and output. But the combination of slowing growth and deep depreciations in emerging market currencies suggest that the traditional explanation is incomplete. Borrowing in international currencies generates another link between exchange rates and economic activity that operates through financial channels; currency depreciation undermines balance sheet strength and tightens financial conditions, sapping economic activity. Government fiscal positions suffer knock-on effects due to increased tail risks, further tightening financial conditions and amplifying the downturn. Even the deployment of large central bank foreign exchange reserves may not be sufficient to reverse such a growth slowdown.

Revisiting monetary policy frameworks in the light of macroprudential policy

Panel remarks by Mr Jaime Caruana, General Manager of the BIS, at the IMF seminar on "Revisiting monetary policy frameworks", Lima, 10 October 2015.

It is a real pleasure to be part of this panel. In my remarks, I would like to take a look at the nexus of monetary and macroprudential policies.

I will point out that the often proposed separation principle - whereby macroprudential policy should deal with financial booms and busts (the financial cycle) while monetary policy should deal with inflation and shorter-term output fluctuations (the business cycle) - is intuitive, but unconvincing as a general proposition. I will first offer three reasons why the separation principle is not compelling. I will then address three typical concerns about using monetary policy to deal with financial imbalances.

The conclusion I draw is that, given the great economic costs of financial instability, we need to rebalance policy priorities towards reducing the likelihood of such instability. While there is some acceptance of the idea that monetary policy has a role to play in leaning against the financial cycle in some circumstances,¹ I will argue that this case applies much more generally.

Given how powerful monetary policy is in affecting the price of leverage, credit growth, asset prices and financial risk-taking, simply arguing that it forms the last line of defence is inadequate and somewhat risky. It assigns too modest a role to such an influential policy. The proposed rebalancing of policy priorities will no doubt require additional analysis. But relying exclusively on macroprudential policies to tame the financial cycle would simply be insufficient.

In fact, I would go further and argue that even using both macroprudential and monetary policies may still be insufficient in some situations because the endogenous build-up of financial imbalances can be very powerful. In such cases, policymakers will also need other policies - not only prudential/macroprudential and monetary, but also fiscal policy or even structural reforms - to address the imbalances.

Part of the problem in discussing the costs and benefits of alternative policies is that current models and traditional analytical approaches take little or no account of the endogenous cumulative effects of interest rates being too low for too long. They tend to assume that monetary policy has limited influence on the financial cycle - and hence on the costs of financial booms and busts. The international dimension of monetary policy, the spillovers and spillbacks, also tend to be underestimated.

Why the separation principle is not convincing

The separation principle has the merit of yielding clear and neat policy assignments: monetary policy for price stability and macroprudential policy for financial stability. However, the real world is more complicated than that. This principle is therefore not very convincing as a general rule, for three reasons.

Same channels of influence

First, both macroprudential policy and monetary policy fundamentally influence the same channels - funding costs, leverage incentives and risk-taking - which, in turn, affect credit growth, asset prices and the macroeconomy. As such, these two policies are not really neatly separable - they often interact and can create tensions. For example, in a situation where policy rates are lowered for business cycle reasons and macroprudential tools are tightened to address credit booms and rising asset prices, economic agents face incentives to borrow more and to borrow less at the same time.

One consequence of this observation, also supported by empirical evidence, is that the two sets of tools are most effective when used as complements, pulling in the same direction.²

Different effectiveness

Second, although macroprudential policy tools have the advantage of being more targeted to specific sectors or practices, experience suggests that these tools are not as effective as

monetary policy rates in preventing excessive risk-taking that is widespread across the financial system.

To be clear, macroprudential policy can be helpful in increasing the resilience of the financial system, ie in building buffers that will protect it when a boom turns to bust. Research also shows that some tools, such as requirements on the loan-to-value ratio (LTV) or the debt-to-income ratio, can be effective in influencing credit and property price developments, ie in constraining the build-up of financial imbalances in the first place. That being said, estimates of such effects generally imply that these instruments would need to be tightened by quite a lot in order to be able to contain the typical dynamics during a boom.³

In contrast, the monetary policy rate is the key determinant of the universal price of leverage in a given currency. It is not susceptible to regulatory arbitrage, and it affects all financing in the economy. In particular, if the price of leverage has been too low for a long time, allowing financial risk-taking to take hold and spread across the system, it would then be much more difficult for macroprudential policy tools to address the excessive credit growth and asset price increases.

This point is consistent with the experience of some economies that have made extensive use of macroprudential measures in recent years against the backdrop of very accommodative monetary policy conditions. I can cite, for instance, Hong Kong and Switzerland, among others. Despite the tightening of macroprudential tools such as LTV requirements and countercyclical capital buffers or dynamic provisions, these economies have not been able to fully avert the build-up of financial imbalances.⁴

This challenge is also reminiscent of Spain's experience in the 2000s, when it found out that dynamic provisions could not be sustained at levels sufficient to contain the credit boom. Moreover, being in a monetary union, Spain could not have independently used monetary policy to deal with the boom. A monetary union is a special case in this regard.

Market-driven booms

Third, there are market-driven booms - and this reinforces my previous points. Financial intermediation has been changing: capital markets are gaining prominence and the search for yield is an active mechanism for transmitting financial conditions across markets. Most of our experience so far with macroprudential tools has come from banking. But now, imbalances are building not so much in the banking sector but in capital markets, which are not within the direct reach of traditional macroprudential tools.

In this situation, monetary policy again has an advantage. By changing the universal price of leverage in a given currency, it affects all financing denominated in that currency and is much better positioned to work in a world in which capital markets are vast and macroprudential tools are narrowly directed at banks.

