

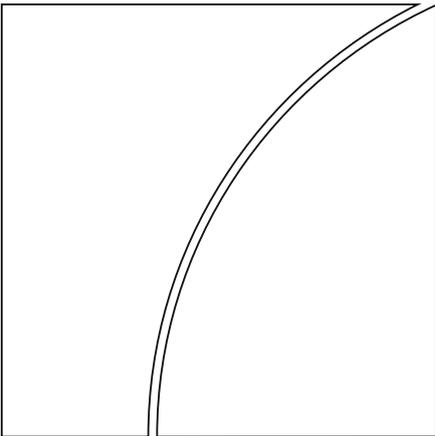


BANK FOR INTERNATIONAL SETTLEMENTS

## **BIS Quarterly Review**

June 2016

International banking  
and financial market  
developments



BIS Quarterly Review  
Monetary and Economic Department

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ISSN 1683-0121 (print)  
ISSN 1683-013X (online)

# BIS Quarterly Review

June 2016

## International banking and financial market developments

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## Notations used in this Review

billion	thousand million
e	estimated
lhs, rhs	left-hand scale, right-hand scale
\$	US dollar unless specified otherwise
...	not available
.	not applicable
–	nil or negligible

Differences in totals are due to rounding.

The term “country” as used in this publication also covers territorial entities that are not states as understood by international law and practice but for which data are separately and independently maintained.



## Highlights of the BIS international statistics<sup>1</sup>

*The BIS, in cooperation with central banks and monetary authorities worldwide, compiles and disseminates data on activity in international financial markets. This chapter summarises the latest data for the international banking and over-the-counter derivatives markets, available up to end-2015. A box looks at the international business of banks in China, and another at global residential property price developments in 2015.*

### Takeaways

- The slowdown in international banking activity that began in early 2015 broadened in the final quarter of the year. The \$651 billion contraction in cross-border bank lending affected most major currencies, sectors and regions.
- A \$276 billion drop in cross-border claims on euro area countries accounted for the largest share of the \$361 billion fall in lending to advanced economies.
- Cross-border bank credit to emerging market economies (EMEs) was down by \$159 billion during Q4 2015, or 8% in the year to end-December 2015 – the sharpest year-on-year contraction since 2009.
- The \$114 billion decline in cross-border lending to China was the second quarterly drop in a row, and it pushed the annual growth rate down to –25%.
- New data published by China confirm that banks on the mainland are becoming an increasingly important source of international bank credit. They are an especially important source of US dollar credit: their cross-border dollar assets totalled \$529 billion at end-December 2015.
- Global over-the-counter derivatives markets saw a broad-based decline in activity in the second half of 2015, largely thanks to ongoing trade compression. The notional amount of outstanding contracts fell by 11%. Gross market values decreased by 6%.
- Residential property prices increased significantly in many of the large advanced and emerging economies in 2015, but fell sharply in Brazil and Russia.

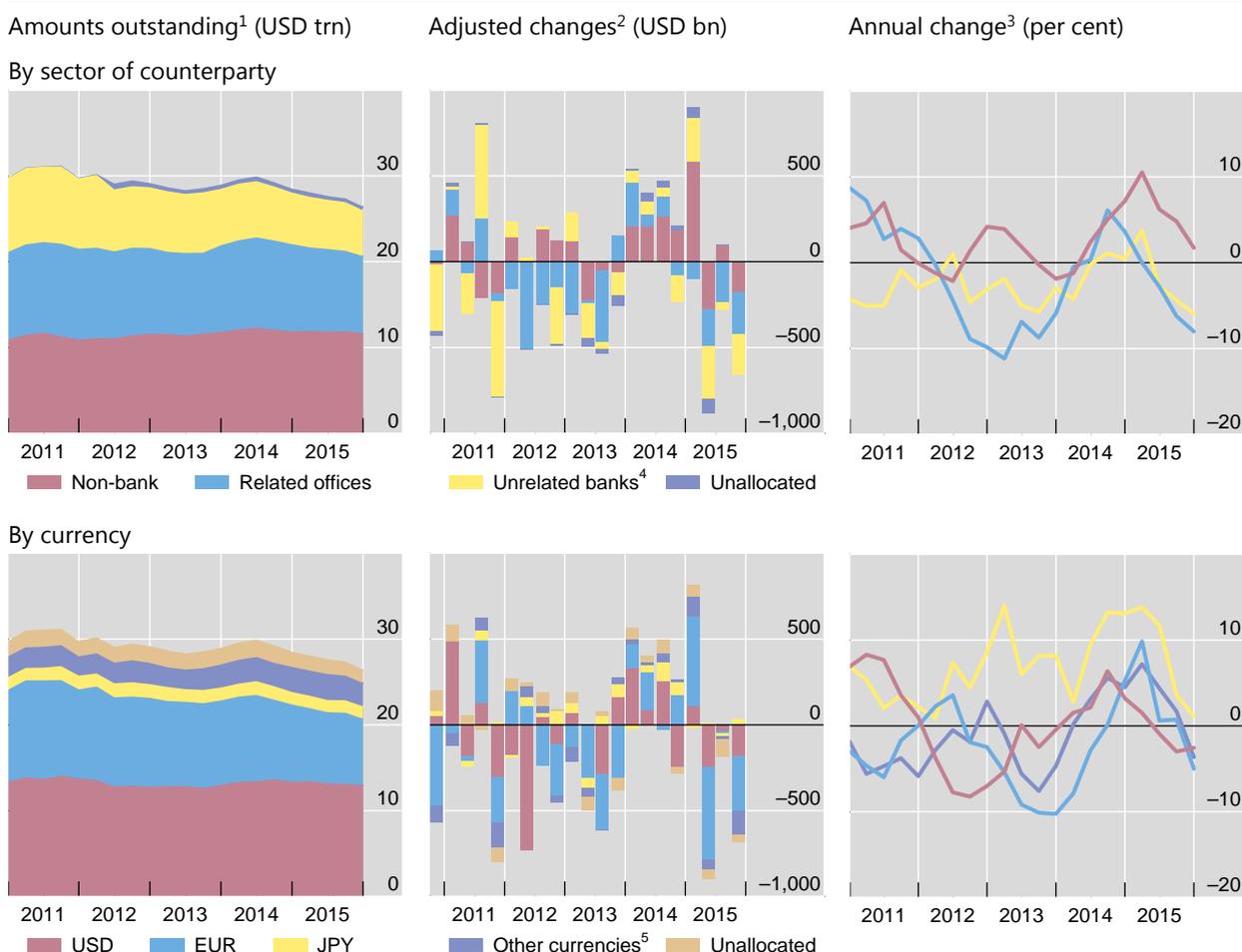
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## Recent developments in the international banking market

The fourth quarter of 2015 saw another sizeable contraction in international banking activity. Between end-September and end-December 2015, the cross-border claims of BIS reporting banks dropped by \$651 billion after adjustment for exchange rate movements and methodological breaks (Graph 1, top panels).<sup>2</sup> It was the third consecutive quarterly drop, which reduced the outstanding stock to \$26.4 trillion. The

Cross-border claims, by sector, currency and instrument

Graph 1



Further information on the BIS locational banking statistics is available at [www.bis.org/statistics/bankstats.htm](http://www.bis.org/statistics/bankstats.htm).

<sup>1</sup> 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. <sup>2</sup> Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. <sup>3</sup> Geometric mean of quarterly percentage adjusted changes. <sup>4</sup> Includes central banks and banks unallocated by subsector between intragroup and unrelated banks. <sup>5</sup> Other reported currencies, calculated as all currencies minus USD, EUR, JPY and unallocated currencies. The currency is known but reporting is incomplete.

Source: BIS locational banking statistics.

<sup>2</sup> The locational banking statistics are structured according to the location of banking offices and capture the activity of all internationally active banking offices in the reporting country regardless of the nationality of the parent bank. Banks record their positions on an unconsolidated basis, including those vis-à-vis their own offices in other countries. Throughout these Highlights, quarterly changes in outstanding amounts are adjusted for the impact of exchange rate movements between the ends of the respective quarters and for methodological breaks in the data series.

annual growth rate in the year to end-December 2015 sank to –3%, far below the average of 6% seen over the past 20 years. The weakening in international banking activity during Q4 2015 coincided with a relatively tranquil period in global financial markets, during which markets stabilised following a bout of volatility in the third quarter. However, a deterioration in global growth prospects, particularly in EMEs, started to feed into renewed market turbulence at the turn of the year.<sup>3</sup>

The decline in cross-border lending<sup>4</sup> was more evenly spread across sectors, major currencies and regions in Q4 2015 than in previous quarters.

As regards sectors, interbank activity again accounted for the largest share and mainly drove the overall decline. But claims on non-bank borrowers, which had previously held up better, also fell substantially (by \$177 billion): their annual growth rate slowed to 2% at end-December 2015, down from a peak of 11% at end-March 2015.

As regards currencies, cross-border claims denominated in euros fell the most (\$325 billion), followed by those in US dollars (\$175 billion). By contrast, cross-border claims denominated in Japanese yen rose slightly, by \$32 billion during the last three months of 2015 (Graph 1, bottom panels), reflecting an increase in Japanese banks' cross-border lending.

Across borrowing regions, the decline in international banking activity affected advanced economies (–\$361 billion), EMEs (–\$159 billion) and offshore centres alike (–\$120 billion). Activity channelled via offshore centres continued its steady post-financial crisis decline. Deposits placed with banks there, including intragroup transactions and interbank deposits, totalled \$3.2 trillion at end-December 2015, down by 8% compared with a year earlier.

## Claims on advanced economies declined

Cross-border claims on the euro area, the United States and other advanced economies shrank by \$361 billion during Q4 2015. This contraction took their outstanding amount to \$19 trillion and the annual growth rate to –2.9% (Graph 2, top panels).

The contraction between end-September and end-December 2015 was driven primarily by a \$276 billion drop in cross-border claims on euro area countries, which brought its stock to \$7.1 trillion and corresponded to a 3% decline in the year to end-December 2015. Cross-border claims on France declined by \$75 billion (Graph 3, top panels) and those on Germany and Ireland by \$52 billion each. Claims on the Netherlands and Spain also fell (by \$37 billion and \$27 billion, respectively), while those on Greece, Italy and Portugal remained relatively stable.

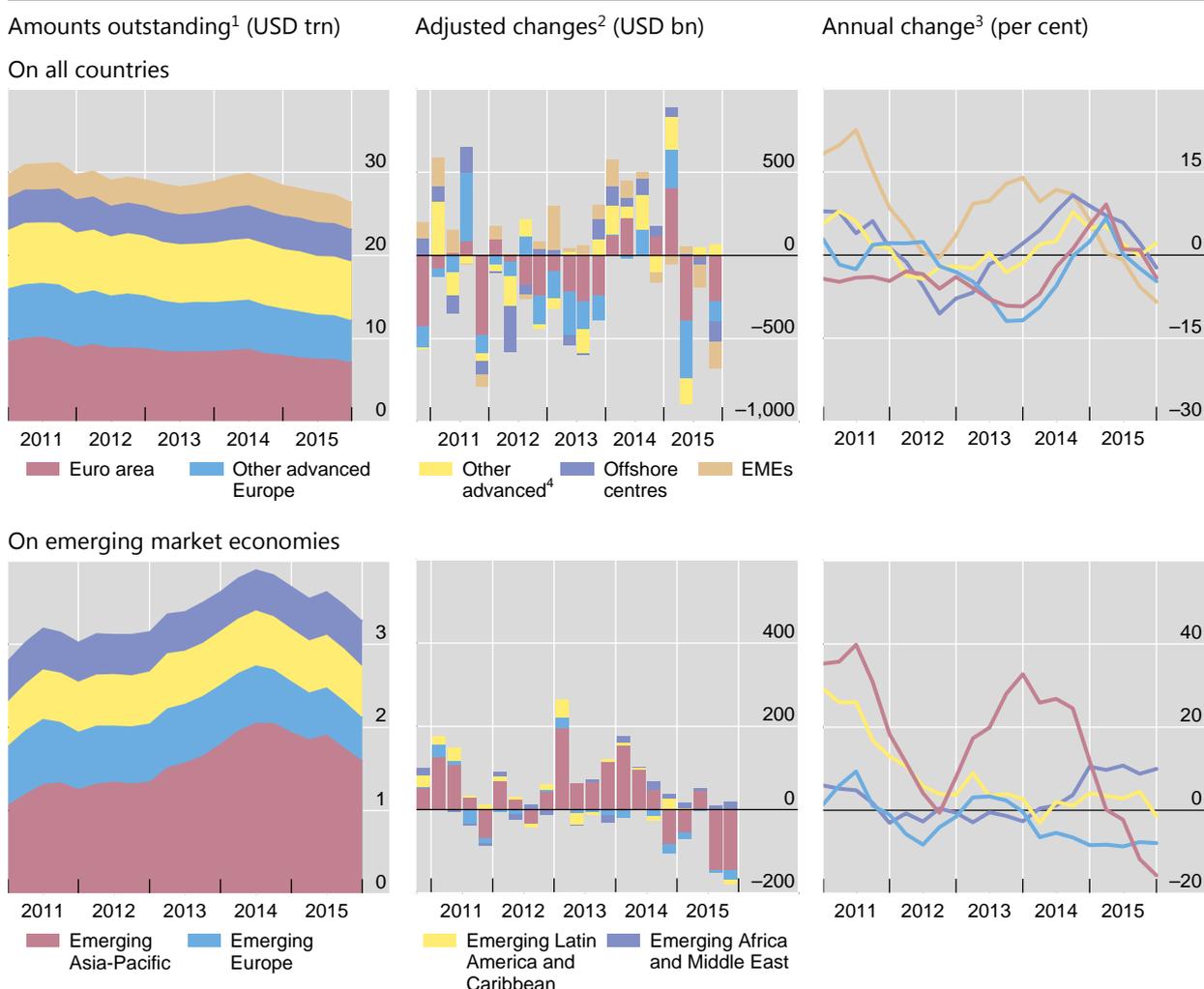
Among other advanced economies, cross-border lending to the United Kingdom and the United States shrank the most (by \$98 billion to \$3.7 trillion and by \$76 billion to \$4.6 trillion, respectively). In both cases, the interbank market led the overall

<sup>3</sup> See "Uneasy calm gives way to turbulence", *BIS Quarterly Review*, March 2016, pp 1–11, [www.bis.org/publ/qtrpdf/r\\_qt1603.htm](http://www.bis.org/publ/qtrpdf/r_qt1603.htm).

<sup>4</sup> Throughout this section, the terms "cross-border lending" and "cross-border credit" are used interchangeably with "cross-border claims" for presentational ease. That said, it should be noted that, in the BIS locational banking statistics, "cross-border claims" is a broader category which covers not only banks' loans and holdings of debt securities, but also other financial claims that they have, such as holdings of equity securities, participations and derivative instruments with positive market value. For complete definitions, see [http://www.bis.org/statistics/bankstatsguide\\_repreqloc.pdf](http://www.bis.org/statistics/bankstatsguide_repreqloc.pdf).

## Cross-border claims, by borrowing region

Graph 2



Further information on the BIS locational banking statistics is available at [www.bis.org/statistics/bankstats.htm](http://www.bis.org/statistics/bankstats.htm).

<sup>1</sup> 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. <sup>2</sup> Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. <sup>3</sup> Geometric mean of quarterly percentage adjusted changes. <sup>4</sup> Includes international organisations and cross-border amounts unallocated by residence of counterparty.

Source: BIS locational banking statistics.

decline. Japan was a notable exception. During the last quarter of 2015, cross-border claims on the country grew by \$43 billion, or 7% year on year, to \$1.2 trillion outstanding at end-2015.

### Cross-border bank credit to EMEs continues to contract

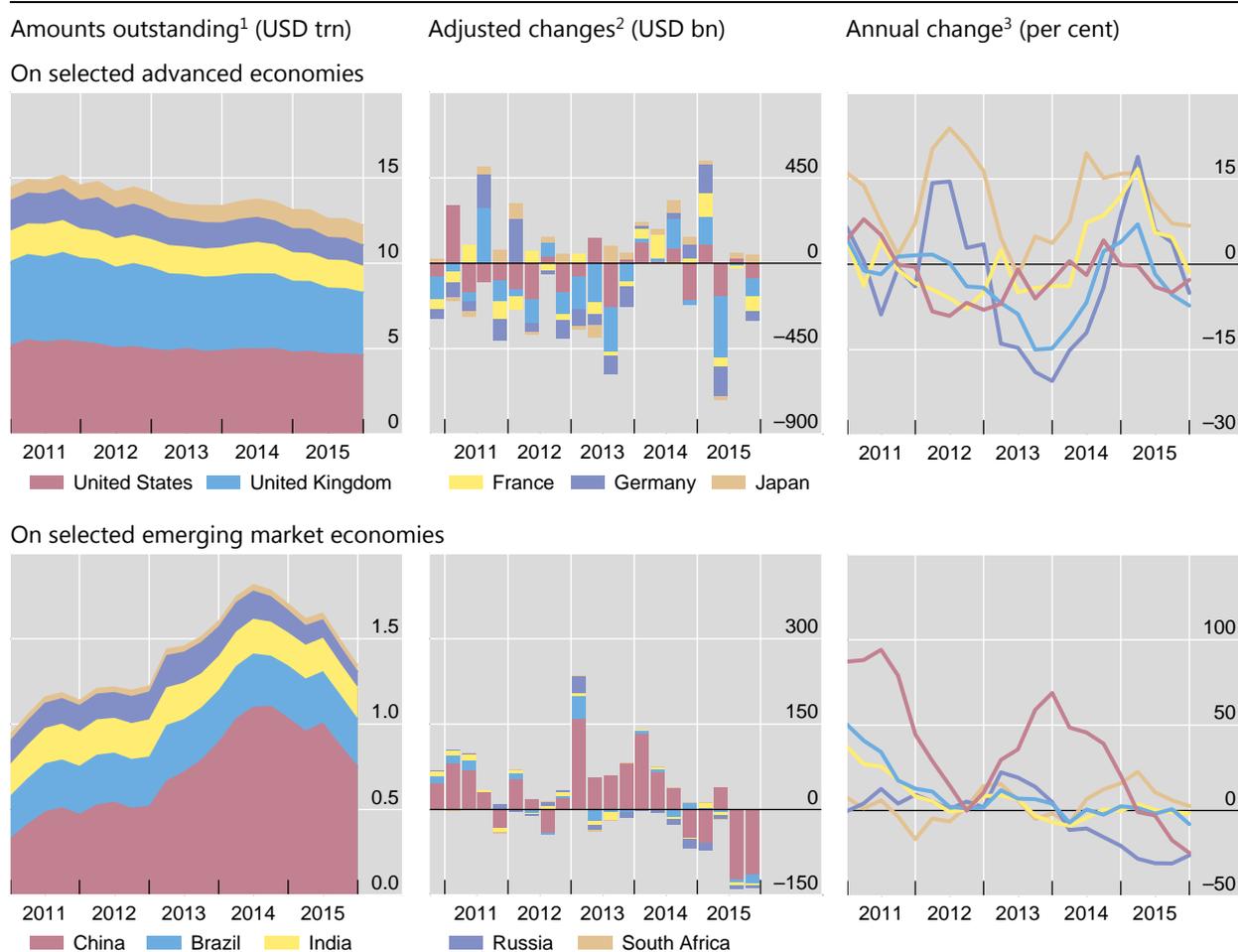
The fall in cross-border lending to EMEs, which had started in the last quarter of 2014, accelerated during Q4 2015: claims contracted by \$159 billion, taking the stock to \$3.3 trillion and its annual growth rate to –8% (Graph 2). The aggregate decline was fuelled primarily by falling claims on emerging Asia, and China in particular.

The decline in international claims<sup>5</sup> on China was broadly shared across sectors, maturities and creditor countries. Cross-border lending to mainland residents dropped by \$114 billion during Q4 2015, or 25% year on year (Graph 3, bottom panels). The outstanding amount, totalling \$756 billion at end-December 2015, has declined by a cumulative \$304 billion, or 27%, from the all-time high reached at end-September 2014.

On a consolidated, immediate borrower basis,<sup>6</sup> foreign claims on Chinese residents, including local claims booked by foreign banks' offices in China, contracted during the last quarter of 2015 from \$1.1 trillion to \$996 billion. This was 23% down from their \$1.3 trillion peak in Q3 2014. As of end-2015, two thirds of these foreign

Cross-border claims, by borrowing country

Graph 3



Further information on the BIS locational banking statistics is available at [www.bis.org/statistics/bankstats.htm](http://www.bis.org/statistics/bankstats.htm).

<sup>1</sup> 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. <sup>2</sup> Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. <sup>3</sup> Geometric mean of quarterly percentage adjusted changes.

Source: BIS locational banking statistics.

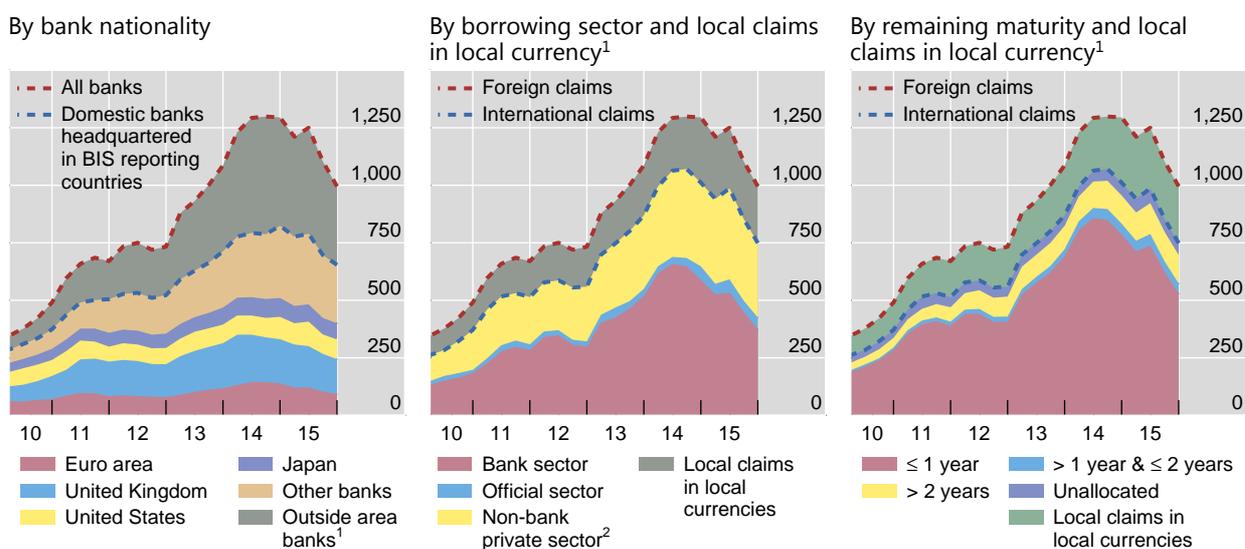
<sup>5</sup> International bank claims are the sum of banks' cross-border claims and their local claims denominated in foreign currencies.

<sup>6</sup> The consolidated banking statistics (CBS) provide the split of international claims by sector and maturity only on an immediate borrower basis.

## BIS reporting banks' consolidated claims on China

In billions of US dollars

Graph 4



<sup>1</sup> Includes branches or subsidiaries located in the reporting country whose activities are not consolidated by a controlling parent institution in another reporting country. This mainly comprises banking offices with a non-bank controlling parent institution (eg the banking subsidiary of an insurance group). <sup>2</sup> Includes international claims unallocated by sector.

Source: BIS consolidated banking statistics, immediate counterparty basis.

claims were booked by banks headquartered in BIS reporting countries (Graph 4, left-hand panel). Banks headquartered outside BIS reporting countries, but with offices located in BIS reporting countries – for instance, Chinese banks located in Hong Kong SAR – accounted for the remainder.<sup>7</sup> Claims of these so-called “outside area banks” fell from \$512 billion at end-September 2014 to \$341 billion at end-December 2015. However, unlike the claims of banks headquartered in BIS reporting countries, those of outside area banks are reported on an unconsolidated basis and thus include intragroup positions.

International claims on banks accounted for the majority of the contraction in foreign lending to China that took place since Q3 2014. The outstanding stock of international claims on banks in China has decreased, from \$648 billion at end-September 2014 to \$374 billion at end-December 2015. The latter category includes the intragroup positions of Chinese banking units located in BIS reporting countries (eg Hong Kong SAR) vis-à-vis their parent offices on the mainland. As a consequence, a substantial part of the above decline may be a direct consequence of the concurrent declines in offshore deposit liabilities reported by Chinese banks in Hong Kong SAR.<sup>8</sup>

<sup>7</sup> A list of countries in the BIS reporting area is available on the BIS website at [www.bis.org/statistics/rep\\_countries.html](http://www.bis.org/statistics/rep_countries.html). China does not report international banking statistics to the BIS. However, the locational statistics and consolidated statistics on an immediate counterparty basis capture the positions of Chinese and other banks headquartered outside the BIS reporting area to the extent that these positions are booked through offices in a BIS reporting country.

<sup>8</sup> For further details, see R McCauley and C Shu, “Dollars and renminbi flowed out of China”, *BIS Quarterly Review*, March 2016, pp 26–7, [www.bis.org/publ/qtrpdf/r\\_qt1603.htm](http://www.bis.org/publ/qtrpdf/r_qt1603.htm); and R McCauley, “Capital flowed out of China through BIS reporting banks in Q1 2015”, *BIS Quarterly Review*, September 2015, pp 28–9, [www.bis.org/publ/qtrpdf/r\\_qt1509u.htm](http://www.bis.org/publ/qtrpdf/r_qt1509u.htm).

## International business of banks in China

*Hong Hu and Philip Wooldridge*

As part of China's commitments as a member of the Committee on the Global Financial System and the G20, the State Administration of Foreign Exchange (SAFE) has been working with the BIS to compile data on the international business of banks in China for reporting the locational banking statistics (LBS).<sup>①</sup> In March 2016 SAFE started to publish some of these data. Once the full details are available, these data will be included in the LBS published by the BIS. The future inclusion of China in the LBS-reporting population will result in a 3% increase in reporting banks' aggregate cross-border assets and a 4% increase in cross-border liabilities.

The data published by SAFE capture the positions of all commercial and investment banks in China, including the government-owned policy banks (eg China Development Bank and Export-Import Bank of China) and the mainland affiliates of foreign-controlled banks. The central bank's assets and liabilities are excluded.

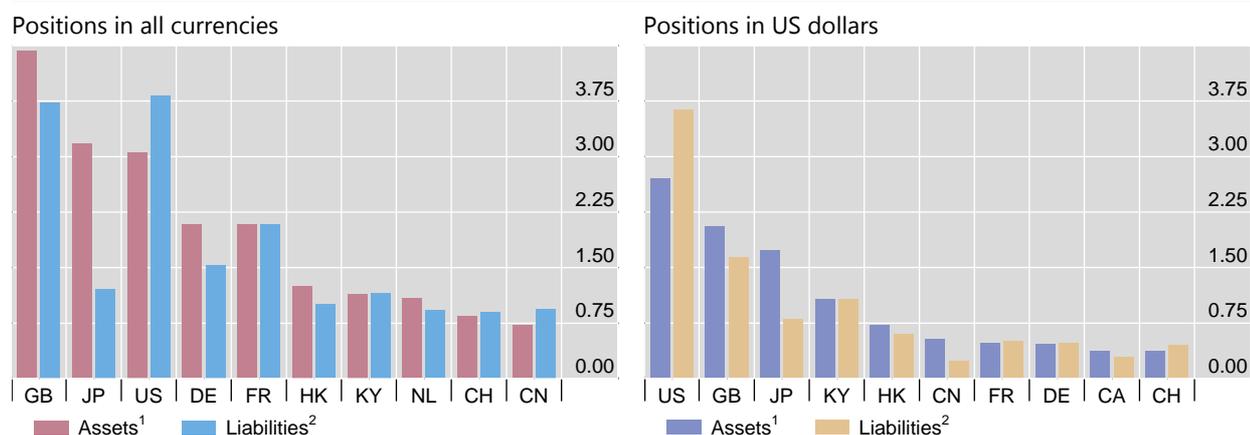
China's data confirm that banks on the mainland are becoming an increasingly important source of international bank credit. At end-December 2015, they were the tenth largest creditors in the international banking system, with cross-border assets of \$722 billion (Graph A1, left-hand panel). They are an especially important source of US dollar credit: their cross-border dollar assets totalled \$529 billion, larger than those of banks in all but five countries (Graph A1, right-hand panel).

Unlike in the other large countries that are creditors in the international financial system, such as Germany and Japan, the banking sector in China is a net debtor in the international market. At end-2015, the cross-border liabilities of banks on the mainland amounted to \$944 billion, which was \$222 billion more than their cross-border assets. This net debtor position is partly explained by the offshore listings of several of the largest Chinese banks. About one third of their cross-border liabilities, or \$320 billion, comprised instruments other than loans, deposits and debt securities. These other instruments mostly represented the market value of Chinese banks' equities traded in Hong Kong SAR and on other exchanges.

### Cross-border assets and liabilities of banks in selected countries

By location of bank, including intragroup positions; at end-December 2015, in trillions of US dollars

Graph A1



CA = Canada; CH = Switzerland; CN = China; DE = Germany; FR = France; GB = United Kingdom; HK = Hong Kong SAR; JP = Japan; KY = Cayman Islands; NL = Netherlands; US = United States.

<sup>1</sup> Financial assets, which mainly comprise loans and banks' holdings of securities <sup>2</sup> Liabilities mainly comprise deposits and banks' own issues of securities, including equities held by non-residents.

Sources: Chinese State Administration of Foreign Exchange; BIS locational banking statistics ([Table A5](#)).

Another explanation for the relatively large size of Chinese banks' liabilities is the channelling of offshore renminbi deposits to the mainland – for example, renminbi deposits placed with banks in Hong Kong SAR, which are in turn deposited with banks on the mainland. At end-2015, mainland banks reported that their renminbi-denominated liabilities to non-residents totalled \$436 billion, whereas their renminbi-denominated claims on non-residents were only \$58 billion. A decline in such liabilities accounted for a sizeable portion of the total capital outflows from China in 2015, as firms and households outside the mainland reduced their demand for renminbi deposits in response to waning incentives for holding long-renminbi, short-US dollar positions.<sup>①</sup>

Turning to their US dollar positions, banks in China were large net creditors: at end-2015, their cross-border US dollar assets exceeded their dollar liabilities by almost \$300 billion (Graph A1, right-hand panel). At the time, only banks in Japan and the United Kingdom were larger net dollar creditors. Banks in China appeared to fund their cross-border dollar assets in part with dollars raised on the mainland from firms and households.

The new data help to shed light on potential channels of contagion from economic and financial developments in China. The consolidated banking statistics (CBS) and LBS have long been a useful source of information for monitoring the credit extended by foreign banks to borrowers in China. Foreign banks' exposure to China has increased rapidly since the late 2000s, to \$694 billion at end-2015 on a consolidated ultimate risk basis (see pp 5–6). The new data from China will make it easier to monitor the dependence of borrowers abroad on credit from China. As the Great Financial Crisis of 2007–09 demonstrated, it is as important to monitor potential shocks emanating from creditors as those from borrowers. Furthermore, the existing international banking statistics underestimate the overall increase in the indebtedness of those countries relatively more reliant on credit from China.

<sup>①</sup> In 2009, the International Monetary Fund and the Financial Stability Board launched an international initiative to improve the availability of key information for policymakers to assess risks across countries. This Data Gaps Initiative is endorsed by the G20 and overseen by the Inter-Agency Group of international organisations, of which the BIS is a member. <sup>②</sup> See R McCauley and C Shu, "Dollars and renminbi flowed out of China", *BIS Quarterly Review*, March 2016, pp 26–7, [www.bis.org/publ/qtrpdf/r\\_qt1603u.htm](http://www.bis.org/publ/qtrpdf/r_qt1603u.htm).

International claims on China fell across all maturities (Graph 4, right-hand panel). However, there were signs of a gradual shift towards longer horizons: short-term claims on China with remaining maturities of up to one year constituted a share of 71% as of end-December 2015, compared with 81% in Q1 2014. (See Box A for a discussion of newly published data on the international business of banks in China.)

Cross-border bank credit to emerging Asia excluding China fell by \$31 billion during Q4 2015, with all major economies in the region sharing in the decline. A \$26 billion drop in cross-border lending to banks accounted for most of the fall. Cross-border lending to Chinese Taipei saw the second largest quarterly contraction on record, again led by a fall in interbank activity. The \$17 billion contraction reduced the outstanding total to \$105 billion (representing a 23% year-on-year decline at end-December 2015). Cross-border claims on Korea shrank by \$6 billion, down 5% from a year earlier, and those on Malaysia fell by \$4 billion, or 15% year on year, while India saw a decline of \$2 billion, or 2% in the year to end-December 2015.

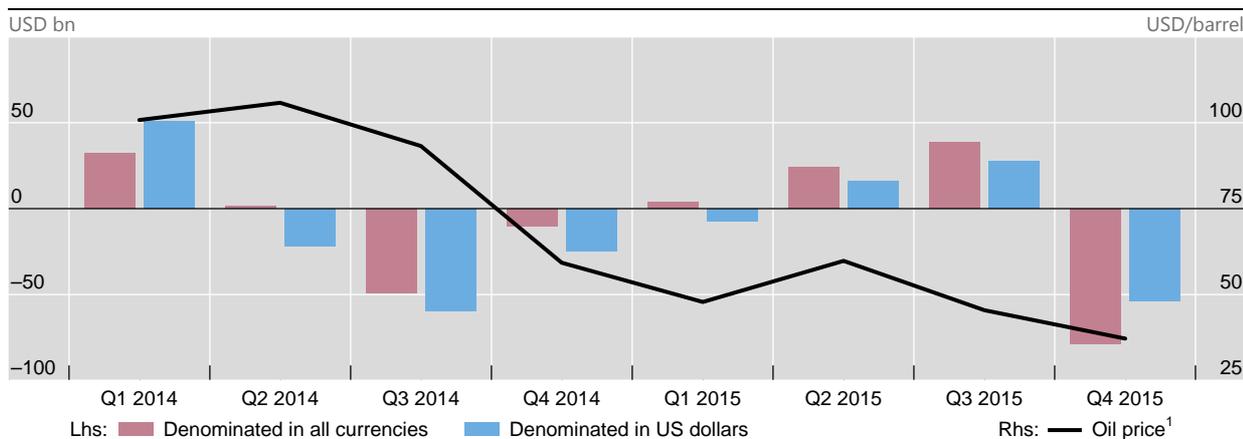
Cross-border lending to emerging Latin America and the Caribbean contracted by \$12 billion during Q4 2015 (Graph 2, bottom panels), driven by a sharp fall in interbank lending to Brazil. Indeed, cross-border credit to the regional economies except for Brazil grew by \$4 billion. Cross-border claims on Brazil, which accounted for almost half of the total for Latin America, fell for the third straight quarter. The \$16 billion drop in Q4 2015 pushed down the annual growth rate to –8% and reduced the outstanding amount to \$277 billion. More than 85% of the most recent drop resulted from a contraction in interbank lending.

Cross-border bank credit to emerging Europe contracted by \$22 billion. Cross-border lending to Poland shrank the most (by \$7 billion), again mainly driven by a contraction of interbank activity. Borrowers in Russia experienced the second largest drop (by \$6 billion) in the region. Year on year, the stock of cross-border lending to

## Deposits of oil-exporting countries and the oil price

Adjusted changes by currency

Graph 5



<sup>1</sup> West Texas Intermediate, not seasonally adjusted.

Sources: Federal Reserve Economic Data (FRED); BIS locational banking statistics.

Russia contracted by 26%, although the size of the quarterly declines shrank in the course of the year.

In contrast to other regions, cross-border claims on emerging Africa and Middle East expanded during Q4 2015. For 2015 as a whole, cross-border lending to this region grew by 10%.

### Deposits of oil exporters fell along with the oil price

The decline in oil prices during Q4 2015 coincided with a significant fall in cross-border deposits placed with BIS reporting banks by residents of oil-exporting countries (Graph 5). Aggregate cross-border deposits held by residents of oil-exporting countries<sup>9</sup> fell by \$79 billion during Q4 2015. Deposits denominated in US dollars accounted for about two thirds of this decline.

The quarterly contraction was concentrated among some oil-exporting countries. Depositors from Russia (-\$27 billion) and Norway (-\$26 billion) withdrew the highest absolute amounts. Internationally active banks also reported considerable declines in cross-border deposits held by residents of Saudi Arabia (-\$17 billion), the United Arab Emirates (-\$7 billion) and Mexico (-\$7 billion).

Even after their latest quarterly decline, the cross-border deposits of oil-exporting countries were quite sizeable. Their outstanding stock stood at \$996 billion as of end-2015. More than half of that amount was accounted for by the residents of four countries: Saudi Arabia (\$214 billion), the United Arab Emirates (\$129 billion), Russia (\$109 billion) and Mexico (\$107 billion).

The latest quarterly decline in deposits from oil-exporting countries actually understates the size of net cross-border flows to their residents during Q4 2015. BIS reporting banks' cross-border loans to oil exporters rose by \$15 billion. As a consequence, net cross-border bank flows to oil-exporting countries totalled

<sup>9</sup> The set of oil-exporting countries considered here comprises Algeria, Angola, Bahrain, Ecuador, Egypt, Indonesia, Iran, Iraq, Kazakhstan, Kuwait, Libya, Mexico, Nigeria, Norway, Oman, Qatar, Russia, Saudi Arabia, Syria, the United Arab Emirates, Venezuela and Yemen.

\$94 billion during the same quarter. The recipients of the largest net cross-border flows were Norway (\$27 billion), Russia (\$22 billion) and the United Arab Emirates (\$21 billion).

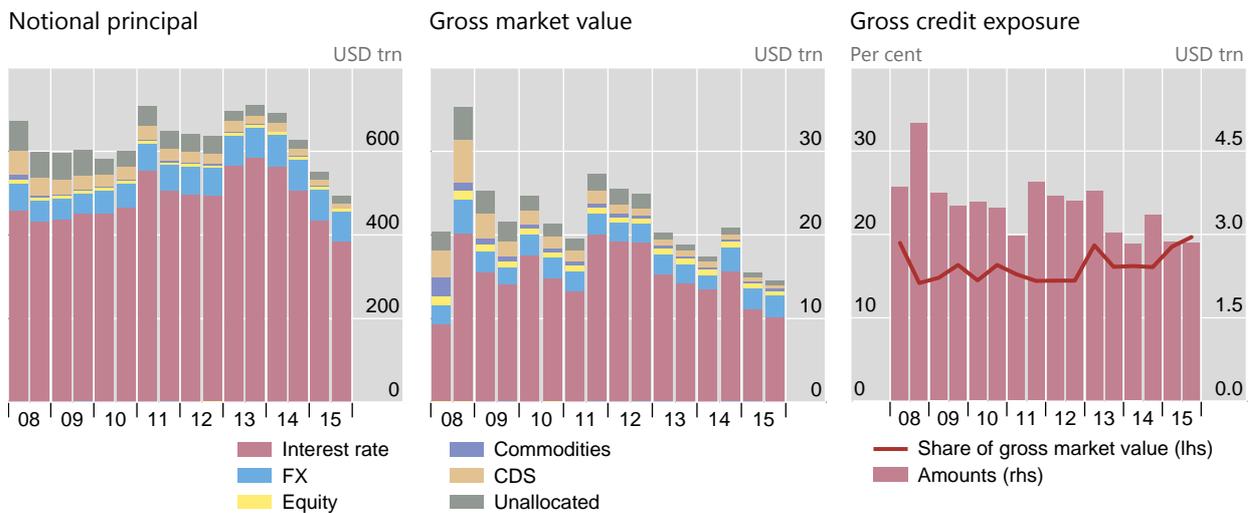
## Recent developments in OTC derivatives markets

The over-the-counter (OTC) derivatives market continued to contract in the second half of 2015. In dollar terms, the notional amount of outstanding OTC derivatives contracts, which determines contractual payments and is one indicator of the total stock of positions taken by market participants, fell by 11% between end-June 2015 and end-December 2015, from \$552 trillion to \$493 trillion (Graph 6, left-hand panel). Even after adjustment for exchange rate movements, notional amounts at end-December 2015 were still about 9% lower than at end-June 2015.<sup>10</sup>

The gross market value of outstanding derivatives contracts – that is, the cost of replacing all outstanding contracts at market prices prevailing on the reporting date – also fell in the second half of 2015.<sup>11</sup> It decreased by 6% from \$15.5 trillion at end-June 2015 to \$14.5 trillion at end-December 2015, its lowest level since 2007 (Graph 6, centre panel). Gross credit exposures remained at \$2.9 trillion at end-December 2015,

Global OTC derivatives markets<sup>1</sup>

Graph 6



Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/derstats.htm](http://www.bis.org/statistics/derstats.htm).

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

Source: BIS derivatives statistics.

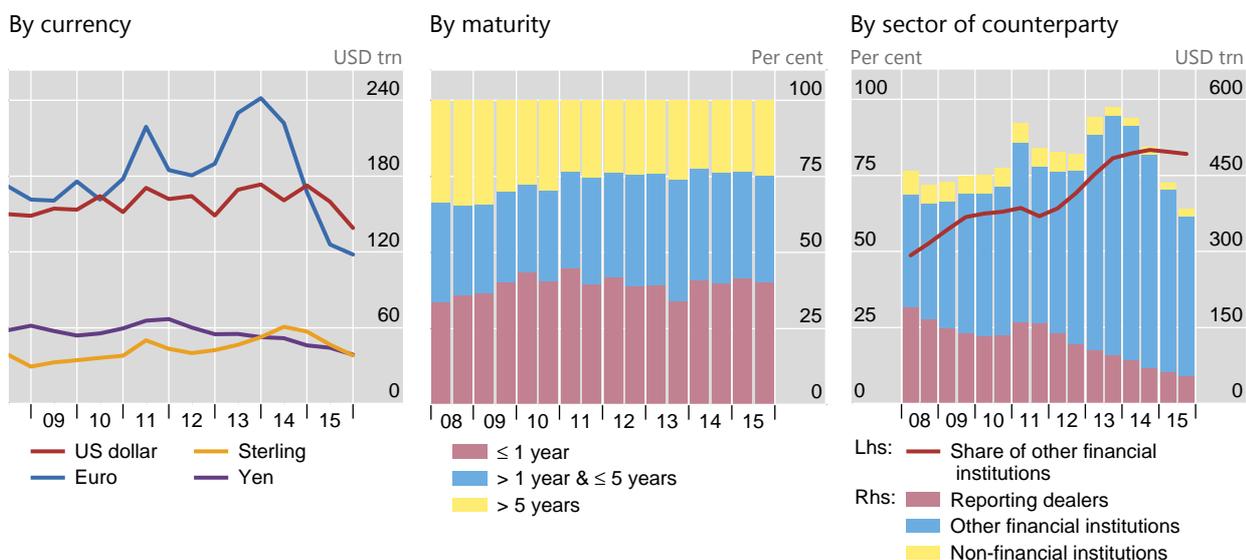
<sup>10</sup> Positions are reported in US dollars, and thus changes between periods include the impact of exchange rate movements on positions denominated in currencies other than the US dollar. For example, the depreciation of the euro against the US dollar between end-June 2015 and end-December 2015 resulted in a decline in the reported US dollar value of positions denominated in euros.

<sup>11</sup> The gross market value is calculated as the sum of the absolute value of gross positive market values and gross negative market values. The gross positive market value is the gain to derivatives dealers

## OTC interest rate derivatives

Notional principal<sup>1</sup>

Graph 7



Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/derstats.htm](http://www.bis.org/statistics/derstats.htm).

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

Source: BIS derivatives statistics.

roughly the same level as in June 2015 (Graph 6, right-hand panel). This measure of counterparty credit risk represented 20% of gross market values at end-December 2015, a share that is slightly above the average observed since 2008 (16%).

### Interest rate derivatives

The interest rate segment accounts for the majority of OTC derivatives activity. At end-December 2015, the notional amount of outstanding interest rate derivatives contracts totalled \$384 trillion, which represented 78% of the global OTC derivatives market. At \$289 trillion, swaps accounted for by far the largest share of this market segment.

Notional amounts of interest rate contracts fell sharply in the second half of 2015, primarily driven by a contraction in US dollar-denominated instruments (Graph 7, left-hand panel). The notional value of US dollar contracts declined from \$160 trillion to \$139 trillion between end-June 2015 and end-December 2015. Contracts in euros decreased from \$126 trillion to \$118 trillion. Those in yen, sterling and other currencies also declined.

– and the gross negative market value the loss – if the dealers were to sell their outstanding contracts at market prices prevailing on the reporting date.

Trade compression to eliminate redundant contracts was the major driver of the decline, mainly reflecting the greater clearance of standardised contracts (eg interest rate swaps) through central counterparties (CCPs).<sup>12</sup>

Indeed, the distribution of interest rate derivatives by counterparty points to an ongoing shift towards CCPs. Central clearing is a key element in global regulators' financial reform agenda to reduce systemic risks.<sup>13</sup> The notional amount of interest rate contracts between derivatives dealers, which had been falling more or less steadily since its peak of \$189 trillion at end-June 2008, declined further during the second half of 2015 – from \$61 trillion at end-June 2015 to \$54 trillion at end-December 2015 (Graph 7, right-hand panel). Contracts between dealers and other financial institutions, including CCPs, stood at \$315 trillion at end-December 2015, down from \$360 trillion at end-June 2015. This sharp decline is likely to have stemmed from the move of trades to CCPs and related compression activity facilitated by central clearing. Contracts with financial institutions other than dealers continued to account for the majority (82%) of interest rate derivatives contracts as of end-December 2015.

The gross market value of interest rate derivatives decreased from \$11.1 trillion at end-June 2015 to \$10.1 trillion at end-December 2015. This mainly reflected the considerable decline in the notional amounts of outstanding contracts that took place during the same period.<sup>14</sup>

## Foreign exchange derivatives

Foreign exchange derivatives make up the second largest segment of the global OTC derivatives market. At end-December 2015, the notional amount of outstanding foreign exchange derivatives contracts totalled \$70 trillion, which represented 14% of OTC derivatives activity. Contracts against the US dollar represented 87% of this market segment.

After reaching its highest level for several years at end-December 2014, at \$2.9 trillion, the gross market value of foreign exchange derivatives dropped during the first half of 2015 and then stabilised at around \$2.5 trillion in the second half of the year. Contracts involving the US dollar increased from \$2.2 trillion at end-June 2015 to \$2.4 trillion at end-December 2015.

In contrast to the interest rate derivatives market, inter-dealer contracts in the foreign exchange derivatives market continued to account for nearly as much activity as contracts with other financial institutions. The notional amount of outstanding foreign exchange contracts between reporting dealers totalled \$30 trillion at end-December 2015, and contracts with financial counterparties other than dealers \$31 trillion. The inter-dealer share has averaged around 43% since 2011, up from less than 40% prior to 2011.

<sup>12</sup> Compression aggregates derivatives contracts with similar risks or cash flows into fewer trades. This process of "tearing up" trades allows economically redundant derivative trades to be terminated early without changing each participant's net position. For statistics on multilateral compressions, see TriOptima, [www.trioptima.com/resource-center/statistics/triReduce.html](http://www.trioptima.com/resource-center/statistics/triReduce.html).

<sup>13</sup> See D Domanski, L Gambacorta and C Picillo, "Central clearing: trends and current issues", *BIS Quarterly Review*, December 2015, pp 59–76.

<sup>14</sup> Trade compression, which was one of the main drivers of the overall decline in notional amounts, tends to reduce gross market values (all else the same) while leaving gross credit exposures (ie gross market values adjusted for netting) unchanged.

## Credit default swaps

The steady reduction in the size of the global credit default swap (CDS) market, which started in 2007, continued in the second half of 2015. The notional amount of outstanding CDS contracts fell from \$15 trillion at end-June 2015 to \$12 trillion at end-December 2015, which represented only one fifth of its end-2007 peak of \$58 trillion (Graph 8, left-hand panel).

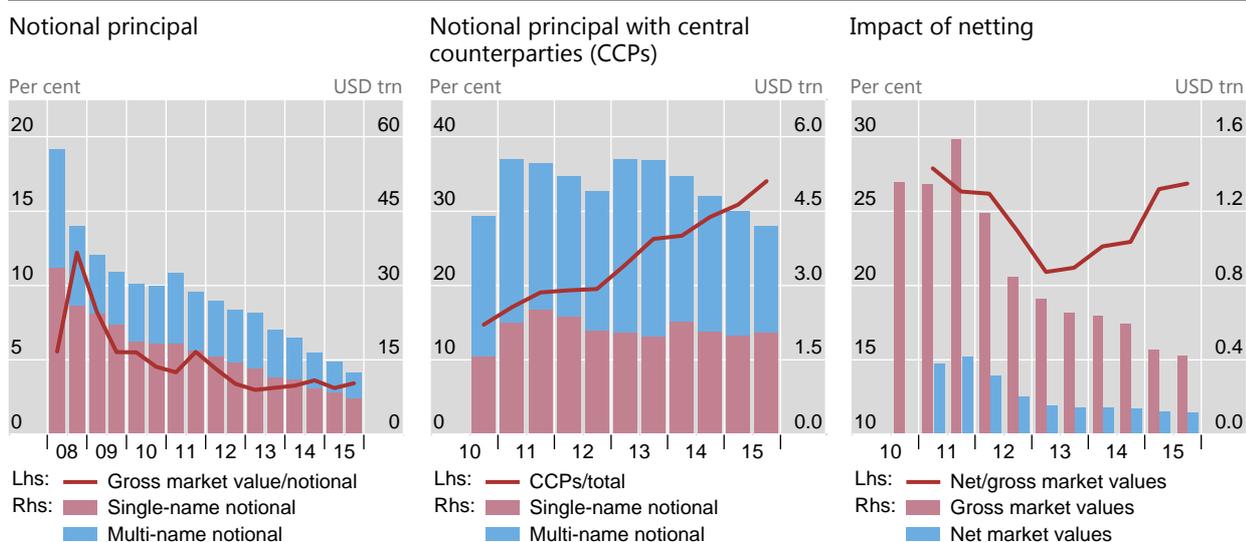
The market value of CDS also continued to decline, to \$421 billion at end-December 2015 in gross terms and \$113 billion in net terms (Graph 8, right-hand panel). The net measure takes account of bilateral netting agreements covering CDS contracts but, unlike gross credit exposures, is not adjusted for cross-product netting.