What I would conclude from all this is that exclusive reliance on macroprudential tools to deal with financial stability risks is insufficient and ill advised. Macroprudential tools can increase resilience. They can address localised issues, such as the overheating of specific markets. And they provide policymakers with additional options to lean against the build-up of financial imbalances. But they cannot "get in all the cracks" in the system, as Jeremy Stein so aptly put it.⁵ Arbitrage can move the build-up of financial imbalances from one place to another, finding the inevitable cracks that exist in any prudential regulatory regime. For this reason, there is a case for using monetary policy.

Concerns about using monetary policy to deal with financial imbalances

Let me now turn to the typical concerns about using monetary policy to deal with financial imbalances. These concerns should be taken seriously. But I believe they are manageable - and they should be managed.

Lack of good metrics

One often cited argument is the lack of good metrics with which to track the financial cycle. This is a serious concern for policymakers. But one should recognise that the past decade has seen considerable progress in devising and improving such metrics. One practical approach,

followed by economies such as Hong Kong, Norway and the United Kingdom when setting countercyclical capital buffers, is to track credit and asset price developments, and to compare current dynamics to historical benchmarks.

At the same time, one should not forget that even the more familiar yardsticks used in monetary policy are themselves not without problems. Take, for example, the output gap, a measure for economic slack, which is not observed directly and thus has to be estimated. It is known that the estimates are subject to considerable uncertainty.⁶

In fact, some recent research suggests that using information about the financial cycle, such as the behaviour of credit and property prices, can produce better estimates of potential output and underlying slack compared with using traditional methodologies, which often draw on the behaviour of inflation.⁷ In this sense, metrics informed by the state of the financial cycle may help improve the calibration of monetary policy and fiscal policy.

Policy trade-offs

A second, and more challenging, concern is the potential trade-offs between financial stability on the one hand, and price stability and near-term output stabilisation on the other.

To some extent, this concern can be ameliorated by looking at the relevant policy horizon. Financial vulnerabilities build up over time. And a financial bust can have long-lasting effects on the macroeconomy, including on inflation. Hence, extending the policy horizon beyond the traditional two to three years would help to reconcile the financial stability objective with the traditional price stability (and output growth) objective. After all, financial instability is a concern precisely because of the damage it imposes on the real economy.

However, I should note that extending the policy horizon should not be interpreted as extending point forecasts. Rather, it is intended as a means to examine more systematically the risks to the macroeconomic outlook posed by financial factors, given their longer fuse.

Deviation from mandate

A third concern is deviation from mandate. Given the potential trade-offs I just described, there would be times when the price stability objective (eg inflation target) could not be achieved as quickly as one would like because of financial stability considerations. If one is going to tolerate such deviations of inflation from target, how long should this be allowed to last? And how much importance should one attach to such deviations?

The real concern here, I believe, is the worry that if the deviation from the stated target persists for a long time, it might lead to a loss of central bank credibility. If this is indeed the issue, then our view is that the monetary policy framework should explicitly provide for tolerance of such deviations if and when they are deemed appropriate for achieving its objective over the longer term. Of course, the allowance should be based on proper analysis of the reasons underlying the deviations.

Much less clear, however, is whether allowing such tolerance would necessarily constitute a deviation from the mandate (eg price stability). Central bank mandates are typically worded generally enough to accommodate different ways to interpret and implement them in practice. In particular, given the large negative impact financial crises can have on the real economy, sustainable price stability or macroeconomic stability can indeed be thought of as encapsulating financial stability.

This suggests that the first priority should be to: (i) make use of all the existing room for manoeuvre; (ii) develop a better explanation for why a near-term deviation from target may sometimes be justified for the longer-term good; and (iii) build a constituency for a more systematic incorporation of financial stability concerns into central bank decisions.

In addition, transparency with respect to financial stability policies could be helpful in this regard. Disclosing financial stability decisions and actions, and the reasons behind them, could help to manage expectations about how a central bank would deal with financial stability risks and the potential impact of policy actions. That said, I do recognise that interpreting mandates flexibly in difficult and uncertain times is not at all an easy task.

Conclusion

On balance, arguments against incorporating financial stability considerations systematically into monetary policy, while not without merit, are nonetheless not fully convincing. They tend to overestimate how much is known about the business cycle but underestimate how much has been learned about the financial cycle. They also tend to put too much faith in the ability of macroprudential policy to deal with financial stability risks but underappreciate monetary policy's role in determining the price of leverage and in influencing borrowing and risk-taking behaviour across the board.

Although there may be near-term trade-offs, financial stability and price stability are really two sides of the same coin over the longer horizon. If the ultimate goal of monetary policy is to promote sustainable economic growth, then there is good reason to call for a rebalancing of policy priorities towards mitigating financial booms and busts, which can inflict long-lasting damage on the real economy. Such a rebalancing would be challenging and would confront policymakers with tough questions. But relying exclusively on macroprudential tools to address financial stability risks is simply insufficient. There is a case for including monetary policy in this effort.

Macroprudential policies: What have we learnt?

Speech by Mr Claudio Borio, Head of the Monetary and Economic Department of the BIS, at the Bank of Italy Conference "Micro and Macroprudential Banking Supervision in the Euro Area", Università Cattolica del Sacro Cuore, Milan, 24 November 2015.

Post-crisis, macroprudential frameworks have rightly become an essential pillar of financial stability policies. This presentation addresses the implications of the financial cycle for their design, including objectives, instruments and governance as well as, more specifically, the strengths and limitations of macro-stress tests and network analysis. It highlights the areas where the scope for further work is greatest, including international co-ordination, the role of non-banks and sovereign risk. Addressing financial stability is a task that requires the active support of other policies, including monetary and fiscal policy. Macroprudential frameworks must be part of the answer, but cannot be the whole answer.