The recent decline in overall CDS activity reflected mainly the contraction of the inter-dealer segment. The notional amount for contracts between reporting dealers fell from \$6.5 trillion at end-June 2015 to \$5.5 trillion at end-December 2015. Notional amounts with banks and securities firms also decreased in the second half of 2015, from \$1.2 trillion to \$0.9 trillion.

Central clearing continued to make inroads. In line with the overall trend in OTC derivatives markets, notional amounts of CDS cleared through CCPs declined in absolute terms between end-June 2015 and end-December 2015, from \$4.5 trillion to \$4.2 trillion. Nevertheless, the *share* of outstanding contracts cleared through CCPs has risen, from less than 10% at mid-2010 (when data for CCPs were first reported separately) to 26% at end-2013 and 34% at end-December 2015 (Graph 8, centre panel). The share of CCPs is highest for multi-name products, at 42%, and much lower for single-name products, at 28%. One possible explanation is that contracts on CDS indices in the multi-name segment are more amenable to central clearing, as they tend to be more standardised than those in the single-name segment.

Credit default swaps<sup>1</sup>

Graph 8



Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/derstats.htm](http://www.bis.org/statistics/derstats.htm).

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

Source: BIS derivatives statistics.

## Residential property price developments<sup>①</sup>

*Robert Szemere*

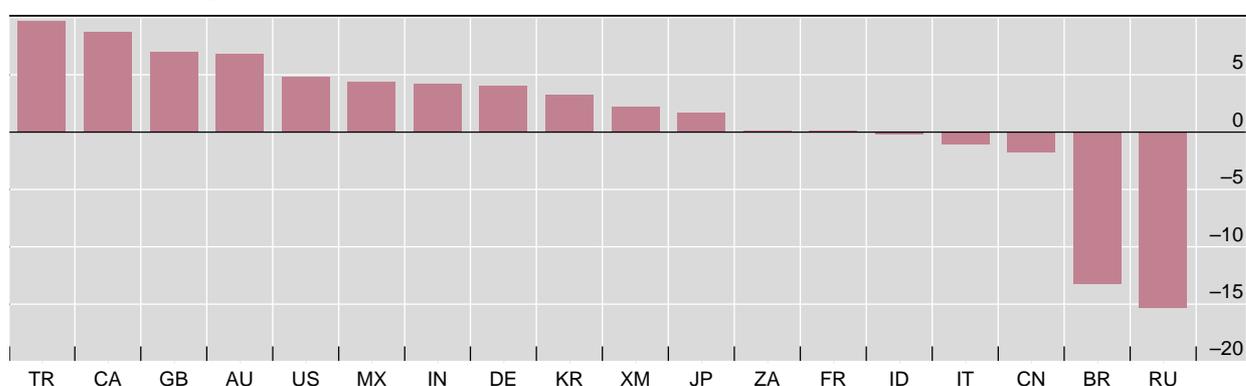
Residential property prices increased significantly in advanced economies during 2015 (Graph B1). They rose by 4% on average in the fourth quarter of 2015 on a year-on-year basis in real terms (ie deflated by the CPI), and their growth was particularly strong in Australia, Canada, the United Kingdom and the United States. Prices grew more moderately in Japan and also in the euro area, mainly driven by developments in Germany and Spain.

Most of the emerging market economies (EMEs) also experienced strong increases, eg Korea, India, Mexico and especially Turkey. However, prices fell markedly in some of the larger countries, in particular by around 15% in both Brazil and Russia. The result was an overall decline of 1% on average for all emerging regions (Graph B1).

### Real residential property prices in selected countries in 2015

Year-on-year changes in Q4 2015, in per cent

Graph B1



AU = Australia; BR = Brazil; CA = Canada; CN = China; DE = Germany; FR = France; GB = United Kingdom; ID = Indonesia; IN = India; IT = Italy; JP = Japan; KR = Korea; MX = Mexico; RU = Russia; TR = Turkey; US = United States; XM = euro area; ZA = South Africa.

Source: [BIS selected residential property prices series](#).

### Developments since 2007<sup>②</sup>

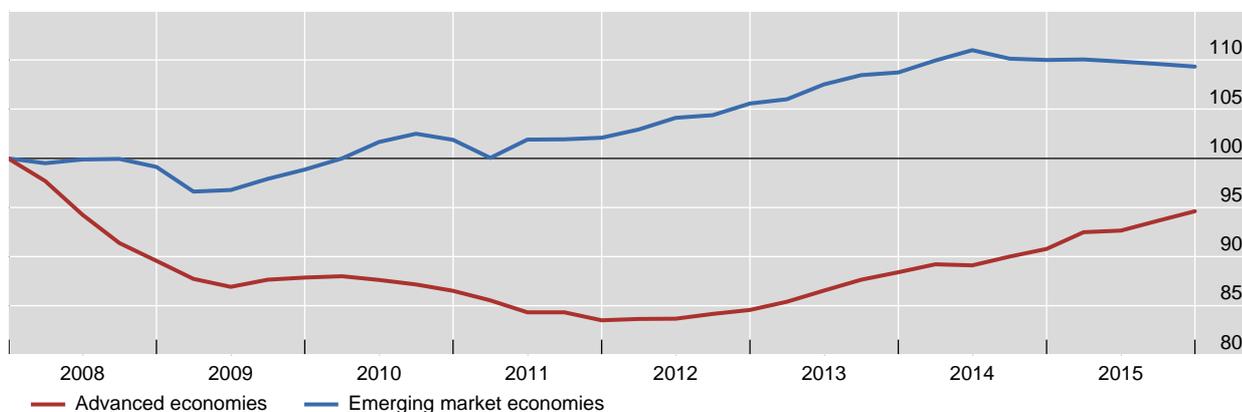
Real residential property prices at the end of 2015 were still moderately (by 5%) below their end-2007 levels for the group of advanced economies, despite the rebound observed in the past few years (Graph B2). This gap stood at 8% in the United States, despite the rally observed since mid-2011, but has narrowed more in Japan and the United Kingdom (Graph B3). It is significantly larger (–12%) in the euro area. Real property prices remain sharply lower in Spain than they were in 2007, despite having bottomed out in 2013, and are also below 2007 levels in France and Italy. However, prices are well above their pre-crisis levels in Germany. They have increased markedly in the economies which were less affected by the Great Financial Crisis, especially Australia (by almost 20%) and Canada (by almost 30%).

In contrast, residential property prices have on average been trending upwards for EMEs since the crisis. They exceed their 2007 levels by 9% in real terms. However, there have been significant disparities across countries. Prices have increased by around two thirds in Brazil (despite a significant downward correction in the last two years) and India, but significantly less in Mexico. They are roughly at their 2007 levels in China and Korea, and have fallen moderately in Indonesia and South Africa. Prices have dropped sharply since the crisis in several central and eastern European countries, in particular by more than 40% in Russia.

## Aggregate developments in real residential property prices in advanced and emerging market economies since the Great Financial Crisis

Q4 2007 = 100

Graph B2



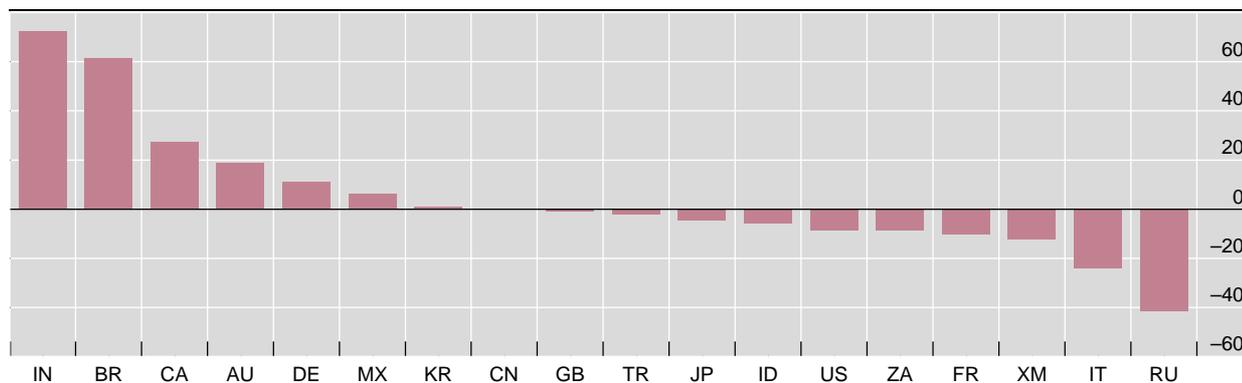
Estimated weighted averages based on rolling GDP and PPP exchange rates.

Source: BIS calculations.

## Real residential property prices in selected countries<sup>1</sup> since 2007

Cumulative changes from end-2007 to end-2015, in per cent

Graph B3



AU = Australia; BR = Brazil; CA = Canada; CN = China; DE = Germany; FR = France; GB = United Kingdom; ID = Indonesia; IN = India; IT = Italy; JP = Japan; KR = Korea; MX = Mexico; RU = Russia; TR = Turkey; US = United States; XM = euro area; ZA = South Africa.

<sup>1</sup> For Turkey, BIS estimates based on market data; for India, cumulative change from Q1 2009; for Japan, cumulative change from Q2 2008.

Source: [BIS selected residential property prices series](#).

① A note focusing on the most recent developments is published in February, August and November. Q1 2016 data for some countries are already available in the BIS data sets, but Q4 2015 data are not yet available for Chile. ② Price developments since early 2008 for Japan and early 2009 for India. For China, BIS calculation based on the average of the prices reported for the 70 largest cities.

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# 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](http://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](http://www.bis.org/statistics/index.htm)). A release calendar provides advance notice of publication dates ([www.bis.org/statistics/relcal.htm](http://www.bis.org/statistics/relcal.htm)).

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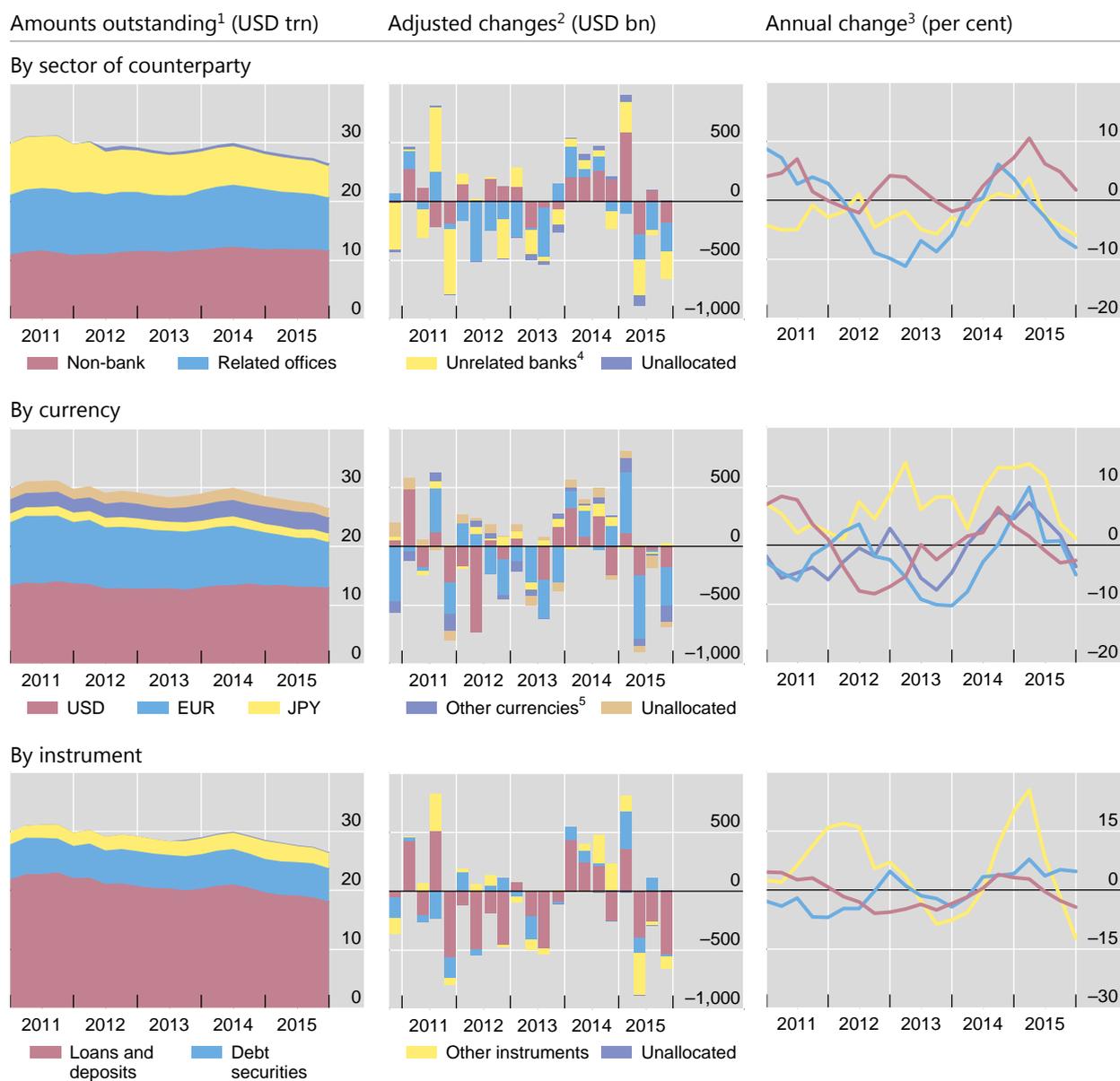
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## A Locational banking statistics

### Cross-border claims, by sector, currency and instrument

Graph A.1

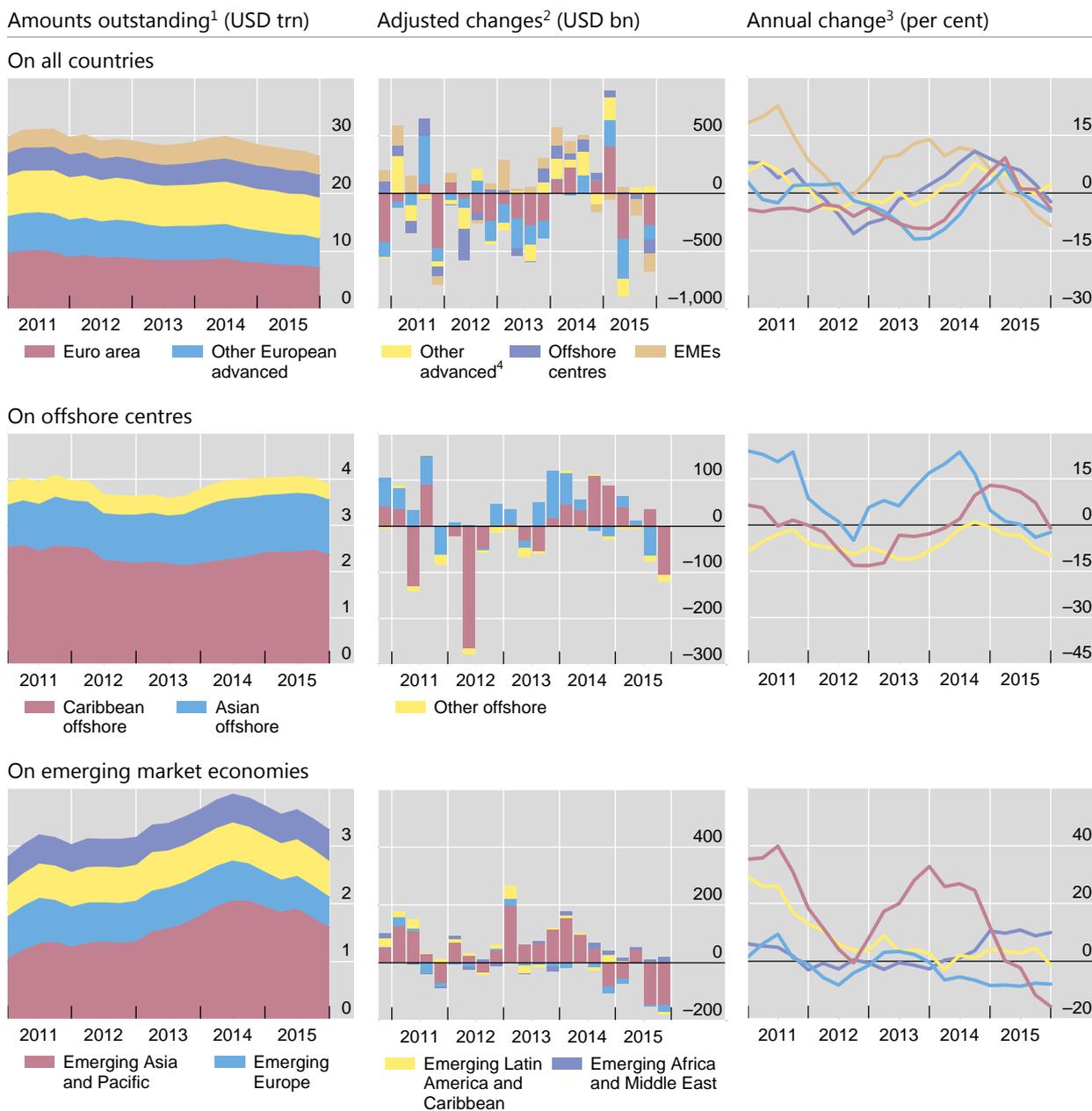


Further information on the BIS locational banking statistics is available at [www.bis.org/statistics/bankstats.htm](http://www.bis.org/statistics/bankstats.htm).

<sup>1</sup> 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. <sup>2</sup> Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. <sup>3</sup> Geometric mean of quarterly percentage adjusted changes. <sup>4</sup> Includes central banks and banks unallocated by subsector between intragroup and unrelated banks. <sup>5</sup> 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



Further information on the BIS locational banking statistics is available at [www.bis.org/statistics/bankstats.htm](http://www.bis.org/statistics/bankstats.htm).

<sup>1</sup> 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. <sup>2</sup> Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. <sup>3</sup> Geometric mean of quarterly percentage adjusted changes. <sup>4</sup> Includes international organisations and cross-border amounts unallocated by residence of counterparty.

# Cross-border claims, by borrowing country

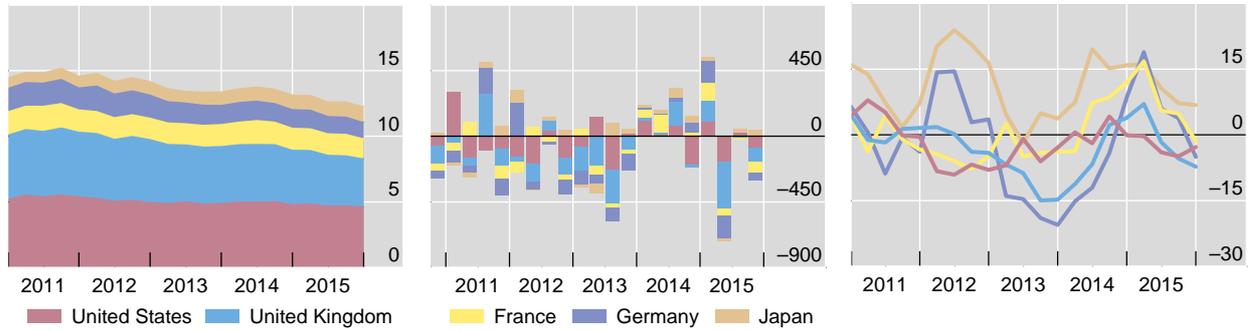
Graph A.3

Amounts outstanding<sup>1</sup> (USD trn)

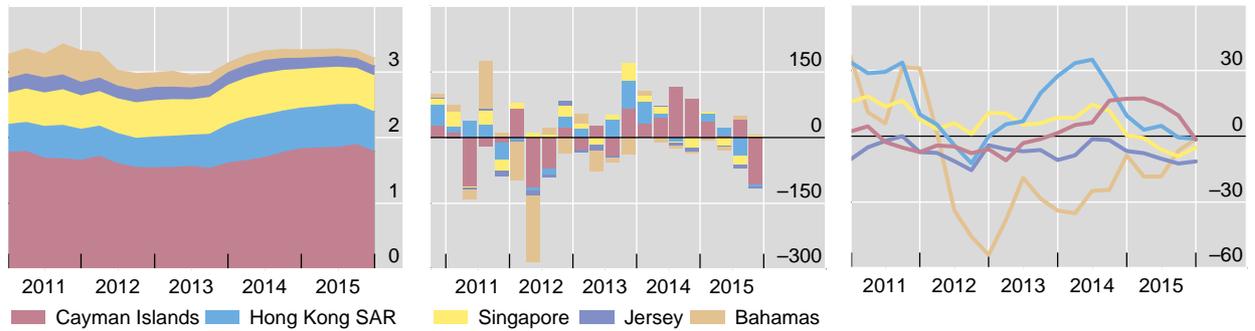
Adjusted changes<sup>2</sup> (USD bn)

Annual change<sup>3</sup> (per cent)

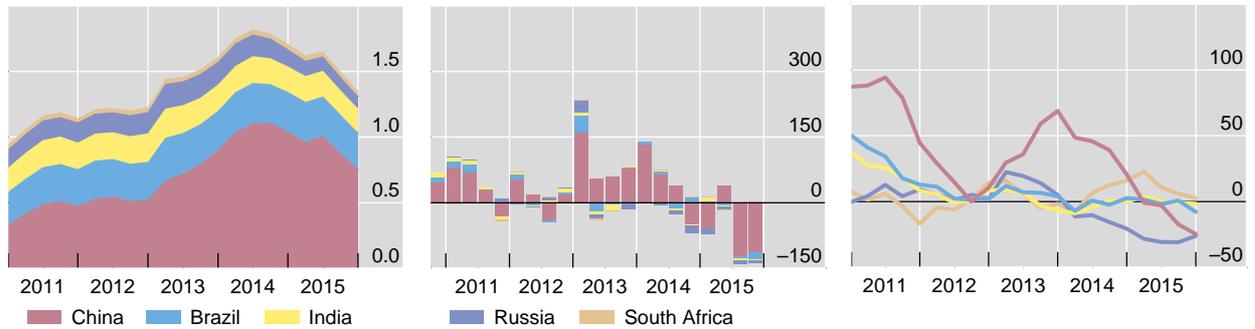
On selected advanced economies



On selected offshore centres



On selected emerging market economies



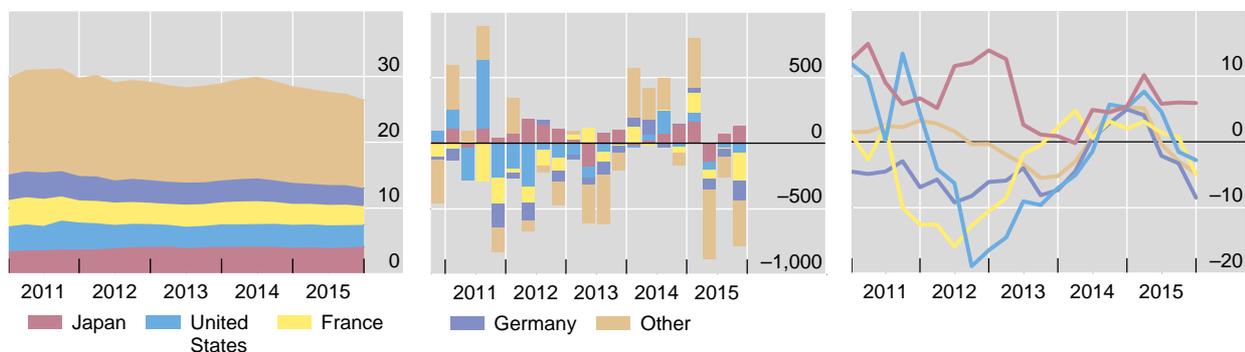
Further information on the BIS locational banking statistics is available at [www.bis.org/statistics/bankstats.htm](http://www.bis.org/statistics/bankstats.htm).

<sup>1</sup> 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. <sup>2</sup> Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. <sup>3</sup> Geometric mean of quarterly percentage adjusted changes.

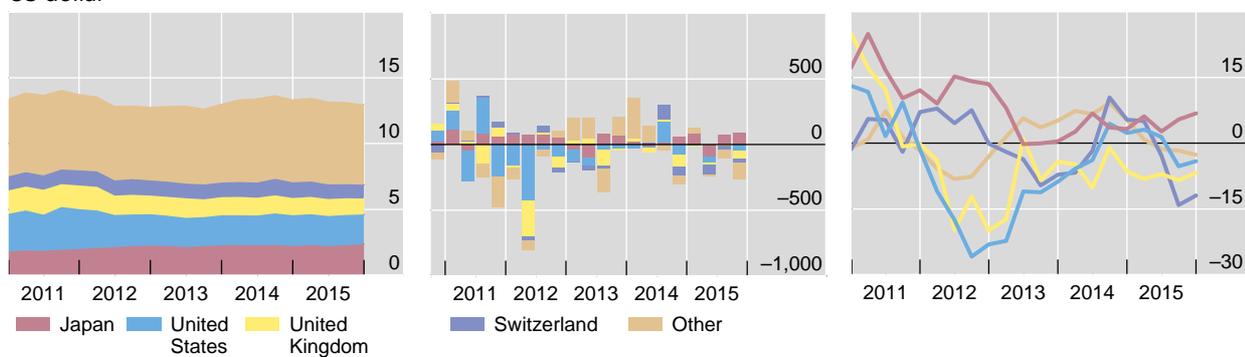
Cross-border claims, by nationality of reporting bank and currency of denomination Graph A.4

Amounts outstanding<sup>1</sup> (USD trn)      Adjusted changes<sup>2</sup> (USD bn)      Annual change<sup>3</sup> (per cent)

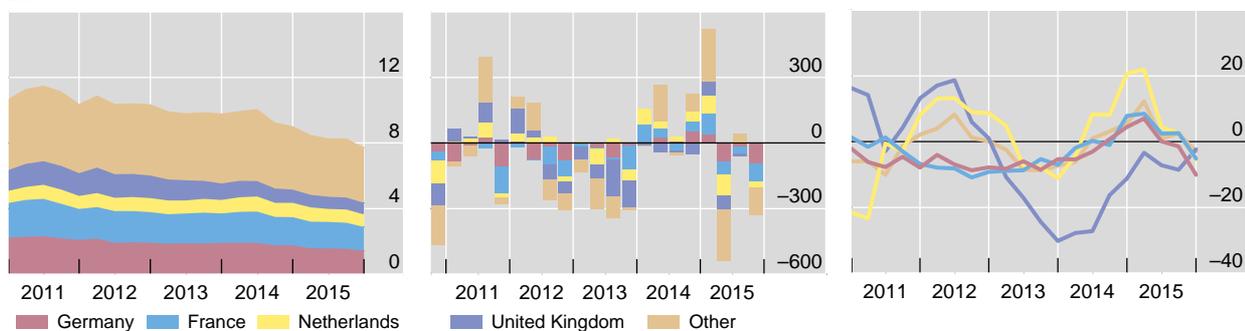
All currencies



US dollar



Euro



Further information on the BIS locational banking statistics is available at [www.bis.org/statistics/bankstats.htm](http://www.bis.org/statistics/bankstats.htm).

<sup>1</sup> 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. <sup>2</sup> Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. <sup>3</sup> Geometric mean of quarterly percentage adjusted changes.

# Cross-border liabilities of reporting banks

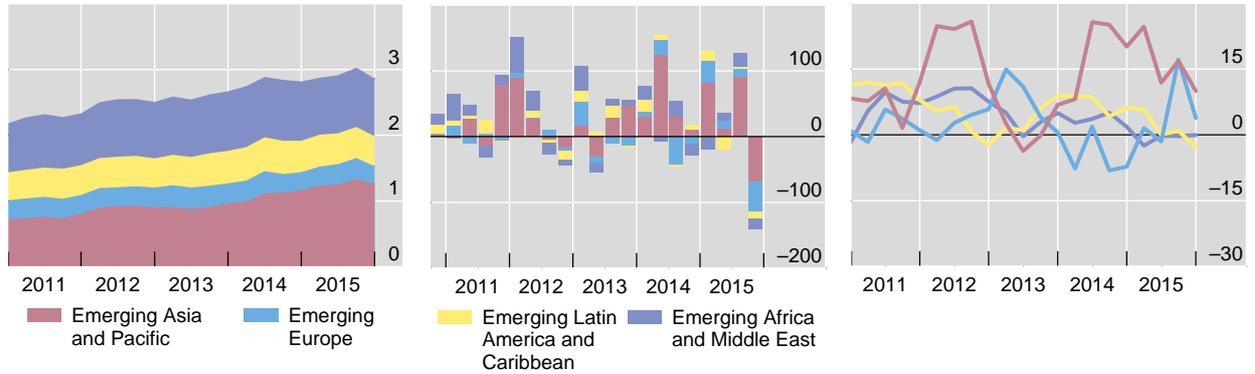
Graph A.5

Amounts outstanding<sup>1</sup> (USD trn)

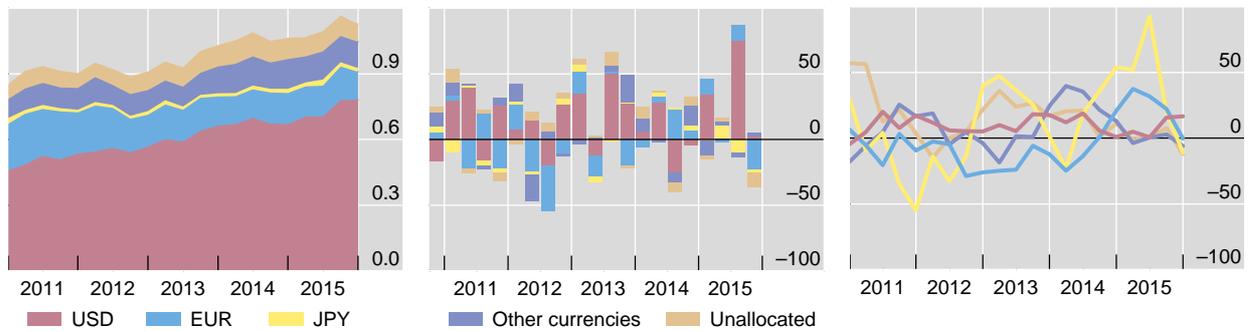
Adjusted changes<sup>2</sup> (USD bn)

Annual change<sup>3</sup> (per cent)

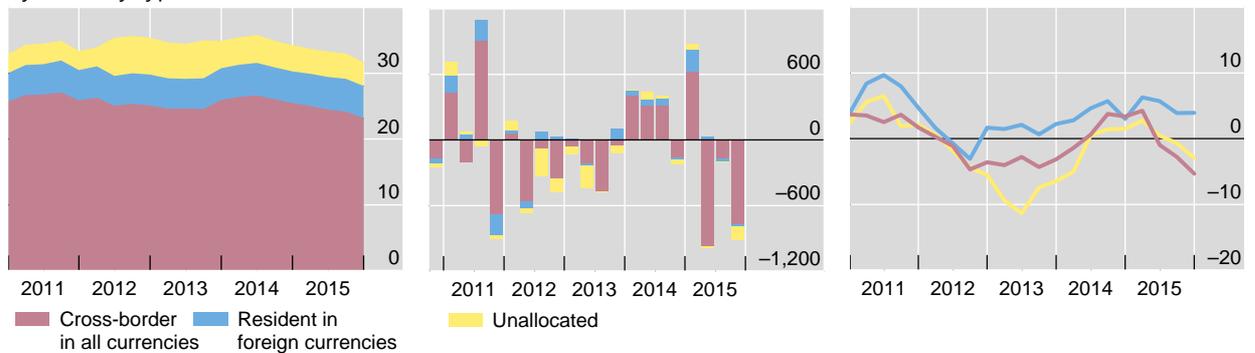
To emerging market economies



To central banks



By currency type and location



Further information on the BIS locational banking statistics is available at [www.bis.org/statistics/bankstats.htm](http://www.bis.org/statistics/bankstats.htm).

<sup>1</sup> 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. <sup>2</sup> Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. <sup>3</sup> Geometric mean of quarterly percentage adjusted changes.

## B Consolidated banking statistics

Consolidated claims of reporting banks on advanced economies

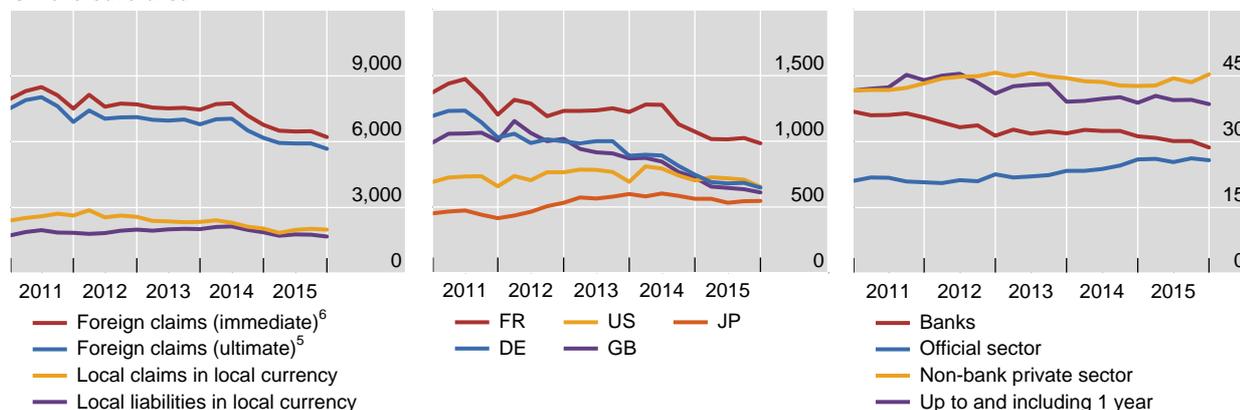
Graph B.1

Foreign claims and local positions<sup>1, 2</sup>  
(USD bn)

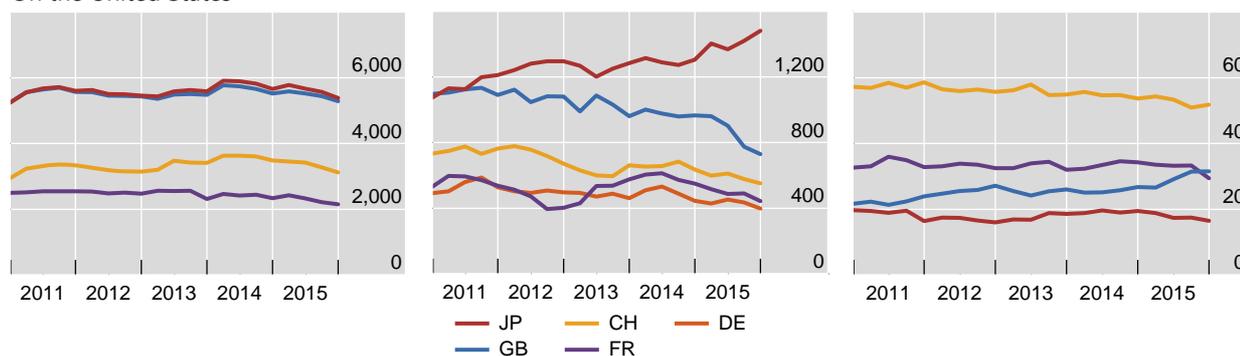
Foreign claims of selected  
creditors<sup>1, 3</sup> (USD bn)

International claims, by sector and  
maturity<sup>4</sup> (per cent)

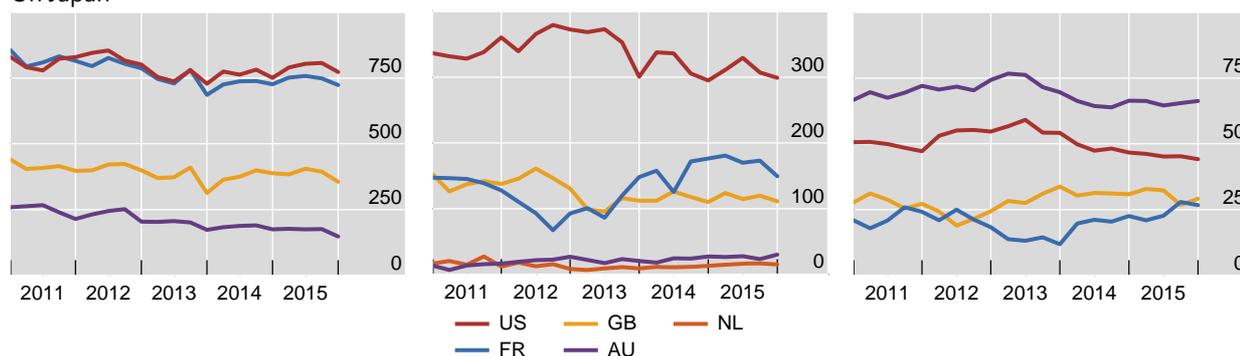
On the euro area



On the United States



On Japan



Further information on the BIS consolidated banking statistics is available at [www.bis.org/statistics/bankstats.htm](http://www.bis.org/statistics/bankstats.htm).

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

<sup>1</sup> 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. <sup>2</sup> Excludes domestic claims, ie claims on residents of a bank's home country. <sup>3</sup> 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. <sup>4</sup> As a percentage of international claims outstanding. <sup>5</sup> On an ultimate risk basis. <sup>6</sup> 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

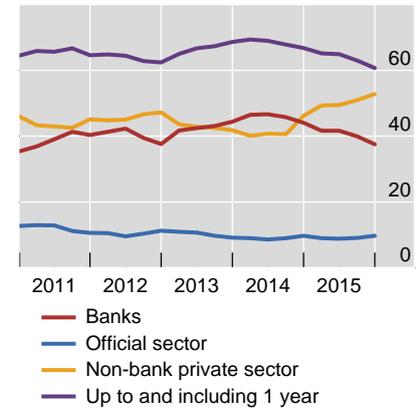
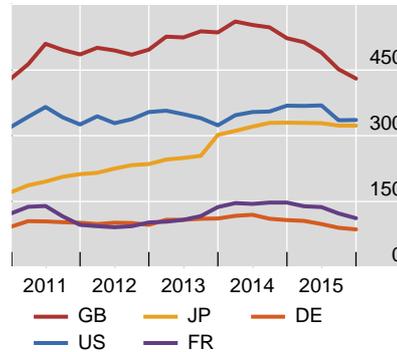
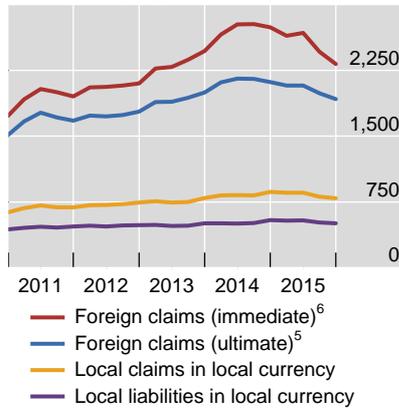
Graph B.2

Foreign claims and local positions<sup>1,2</sup>  
(USD bn)

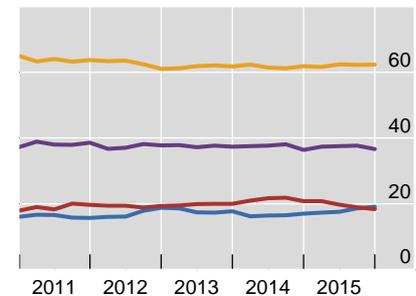
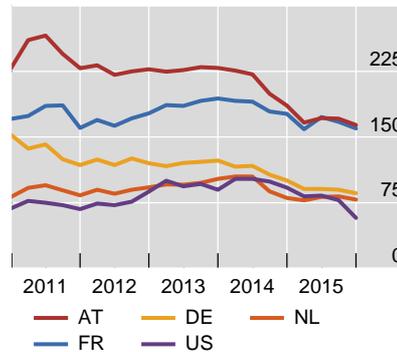
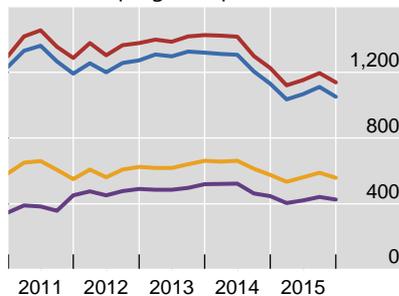
Foreign claims of selected  
creditors<sup>1,3</sup> (USD bn)

International claims, by sector and  
maturity<sup>4</sup> (per cent)

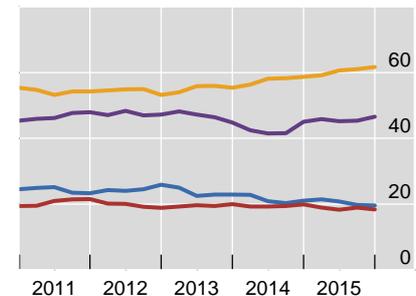
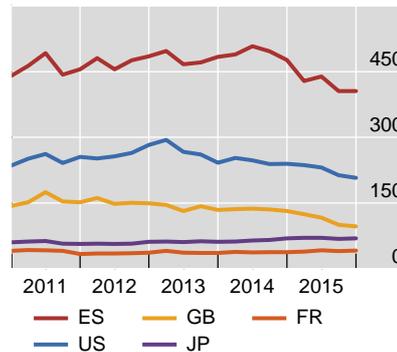
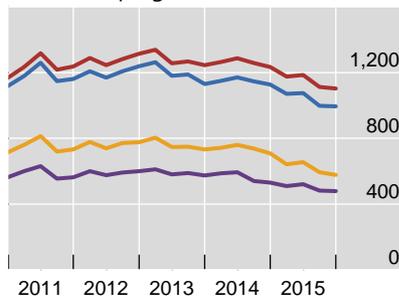
### On developing Asia and the Pacific



### 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](http://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.

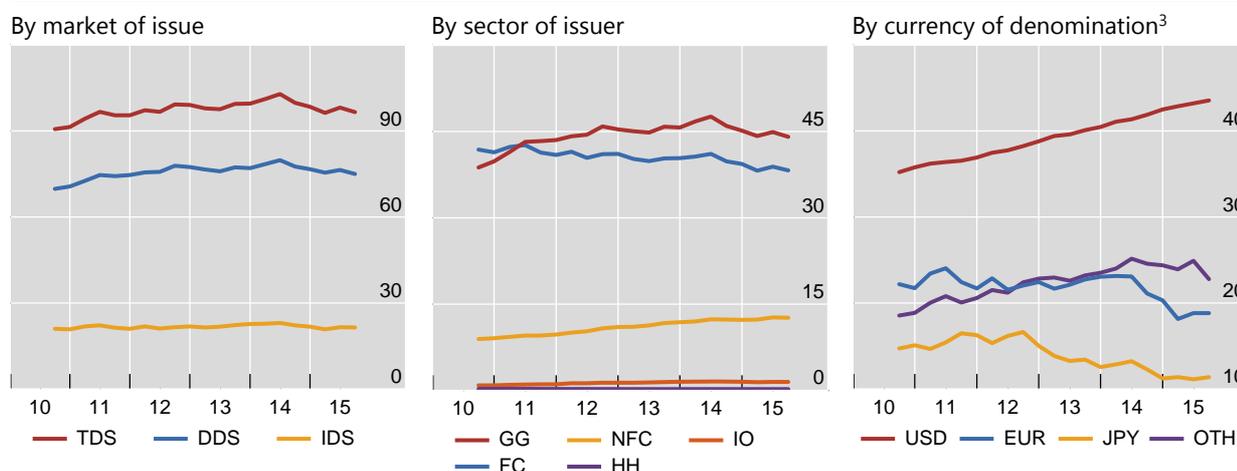
<sup>1</sup> Amounts outstanding at quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. <sup>2</sup> Excludes domestic claims, ie claims on residents of a bank's home country. <sup>3</sup> Foreign claims 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. <sup>4</sup> As a percentage of international claims. <sup>5</sup> On an ultimate risk basis. <sup>6</sup> 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 markets<sup>1</sup>

Amounts outstanding, in trillions of US dollars<sup>2</sup>

Graph C.1



Further information on the BIS debt securities statistics is available at [www.bis.org/statistics/secstats.htm](http://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.

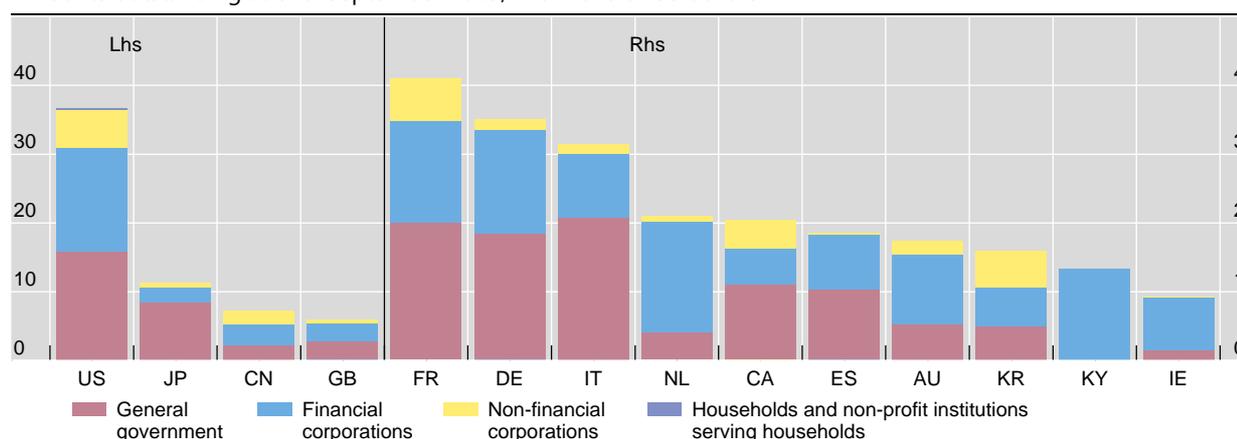
<sup>1</sup> Sample of countries varies across breakdowns shown. For countries that do not report TDS, data are estimated by the BIS as DDS plus IDS. For countries that do not report either TDS or DDS, data are estimated by the BIS as IDS. <sup>2</sup> At quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. <sup>3</sup> 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 issuer<sup>1</sup>

Amounts outstanding at end-September 2015, in trillions of US dollars<sup>2</sup>

Graph C.2



Further information on the BIS debt securities statistics is available at [www.bis.org/statistics/secstats.htm](http://www.bis.org/statistics/secstats.htm).

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

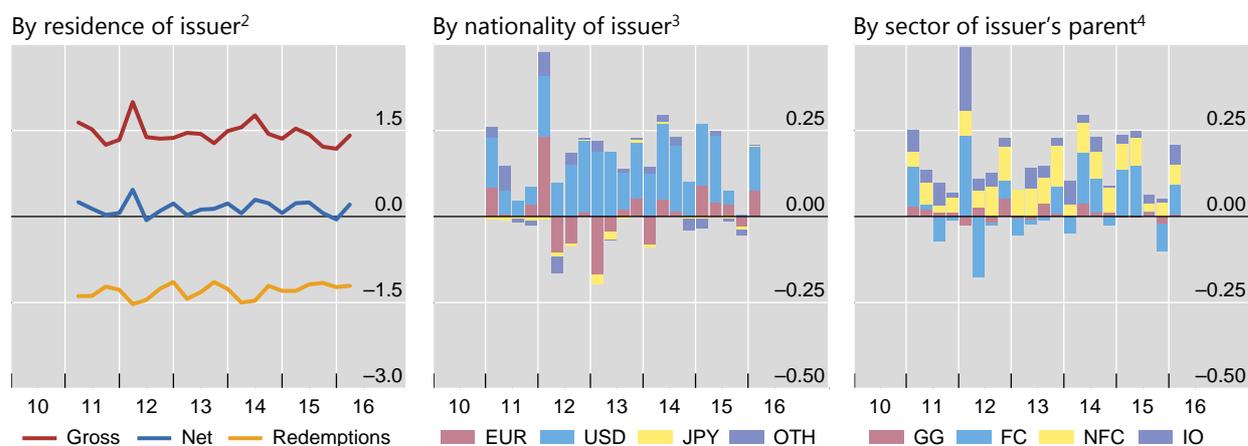
<sup>1</sup> For countries that do not report TDS, data are estimated by the BIS as DDS plus IDS. <sup>2</sup> Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

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](http://www.bis.org/statistics/secstats.htm).

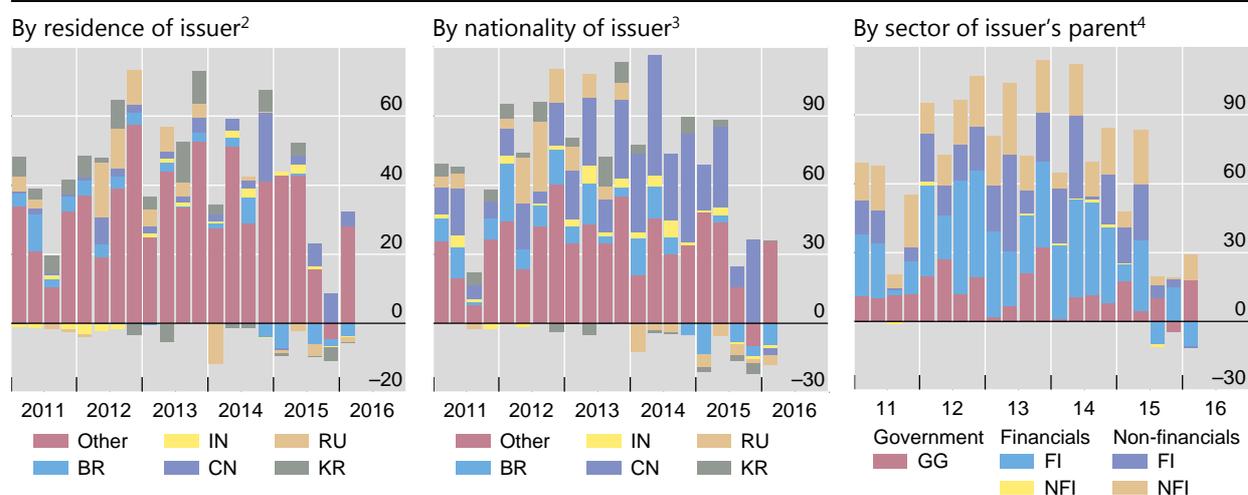
EUR = euro; USD = US dollar; JPY = yen; OTH = other currencies; GG = general government; FC = financial corporations; NFC = non-financial corporations; IO = international organisations.

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

## International debt securities issued by borrowers from emerging market economies<sup>1</sup>

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](http://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.

<sup>1</sup> For the sample of countries comprising emerging market economies, see the glossary to the *BIS Statistical Supplement*. <sup>2</sup> Country where issuer resides. <sup>3</sup> 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. <sup>4</sup> 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

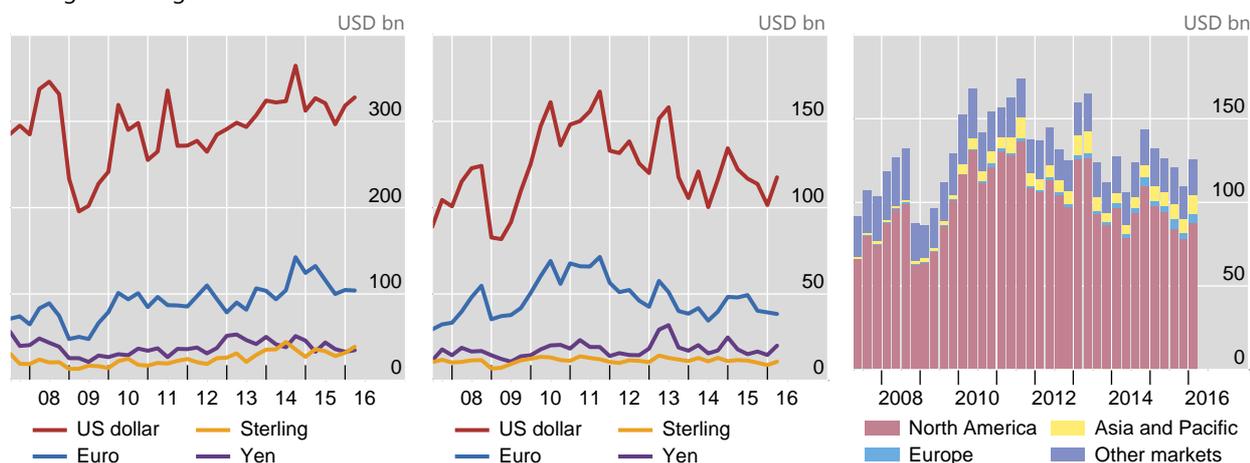
Graph D.1

Open interest, by currency<sup>1</sup>

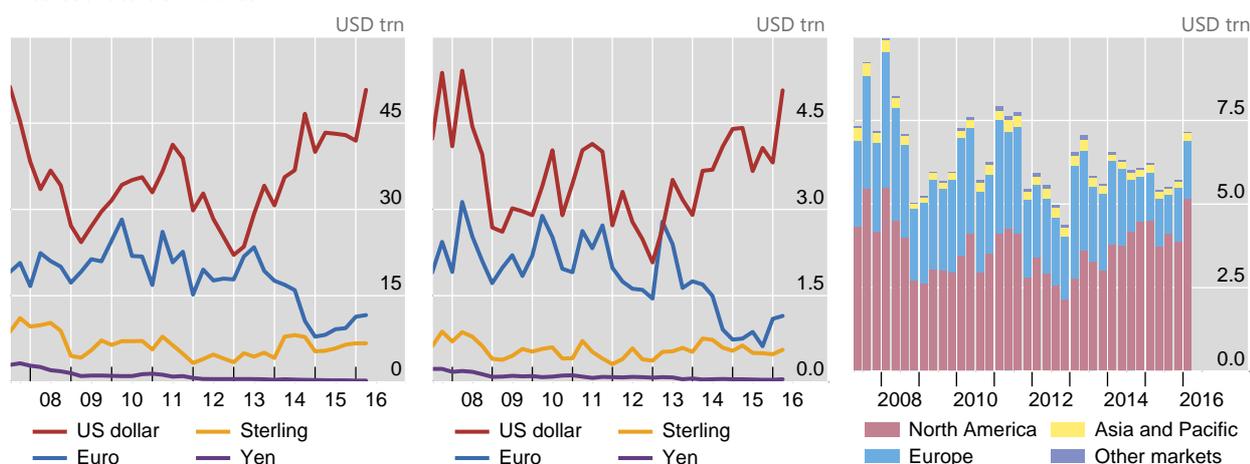
Daily average turnover, by currency<sup>2</sup>

Daily average turnover, by location of exchange<sup>2</sup>

Foreign exchange derivatives<sup>3</sup>



Interest rate derivatives<sup>3</sup>



Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/extderiv.htm](http://www.bis.org/statistics/extderiv.htm).

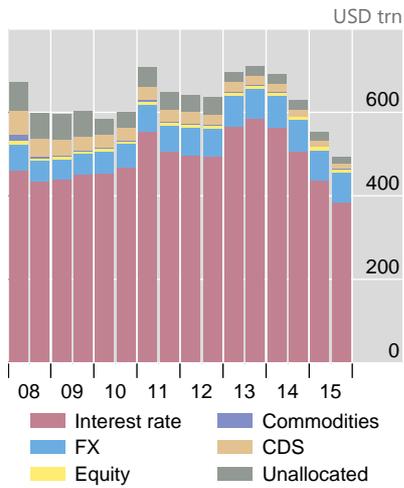
<sup>1</sup> At quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. <sup>2</sup> Daily turnover averaged over the quarter. <sup>3</sup> Futures and options.

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

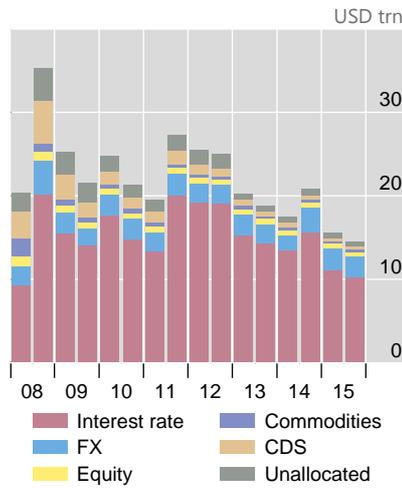
## Global OTC derivatives markets

Graph D.2

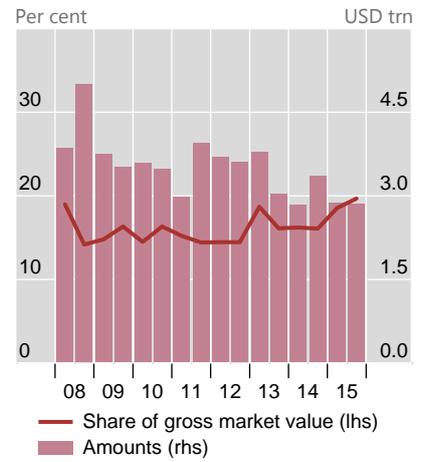
### Notional principal<sup>1</sup>



### Gross market value<sup>1</sup>



### Gross credit exposure<sup>1</sup>



Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/derstats.htm](http://www.bis.org/statistics/derstats.htm).

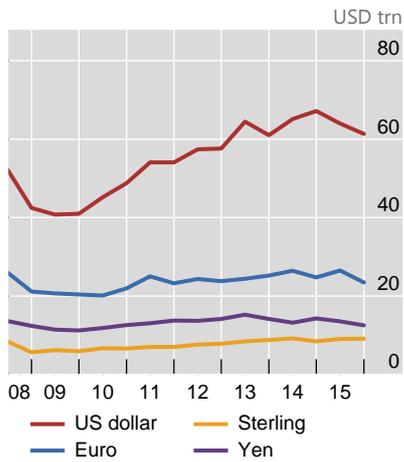
<sup>1</sup> At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

## OTC foreign exchange derivatives

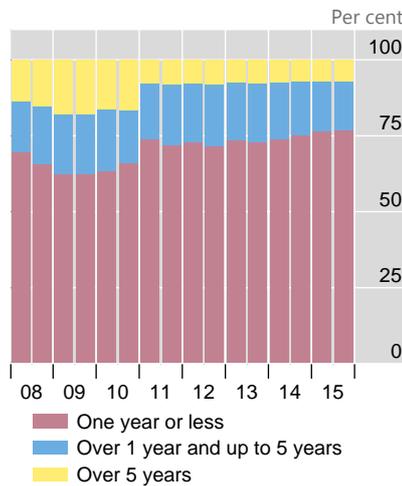
### Notional principal<sup>1</sup>

Graph D.3

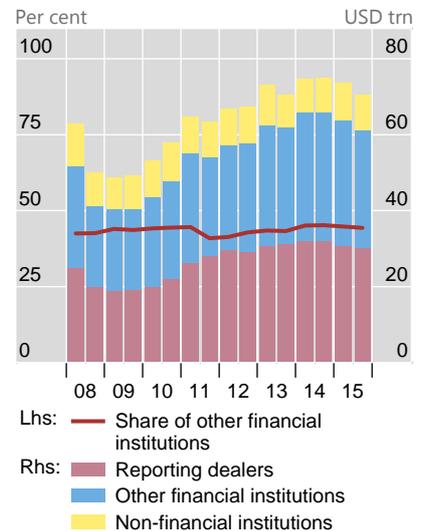
#### By currency



#### By maturity



#### By sector of counterparty



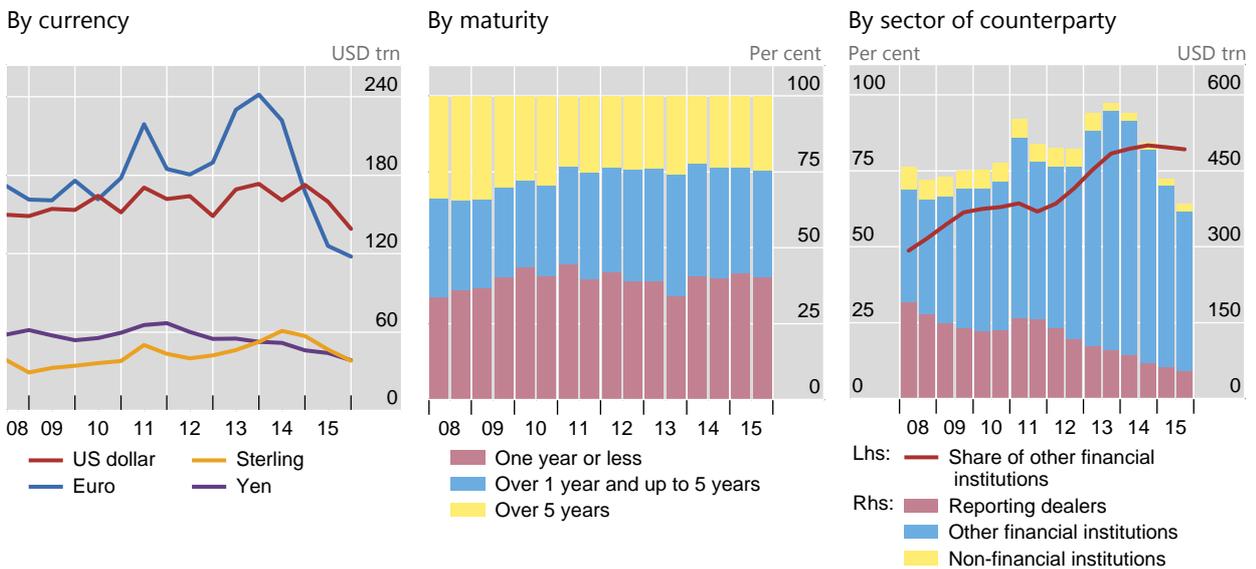
Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/derstats.htm](http://www.bis.org/statistics/derstats.htm).

<sup>1</sup> 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 principal<sup>1</sup>

Graph D.4



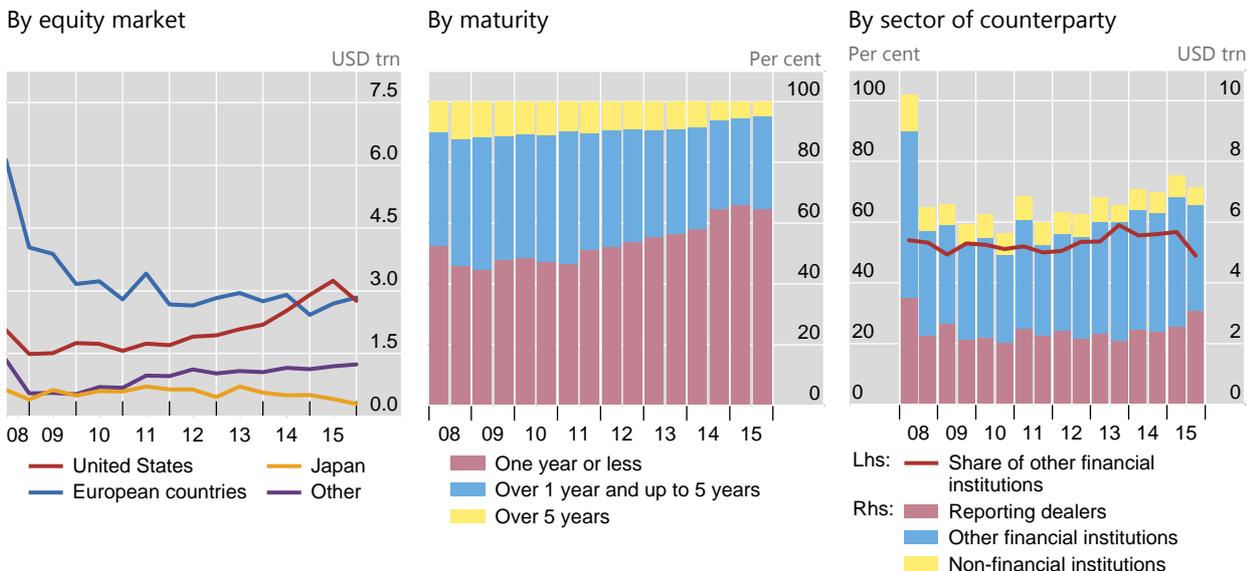
Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/derstats.htm](http://www.bis.org/statistics/derstats.htm).

<sup>1</sup> 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 principal<sup>1</sup>

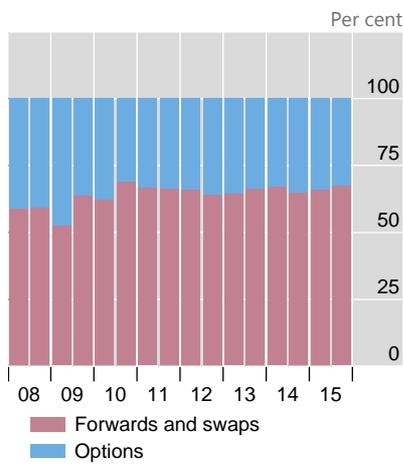
Graph D.5



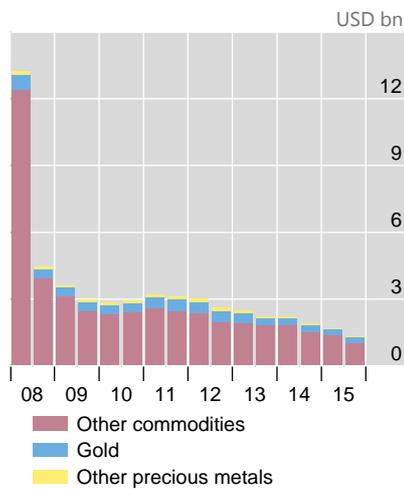
Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/derstats.htm](http://www.bis.org/statistics/derstats.htm).

<sup>1</sup> 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.

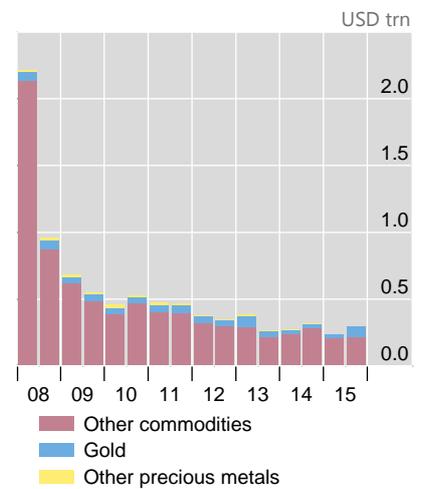
Notional principal, by instrument<sup>1</sup>



Notional principal, by commodity<sup>1</sup>



Gross market value, by commodity<sup>1</sup>

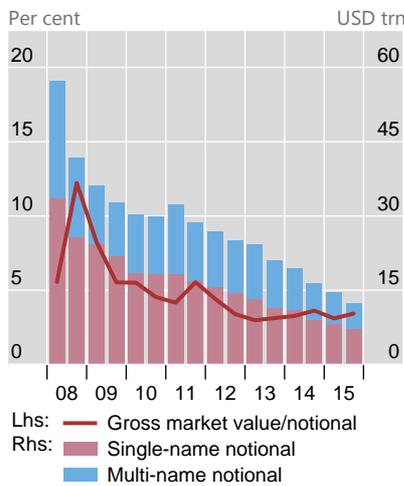


Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/derstats.htm](http://www.bis.org/statistics/derstats.htm).

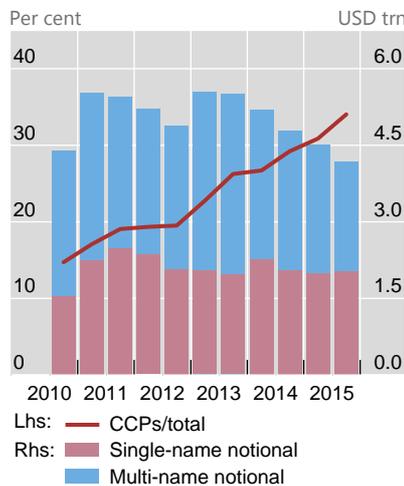
<sup>1</sup> At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Credit default swaps<sup>1</sup>

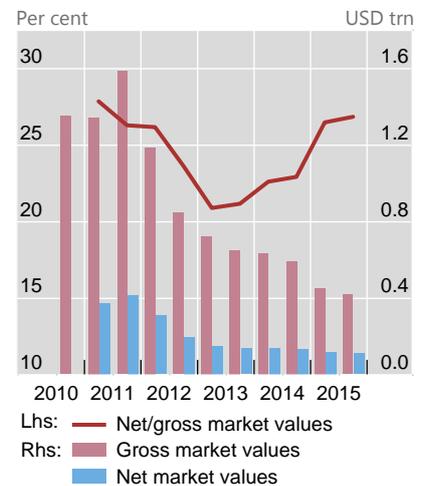
Notional principal



Notional principal with central counterparties (CCPs)



Impact of netting



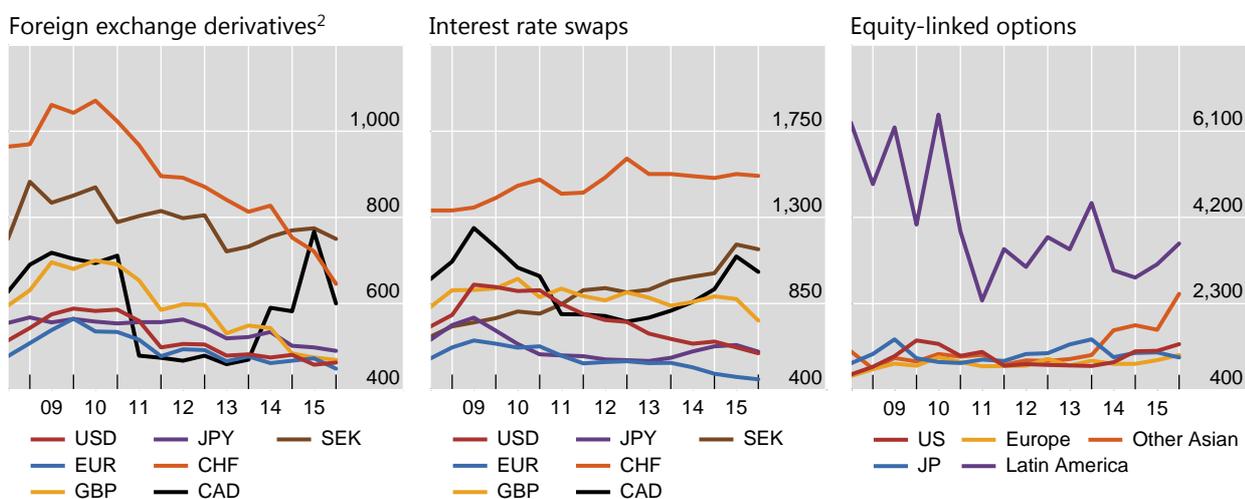
Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/derstats.htm](http://www.bis.org/statistics/derstats.htm).

<sup>1</sup> 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 index<sup>1</sup>

Graph D.8



Further information on the BIS derivatives statistics is available at [www.bis.org/statistics/derstats.htm](http://www.bis.org/statistics/derstats.htm).

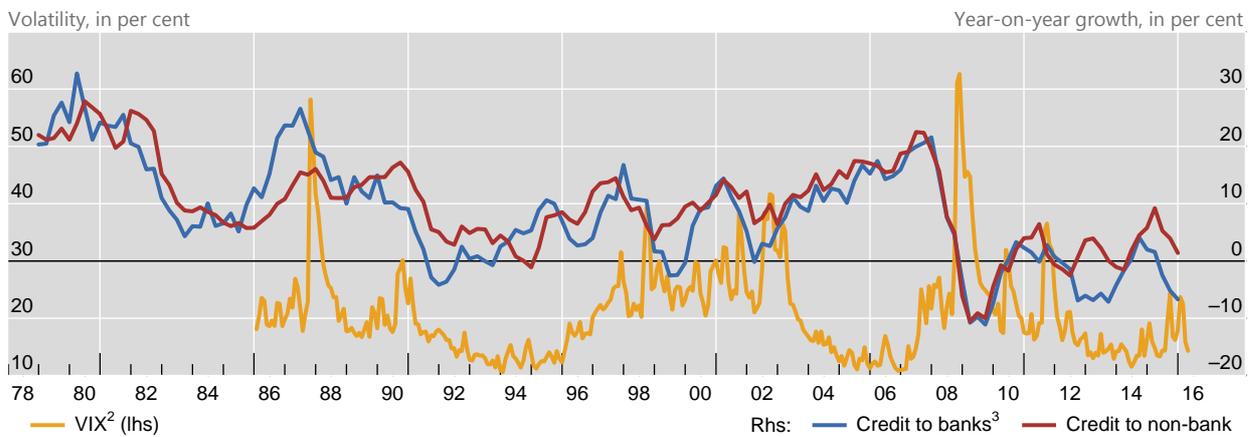
CAD = Canadian dollar; CHF = Swiss franc; EUR = euro; GBP = pound sterling; JPY = Japanese yen; SEK = Swedish krona; USD = US dollar. JP = Japan; US = United States.

<sup>1</sup> 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. <sup>2</sup> Foreign exchange forwards, foreign exchange swaps and currency swaps.

## E Global liquidity indicators

Growth of international bank credit<sup>1</sup>

Graph E.1



Further information on the BIS global liquidity indicators is available at [www.bis.org/statistics/gli.htm](http://www.bis.org/statistics/gli.htm). In June 2016, the presentation of data in this graph was revised to show the year-on-year change in credit, instead of the contribution to growth, and to exclude credit unallocated by sector, which was previously included in credit to banks.

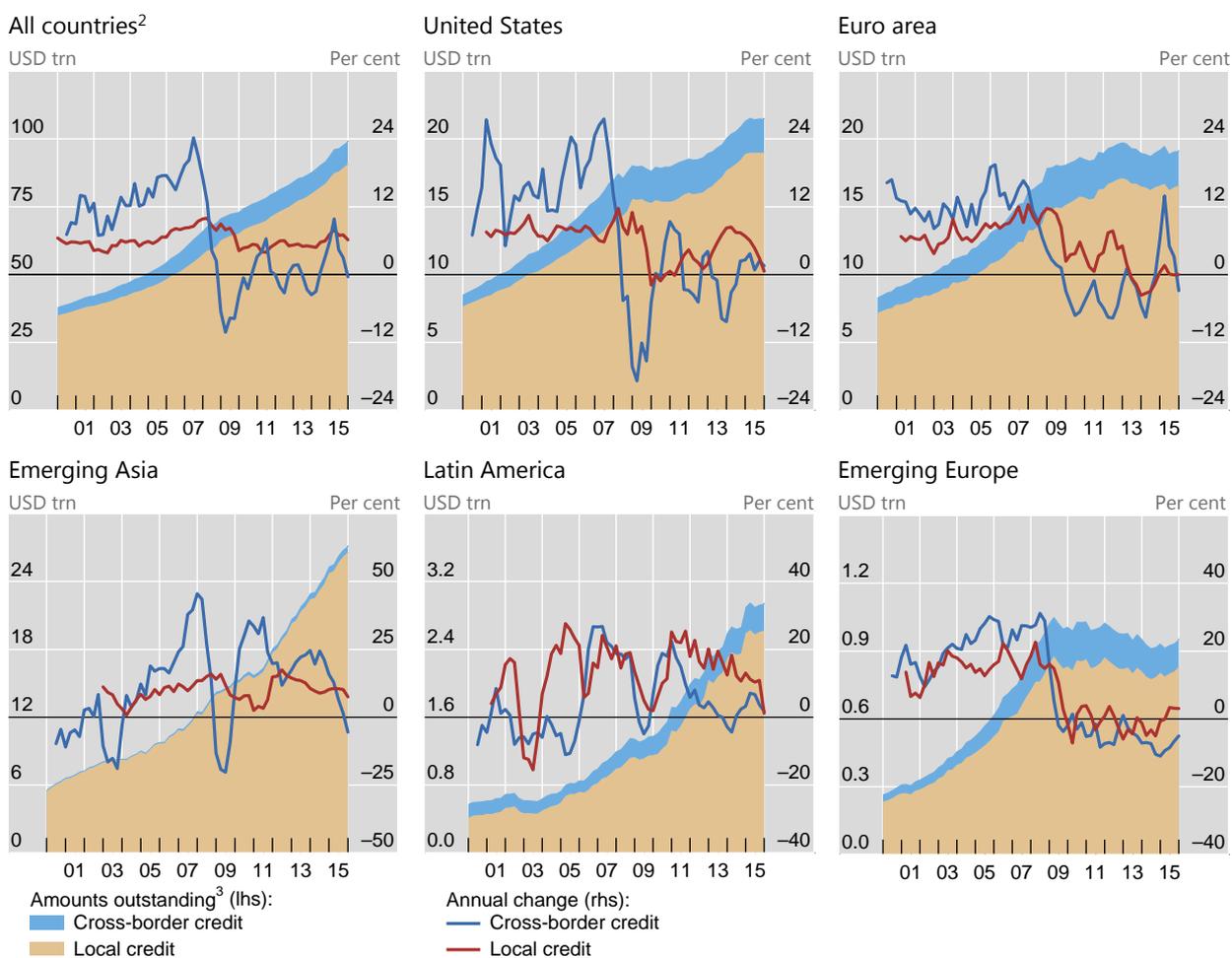
<sup>1</sup> LBS reporting banks' cross-border claims plus local claims in foreign currencies. <sup>2</sup> VIX refers to the Chicago Board Options Exchange Market Volatility Index. It measures the implied volatility of S&P 500 index options. <sup>3</sup> Including intragroup transactions.

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 currencies<sup>1</sup>

Graph E.2



Further information on the BIS global liquidity indicators is available at [www.bis.org/statistics/gli.htm](http://www.bis.org/statistics/gli.htm).

<sup>1</sup> 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. <sup>2</sup> Sample of 52 countries. <sup>3</sup> 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.

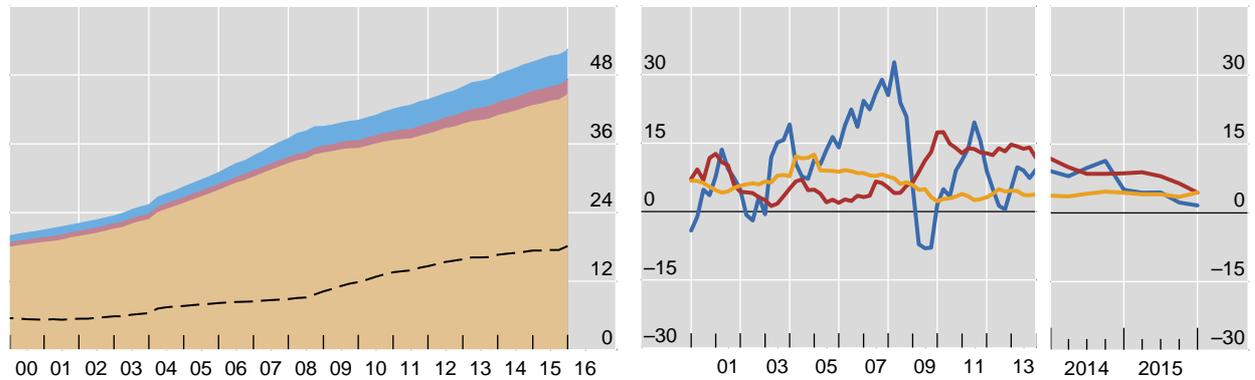
# Global credit to the non-financial sector, by currency

Graph E.3

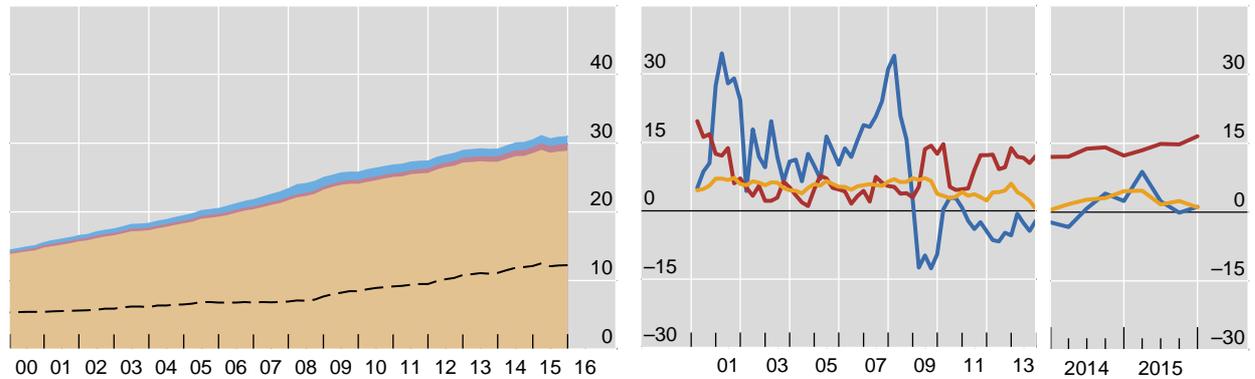
Amounts outstanding<sup>1</sup> (USD trn)

Annual change (per cent)

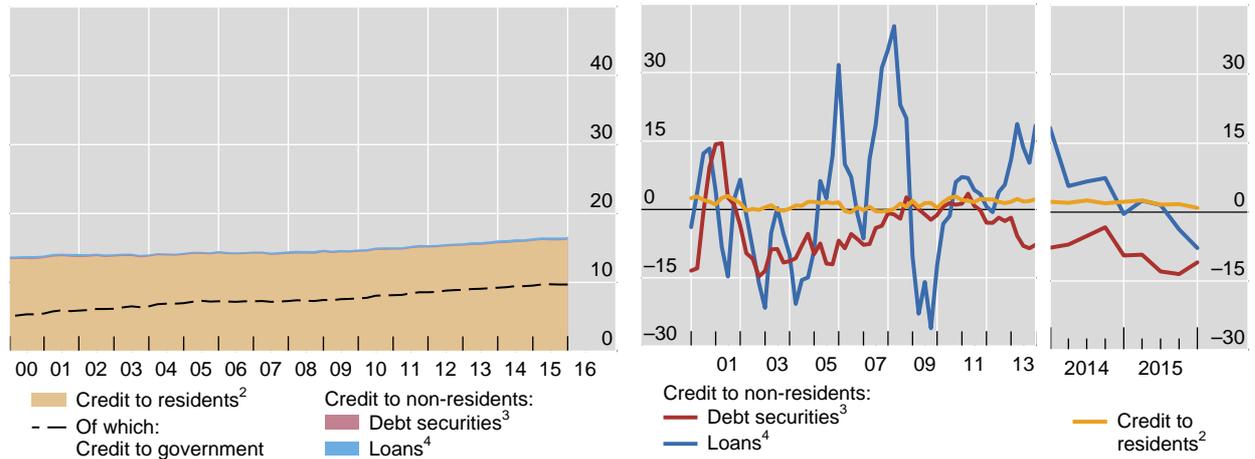
Credit denominated in US dollars (USD)



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](http://www.bis.org/statistics/gli.htm).

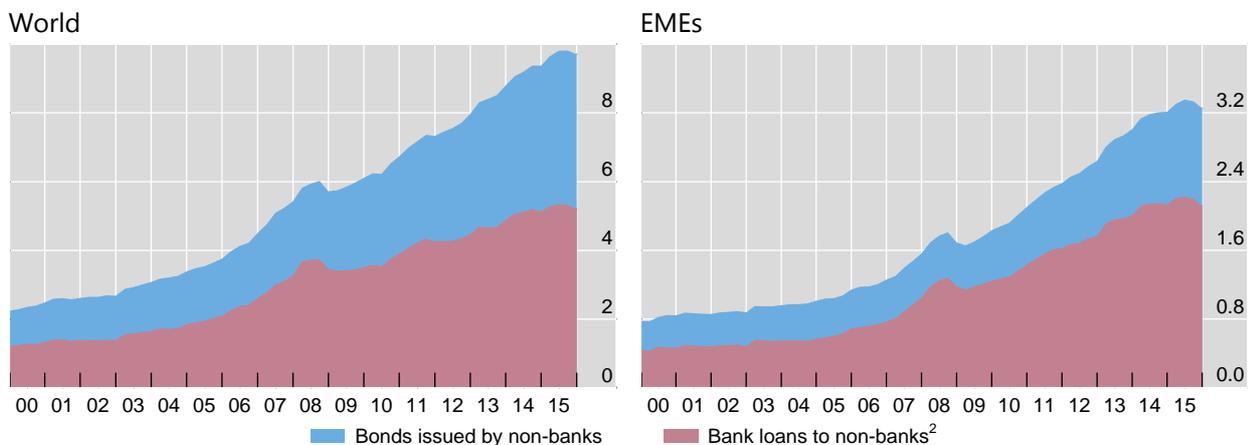
<sup>1</sup> Amounts outstanding at quarter-end. Amounts denominated in currencies other than USD are converted to USD at the exchange rate prevailing at end-September 2015. <sup>2</sup> Credit to non-financial borrowers residing in the United States/euro area/Japan. National financial accounts are adjusted using BIS banking and securities statistics to exclude credit denominated in non-local currencies. <sup>3</sup> 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. <sup>4</sup> 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.

# US dollar-denominated credit to non-banks outside the United States<sup>1</sup>

Amounts outstanding, in trillions of US dollars

Graph E.4



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

Sources: Datastream; BIS debt securities statistics; BIS locational banking statistics.

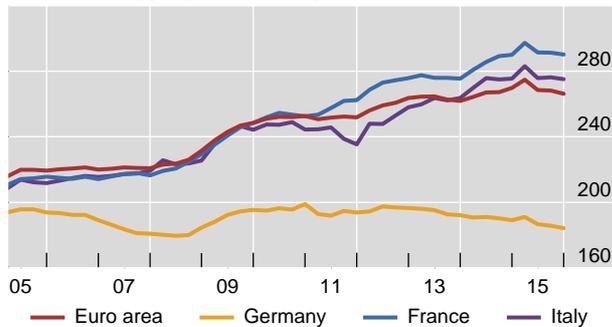
## F Statistics on total credit to the non-financial sector

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

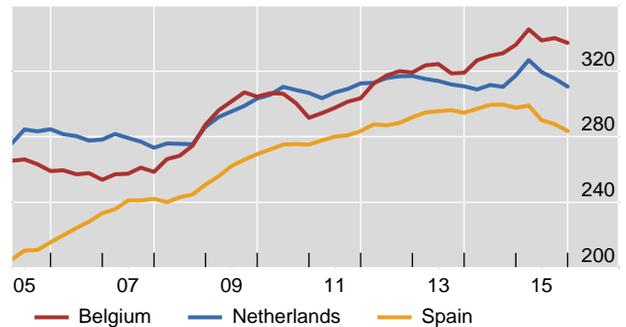
As a percentage of GDP

Graph F.1

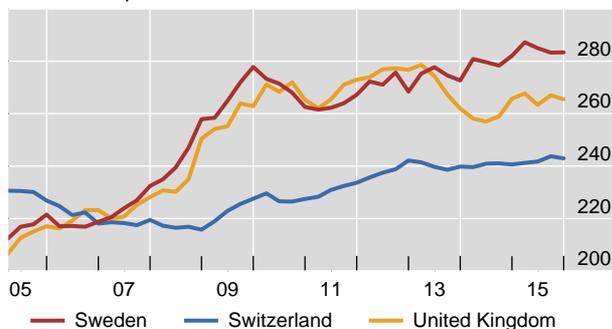
Euro area: aggregate and major countries



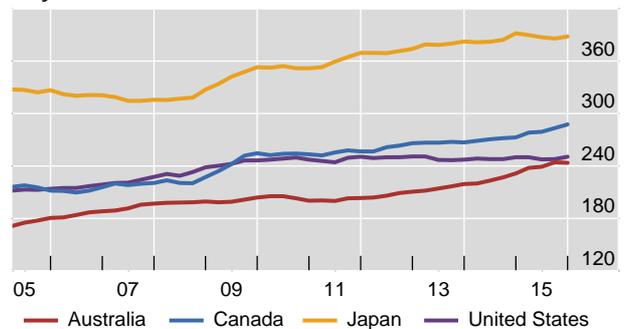
Euro area: other countries



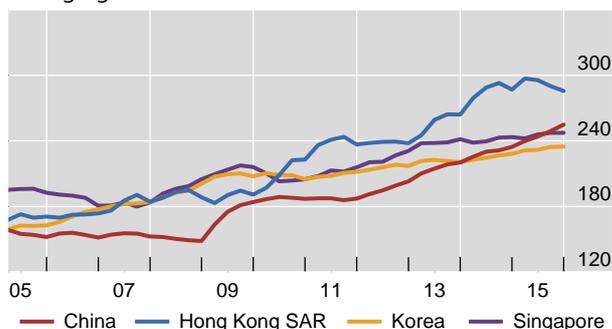
Other European countries



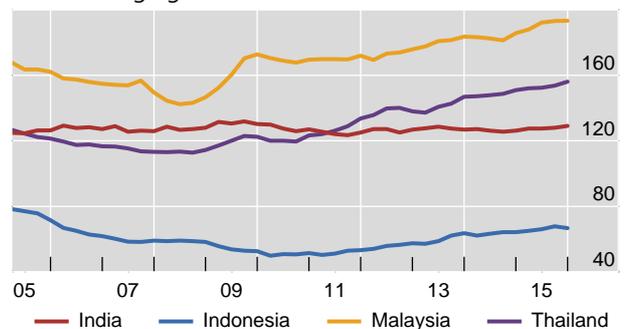
Major advanced economies



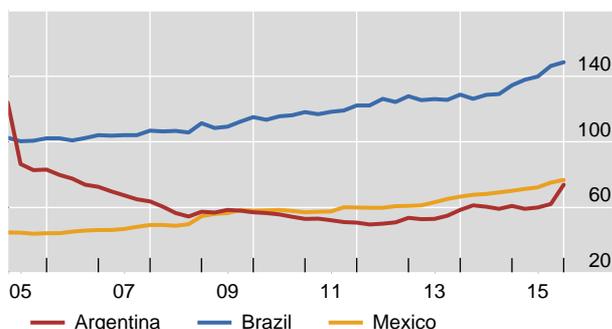
Emerging Asia



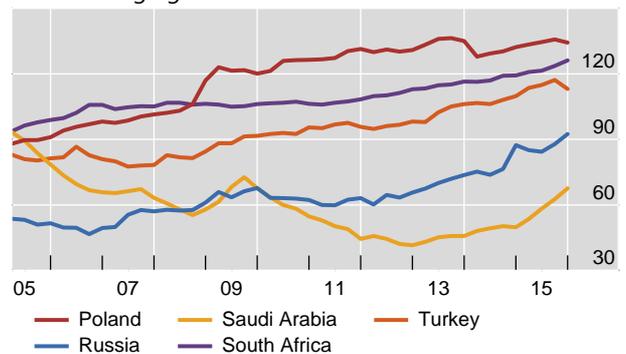
Other emerging Asia



Latin America



Other emerging market economies



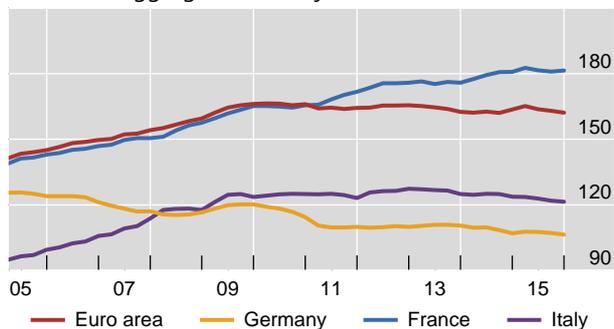
Further information on the BIS credit statistics is available at [www.bis.org/statistics/totcredit.htm](http://www.bis.org/statistics/totcredit.htm).

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

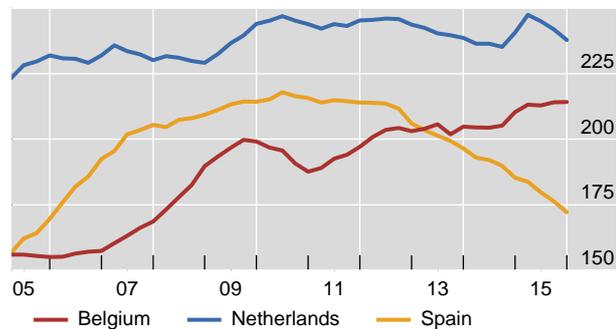
As a percentage of GDP

Graph F.2

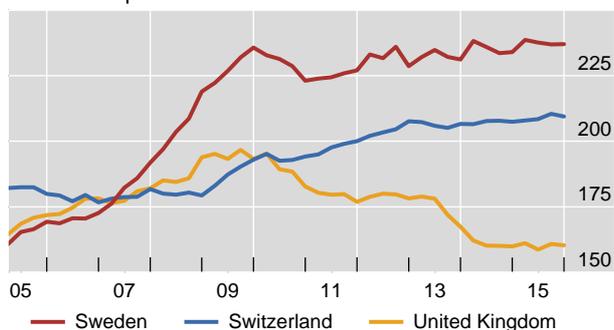
Euro area: aggregate and major countries



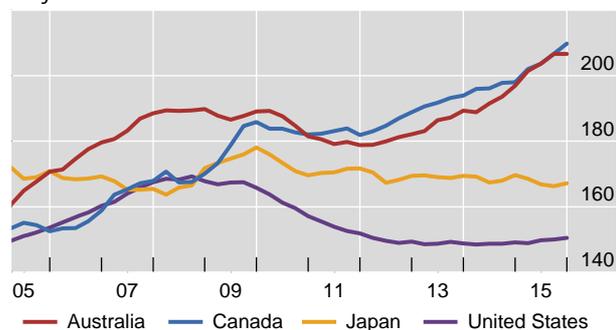
Euro area: other countries



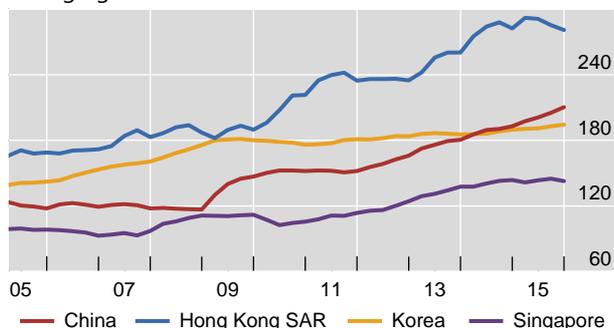
Other European countries



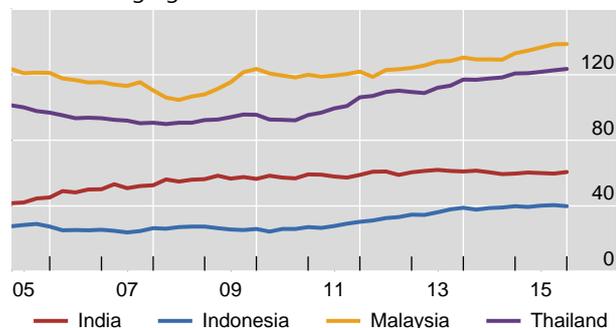
Major advanced economies



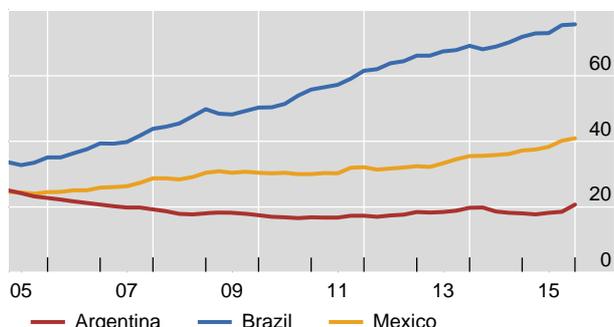
Emerging Asia



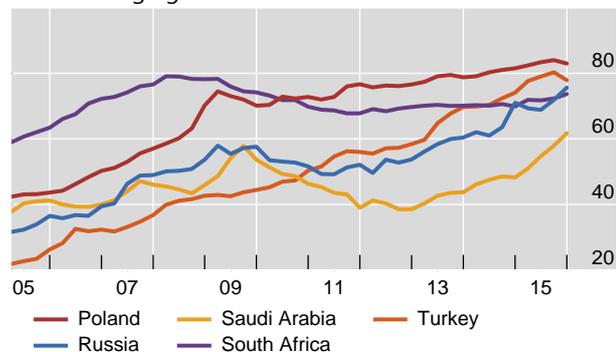
Other emerging Asia



Latin America



Other emerging market economies



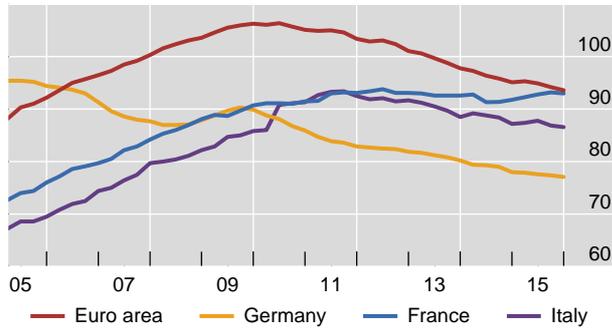
Further information on the BIS credit statistics is available at [www.bis.org/statistics/totcredit.htm](http://www.bis.org/statistics/totcredit.htm).

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

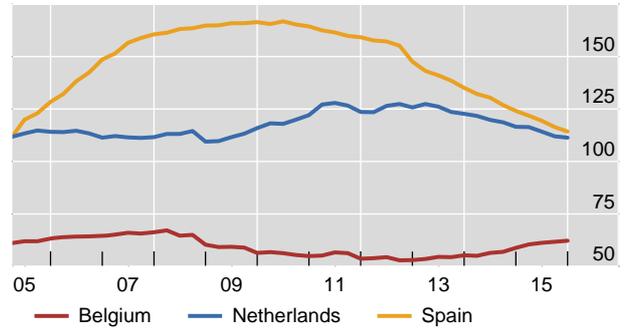
As a percentage of GDP

Graph F.3

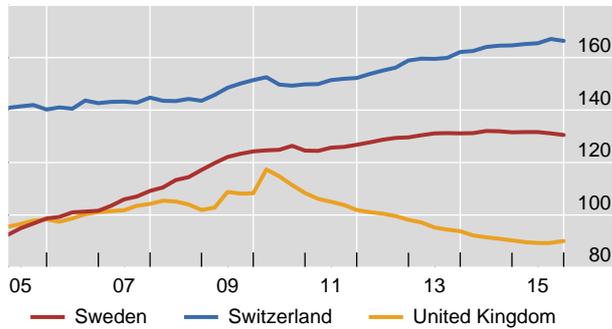
Euro area: aggregate and major countries



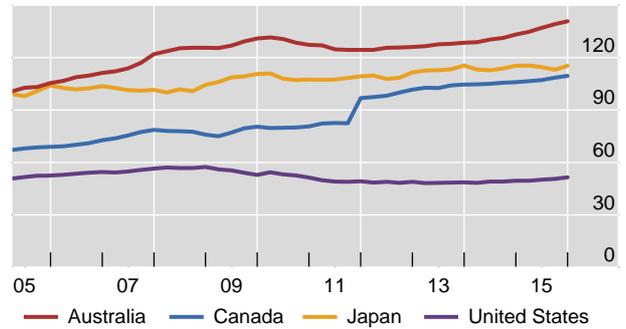
Euro area: other countries



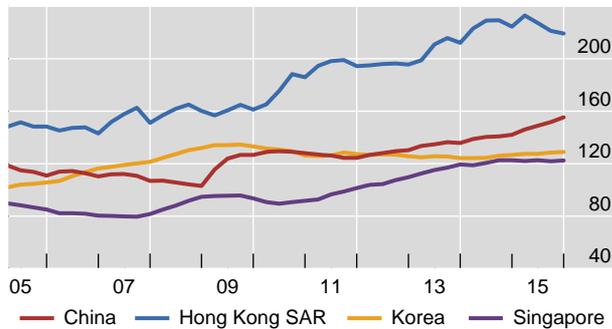
Other European countries



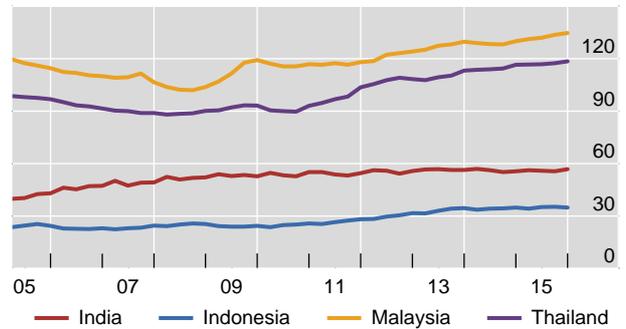
Major advanced economies



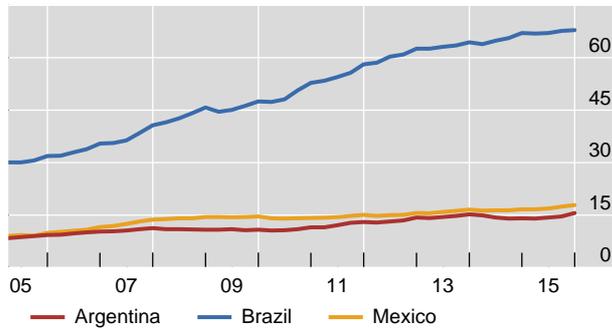
Emerging Asia



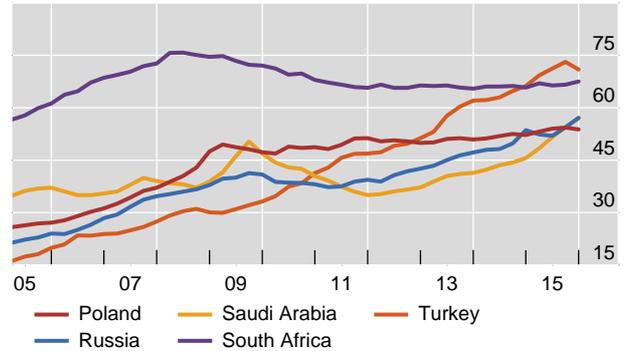
Other emerging Asia



Latin America



Other emerging market economies



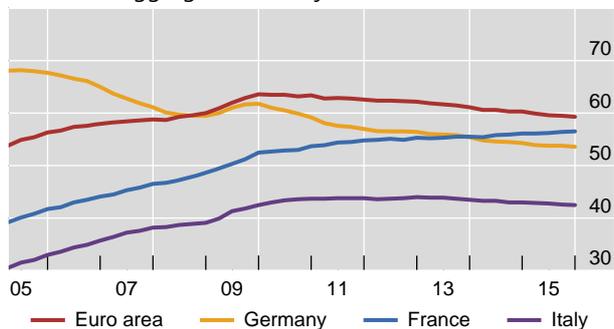
Further information on the BIS credit statistics is available at [www.bis.org/statistics/totcredit.htm](http://www.bis.org/statistics/totcredit.htm).

# Total credit to households (core debt)

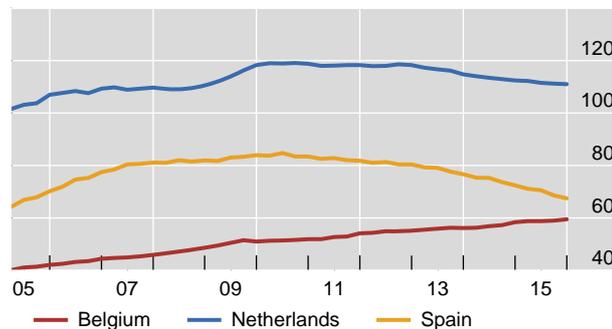
As a percentage of GDP

Graph F.4

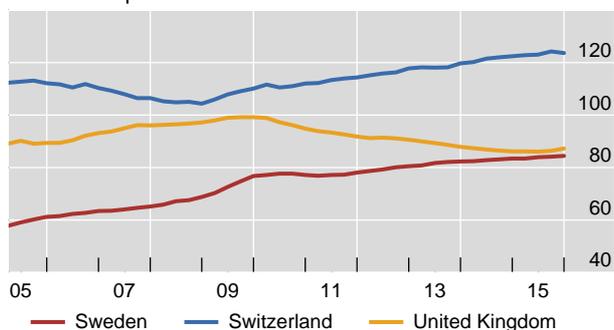
Euro area: aggregate and major countries



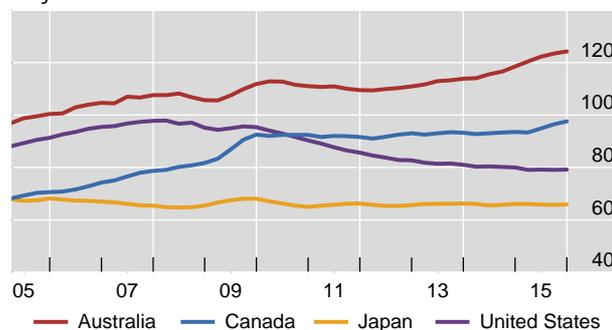
Euro area: other countries



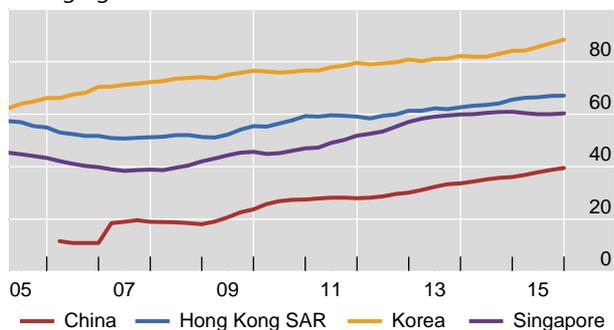
Other European countries



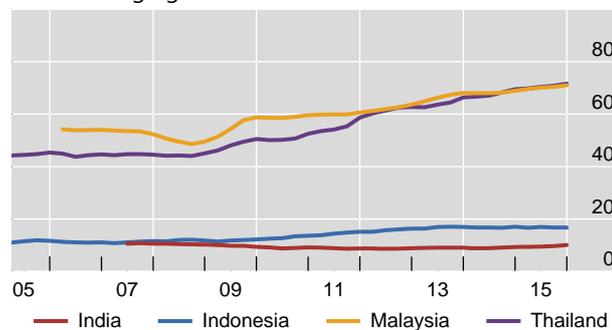
Major advanced economies



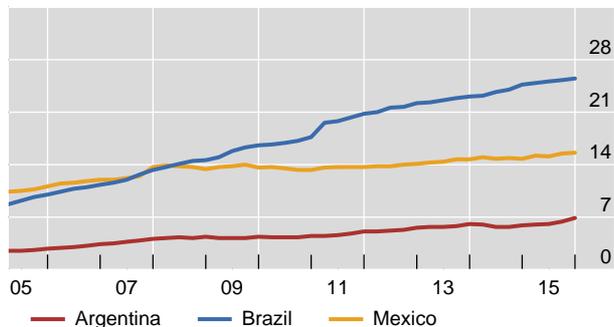
Emerging Asia



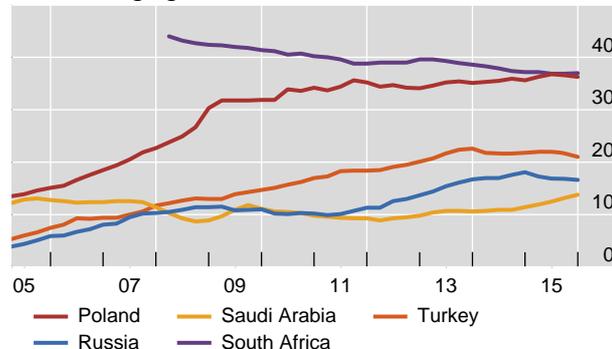
Other emerging Asia



Latin America



Other emerging market economies



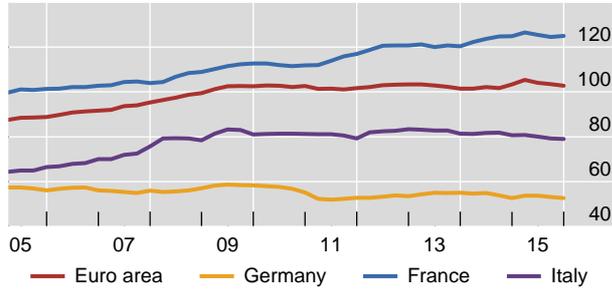
Further information on the BIS credit statistics is available at [www.bis.org/statistics/totcredit.htm](http://www.bis.org/statistics/totcredit.htm).

# Total credit to non-financial corporations (core debt)

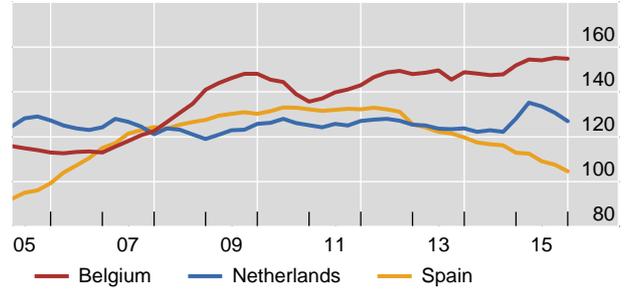
As a percentage of GDP

Graph F.5

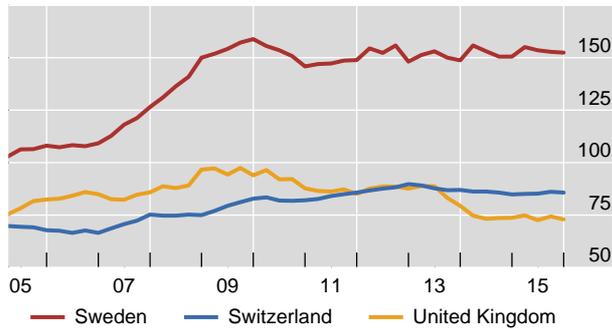
Euro area: aggregate and major countries



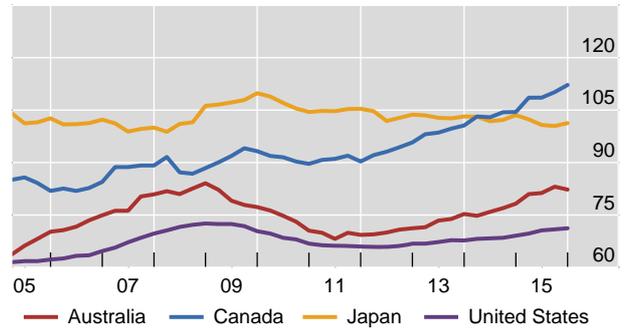
Euro area: other countries



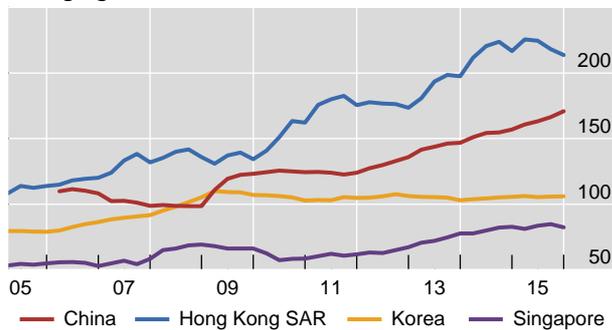
Other European countries



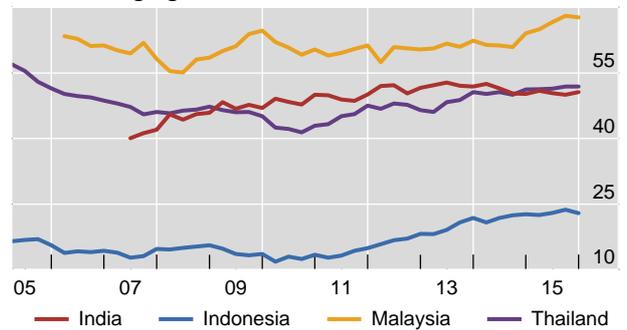
Major advanced economies



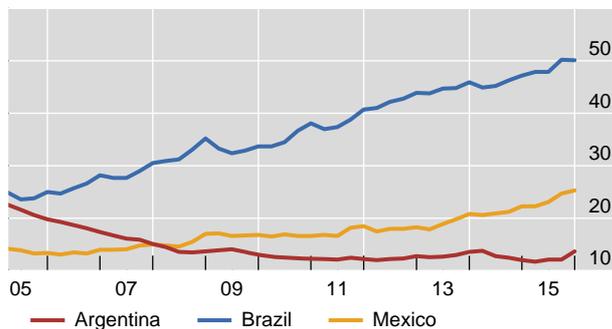
Emerging Asia



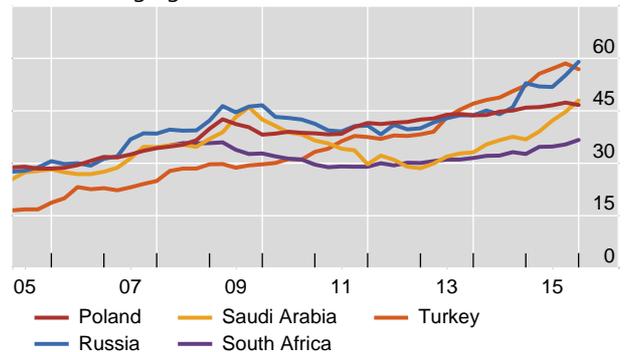
Other emerging Asia



Latin America



Other emerging market economies



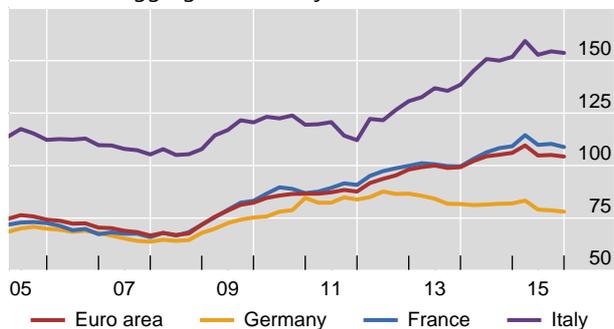
Further information on the BIS credit statistics is available at [www.bis.org/statistics/totcredit.htm](http://www.bis.org/statistics/totcredit.htm).

# Total credit to the government sector at market value (core debt)<sup>1</sup>

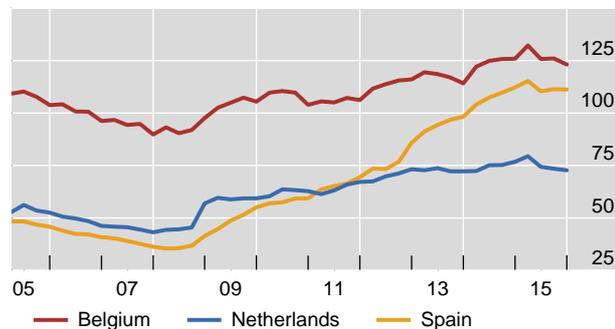
As a percentage of GDP

Graph F.6

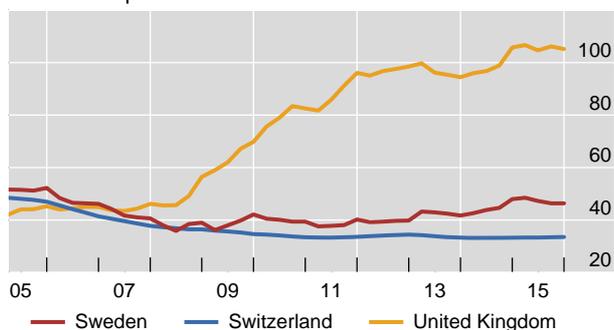
Euro area: aggregate and major countries



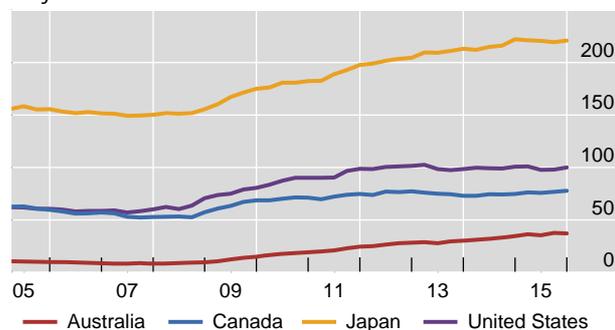
Euro area: other countries



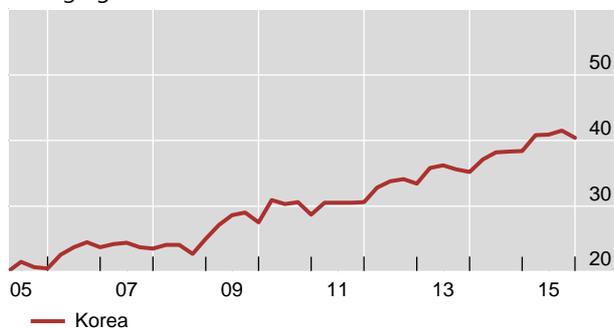
Other European countries



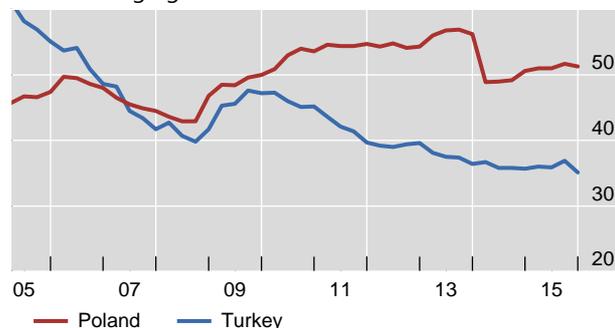
Major advanced economies



Emerging Asia



Other emerging market economies



Further information on the BIS credit statistics is available at [www.bis.org/statistics/totcredit.htm](http://www.bis.org/statistics/totcredit.htm).

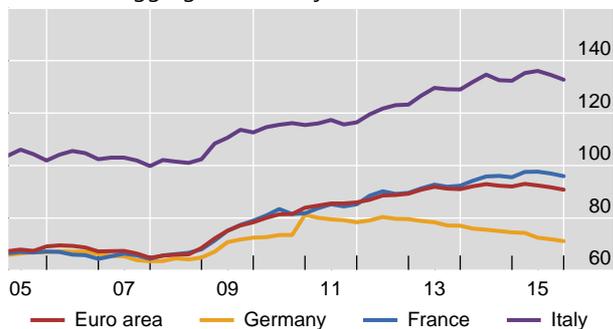
<sup>1</sup> Consolidated data for the general government sector.

Total credit to the government sector at nominal value (core debt)<sup>1</sup>

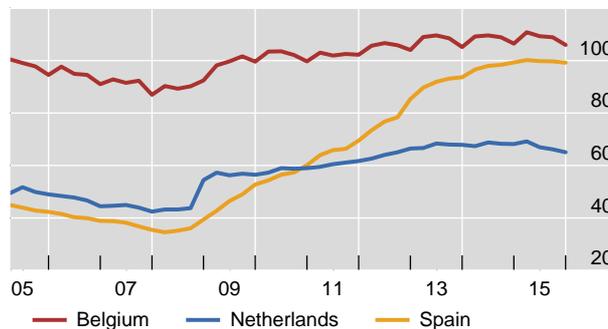
As a percentage of GDP

Graph F.7

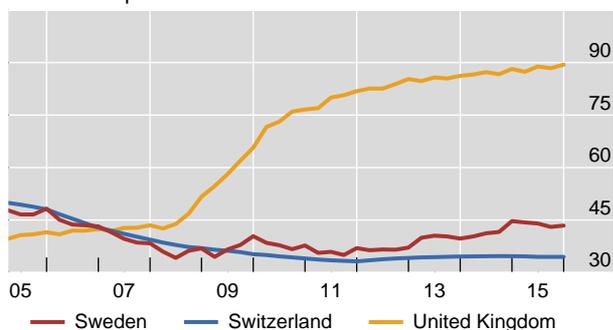
Euro area: aggregate and major countries



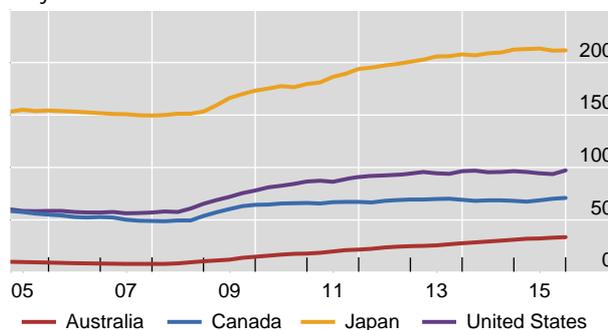
Euro area: other countries



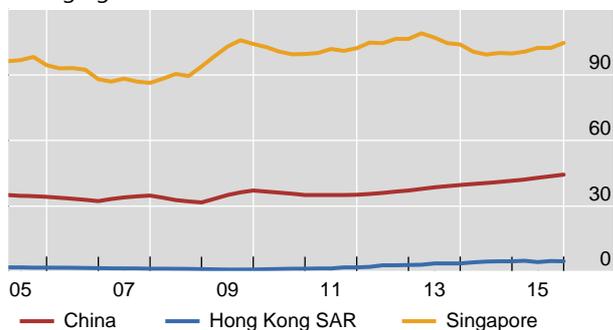
Other European countries



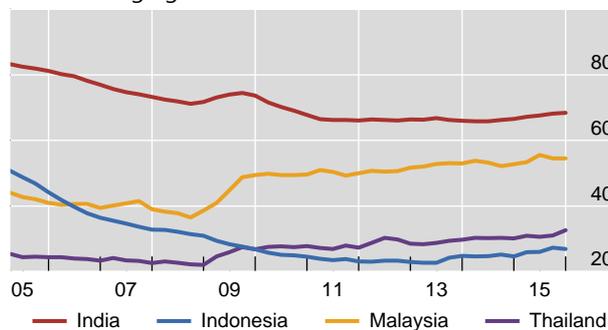
Major advanced economies



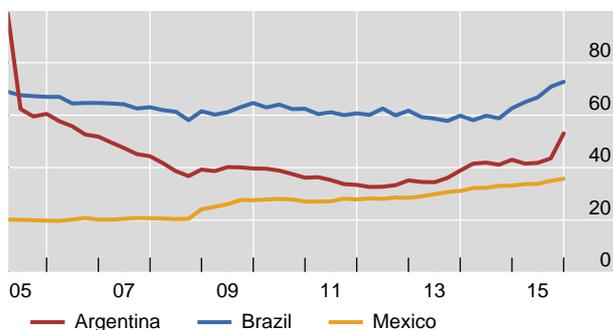
Emerging Asia



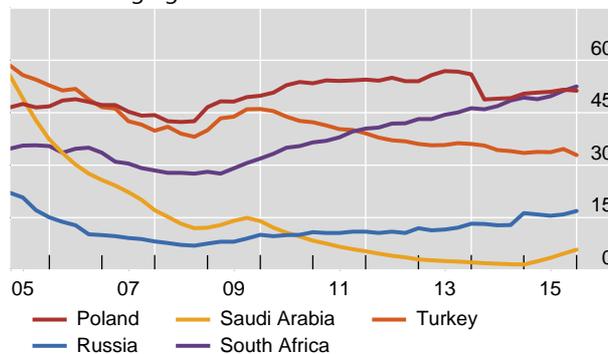
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS credit statistics is available at [www.bis.org/statistics/totcredit.htm](http://www.bis.org/statistics/totcredit.htm).

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

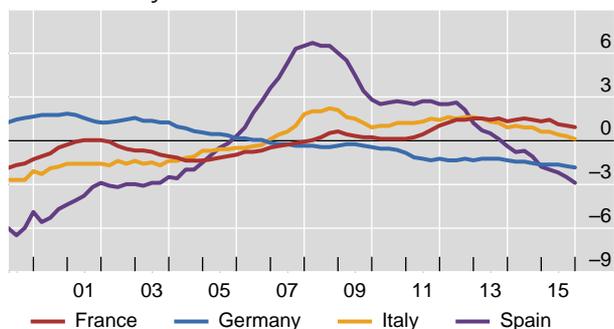
## G Debt service ratios for the private non-financial sector

### Debt service ratios of the private non-financial sector

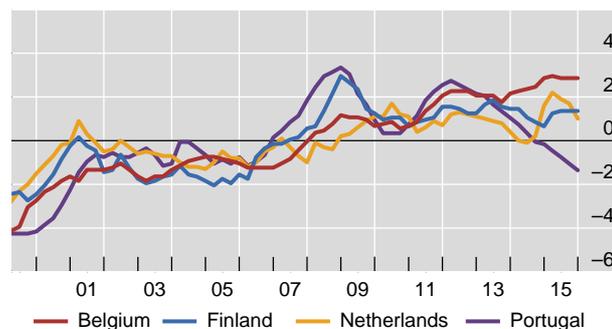
Deviation from country-specific mean; in percentage points<sup>1</sup>

Graph G.1

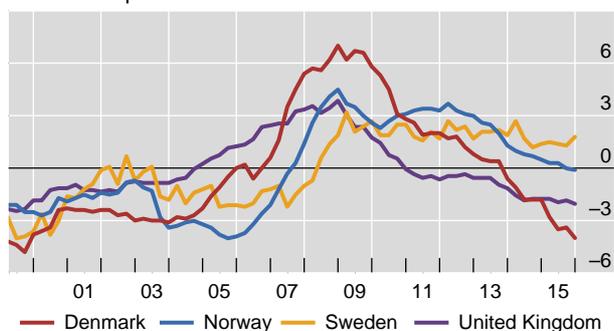
Euro area: major countries



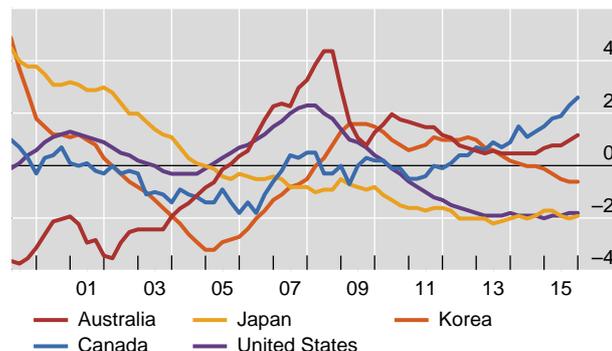
Euro area: other countries



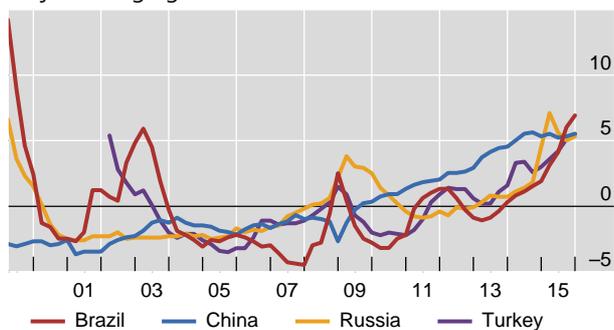
Other European countries



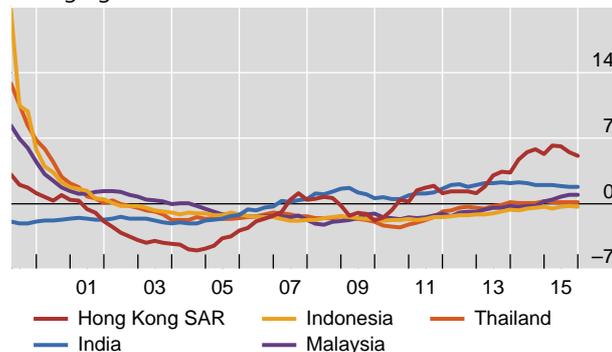
Other economies



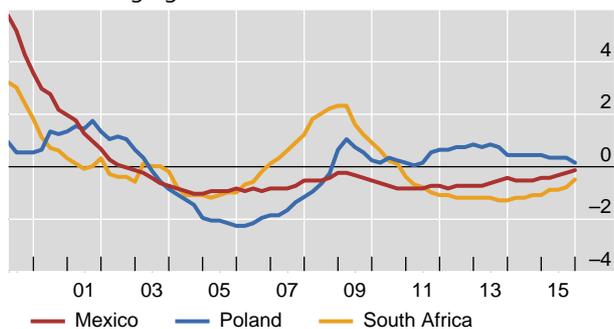
Major emerging markets<sup>2</sup>



Emerging Asia<sup>2</sup>



Other emerging markets<sup>2</sup>



<sup>1</sup> Country-specific means are based on all available data from 1999 onwards. <sup>2</sup> 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](http://www.bis.org/statistics/dsr.htm).

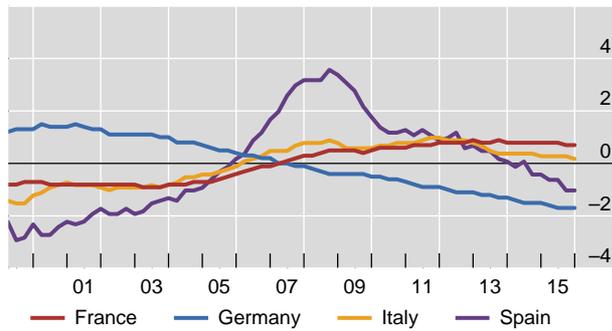
Further information on the BIS debt service ratio statistics is available at [www.bis.org/statistics/dsr.htm](http://www.bis.org/statistics/dsr.htm).

## Debt service ratios of households

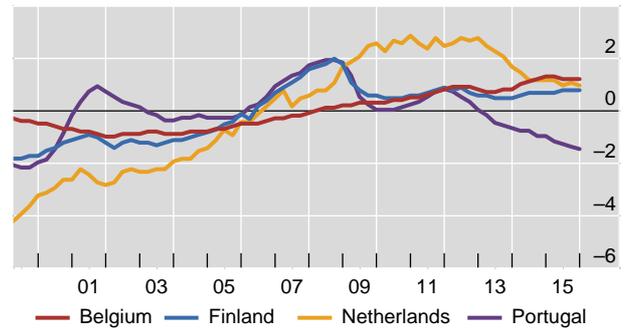
Deviation from country-specific mean; in percentage points<sup>1</sup>

Graph G.2

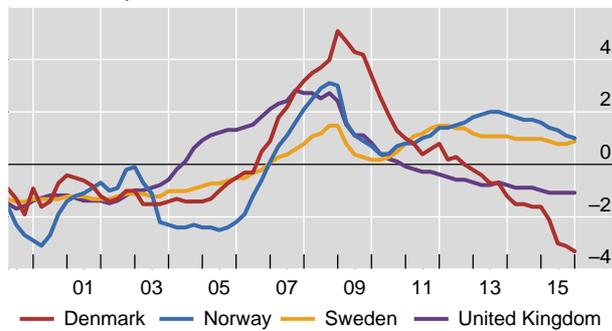
Euro area: major countries



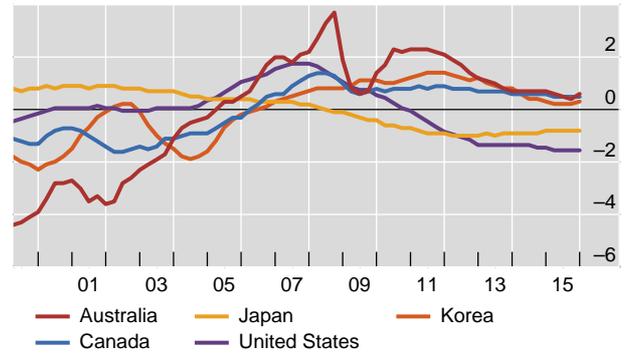
Euro area: other countries



Other European countries



Other economies



Further information on the BIS debt service ratio statistics is available at [www.bis.org/statistics/dsr.htm](http://www.bis.org/statistics/dsr.htm).

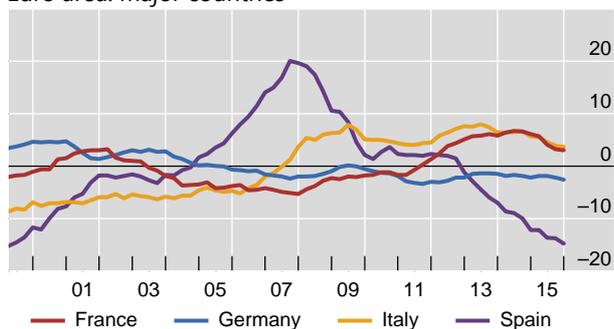
<sup>1</sup> Country-specific means are based on all available data from 1999 onwards.

## Debt service ratios of non-financial corporations

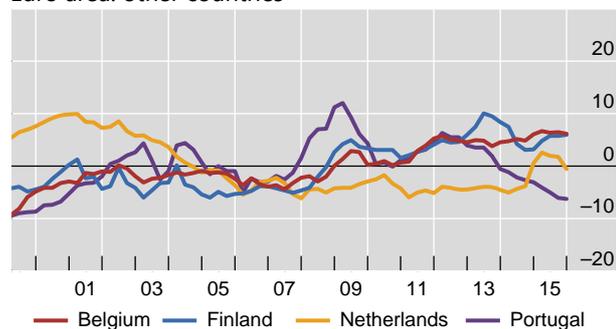
Deviation from country-specific mean; in percentage points<sup>1</sup>

Graph G.3

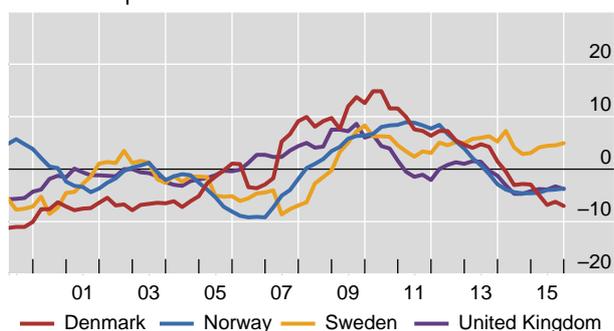
Euro area: major countries



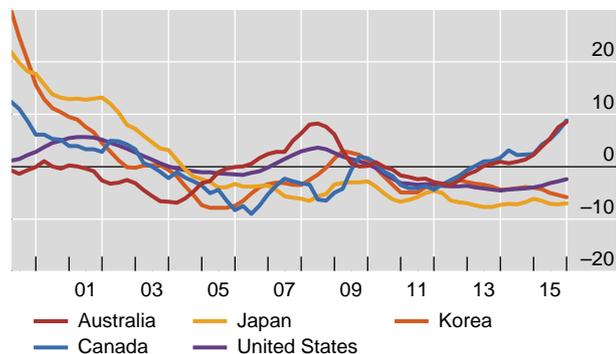
Euro area: other countries



Other European countries



Other economies



Further information on the BIS debt service ratio statistics is available at [www.bis.org/statistics/dsr.htm](http://www.bis.org/statistics/dsr.htm).

<sup>1</sup> Country-specific means are based on all available data from 1999 onwards.

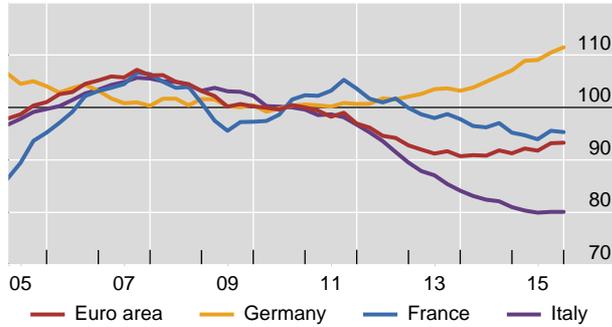
## H Property price statistics

### Real residential property prices

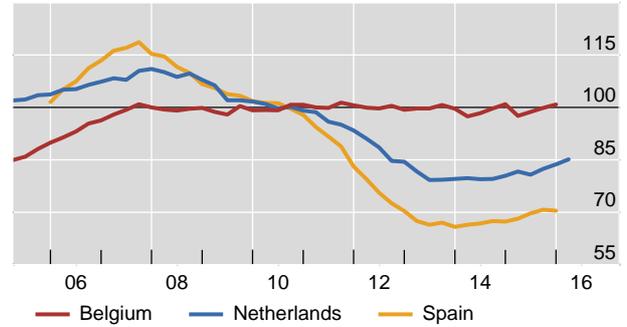
CPI-deflated; 2010 = 100

Graph H.1

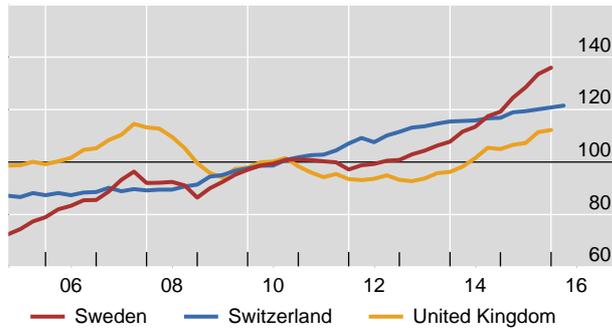
Euro area: aggregate and major countries



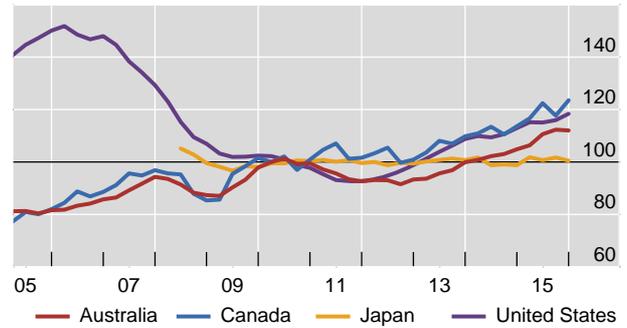
Euro area: other countries



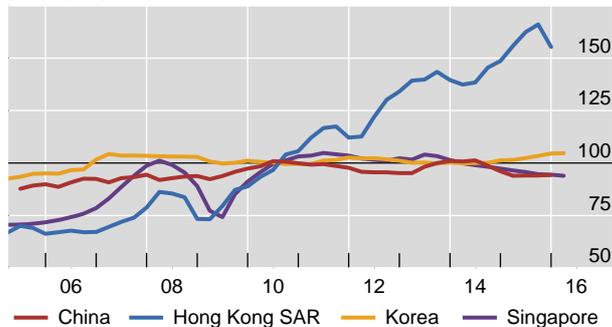
Other European countries



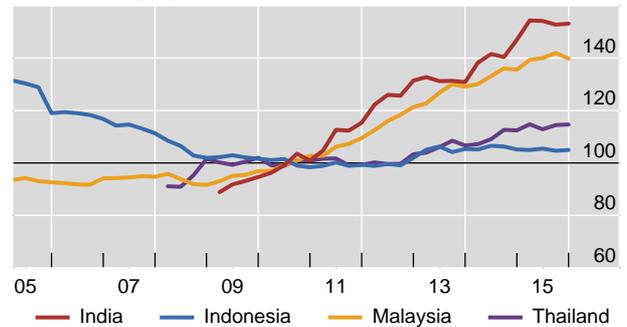
Major advanced economies



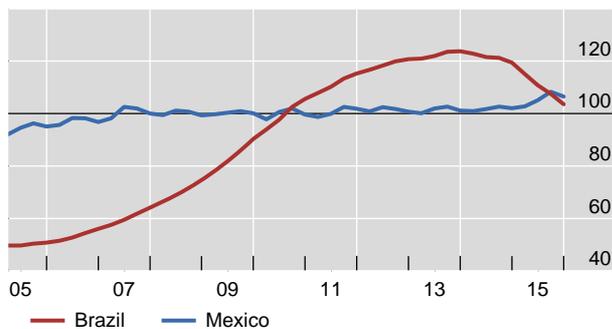
Emerging Asia



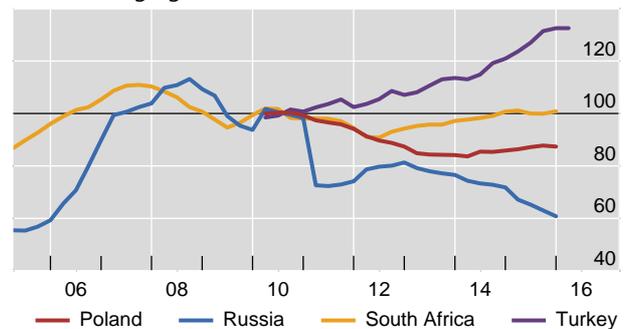
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS property price statistics is available at [www.bis.org/statistics/pp.htm](http://www.bis.org/statistics/pp.htm).

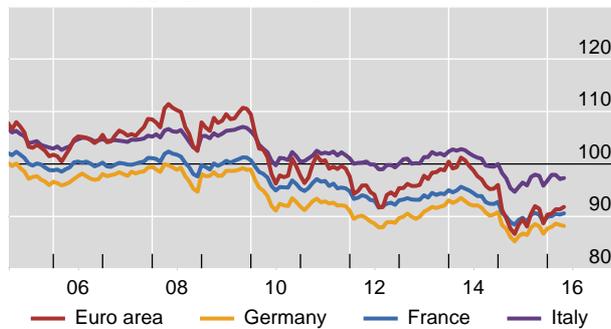
## I Effective exchange rate statistics

### Real effective exchange rates

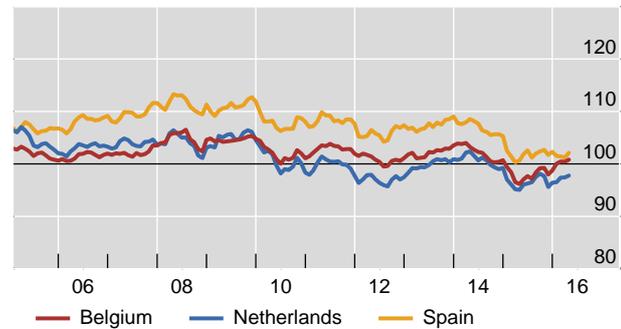
CPI-based; 1995–2005 = 100<sup>1</sup>

Graph I.1

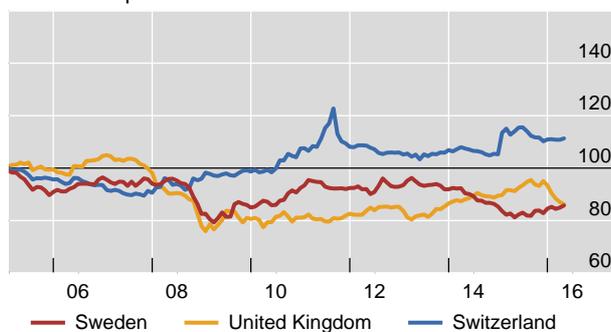
Euro area: aggregate and major countries



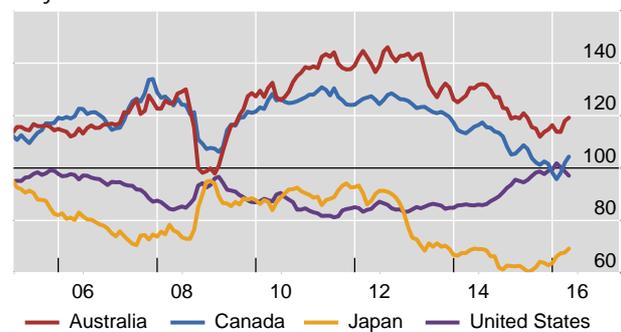
Euro area: other countries



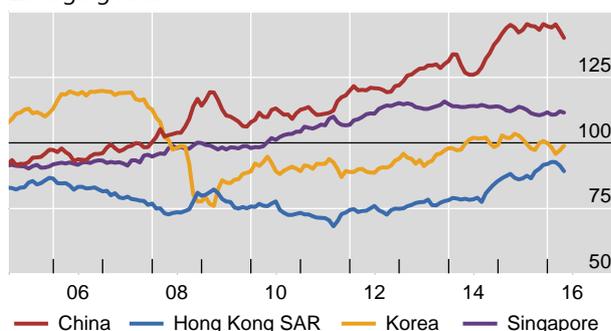
Other European countries



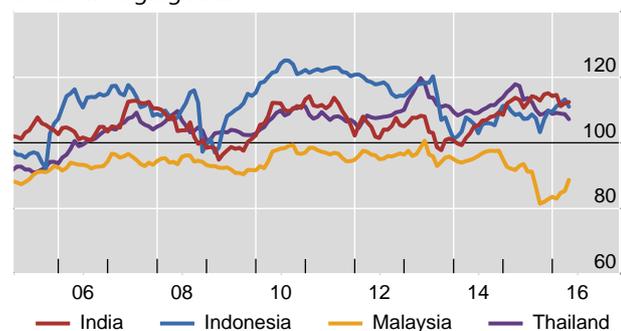
Major advanced economies



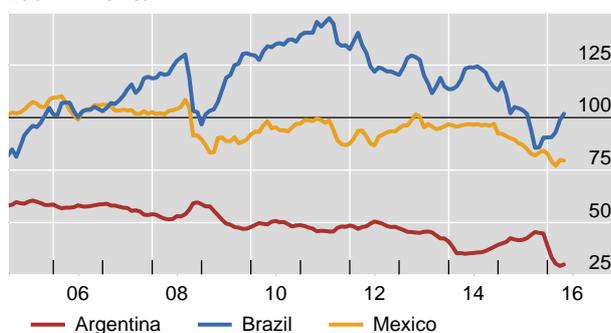
Emerging Asia



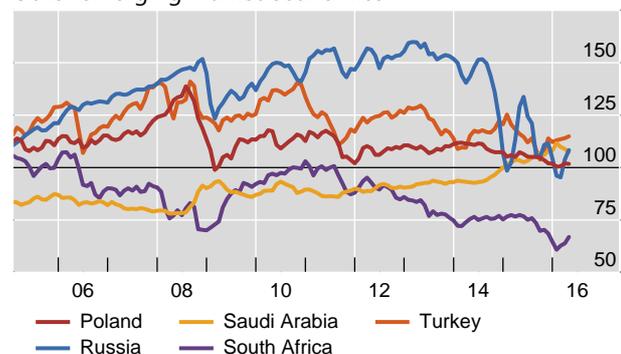
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS effective exchange rate statistics is available at [www.bis.org/statistics/eer.htm](http://www.bis.org/statistics/eer.htm).

<sup>1</sup> 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

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

# Recent BIS publications<sup>1</sup>

## BIS Working Papers

### **Has the pricing of stocks become more global?**

**Ivan Petzev, Andreas Schrimpf and Alexander F. Wagner**

**May 2016, No. 560**

We show that in recent years global factor models have been catching up significantly with their local counterparts in terms of explanatory power ( $R^2$ ) for international stock returns. This catch-up is driven by a rise in global factor betas, not a rise in factor volatilities, suggesting that the effect is likely to be permanent. Yet, there is no conclusive evidence for a global factor model catch-up in terms of pricing errors (alpha) or a convergence in country-specific factor premia. These findings suggest that global financial markets have progressed surprisingly little towards fully integrated pricing, different from what should be expected under financial market integration. We discuss alternative explanations for these patterns and assess implications for practice.

### **A comparative analysis of developments in central bank balance sheet composition**

**Christian Pattipeilohy**

**April 2016, No. 559**

In this paper we analyse developments in the composition of central bank balance sheets for a large set of central banks in a unified framework. Since 2007, central banks in advanced economies have experienced pronounced changes in balance sheet composition as a consequence of unconventional monetary policy measures. In addition, we document a convergence in balance sheet composition from 2007 until 2009, as the initial crisis response was fairly homogeneous across advanced economies, mostly driven by financial stability concerns. However, since 2009 design of balance sheet policies has been more diverse, reflecting diverging policy challenges across regions. By contrast, balance sheets of central banks in emerging market economies have remained broadly unchanged in terms of composition in the period under review.

### **Why bank capital matters for monetary policy**

**Leonardo Gambacorta and Hyun Song Shin**

**April 2016, No. 558**

One aim of post-crisis monetary policy has been to ease credit conditions for borrowers by unlocking bank lending. We find that bank equity is an important determinant of both the bank's funding cost and its lending growth. In a cross-country bank-level study, we find that a 1 percentage point increase in the equity-to-total assets ratio is associated with a 4 basis point reduction in debt financing and with a 0.6 percentage point increase in annual loan growth.

### **How does bank capital affect the supply of mortgages? Evidence from a randomized experiment**

**Valentina Michelangeli and Enrico Sette**

**April 2016, No. 557**

We study the effect of bank capital on the supply of mortgages. We fully control for endogenous matching between borrowers, loan contracts, and banks by submitting randomized mortgage applications to the major online mortgage broker in Italy. We find that

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

higher bank capital is associated with a higher likelihood of application acceptance and lower offered interest rates; banks with lower capital reject applications by riskier borrowers and offer lower rates to safer ones. Finally, nonparametric estimates of the probability of acceptance and of the offered rate show that the effect of bank capital is stronger when capital is low.

### **Threat of entry and debt maturity: evidence from airlines**

**Gianpaolo Parise**

**April 2016 No. 556**

I explore the effect of the threat posed by low-cost competitors on debt structure in the airline industry. I use the route network expansion of low-cost airlines to identify routes where the probability of future entry increases dramatically. I find that when strategic routes are threatened, incumbents significantly increase debt maturity before entry occurs. Overall, the main findings suggest that airlines respond to entry threats trading off financial flexibility for lower rollover risk. The results are consistent with models in which firms set their optimal debt structure in the presence of costly rollover failure.

### **The causal effect of house prices on mortgage demand and mortgage supply: evidence from Switzerland**

**Christoph Basten and Catherine Koch**

**March 2016 No. 555**

We identify the causal effect of house prices on mortgage demand and supply in Switzerland by exploiting exogenous shocks to immigration and thereby to house prices. Detailed micro data on individual requests and offers allow to close down possible other channels. We find that within the same interest rate environment 1% higher house prices imply 0.52% higher mortgage amounts. The full partial correlation of 0.78% suggests also positive feedback from mortgage volumes to house prices. While we find higher house prices to increase mortgage demand, banks respond if anything with fewer offers and higher rates, especially later in the boom and for highly leveraged households.

### **Can a bank run be stopped? Government guarantees and the run on Continental Illinois**

**Mark A Carlson and Jonathan Rose**

**March 2016 No. 554**

This paper analyses the run on Continental Illinois in 1984. We find that the run slowed but did not stop following an extraordinary government intervention, which included the guarantee of all liabilities of the bank and a commitment to provide ongoing liquidity support. Continental's outflows were driven by a broad set of US and foreign financial institutions. These were large, sophisticated creditors with holdings far in excess of the insurance limit. During the initial run, creditors with relatively liquid balance sheets nevertheless withdrew more than other creditors, likely reflecting low tolerance to hold illiquid assets. In addition, smaller and more distant creditors were more likely to withdraw. In the second and more drawn out phase of the run, institutions with relative large exposures to Continental were more likely to withdraw, reflecting a general unwillingness to have an outsized exposure to a troubled institution even in the absence of credit risk. Finally, we show that the concentration of holdings of Continental's liabilities was a key dynamic in the run and was importantly linked to Continental's systemic importance.

### **What drives the short-run costs of fiscal consolidation? Evidence from OECD countries**

**Ryan Niladri Banerjee and Fabrizio Zampolli**

**March 2016 No. 553**

In a panel of OECD countries, we investigate the short-term effects of fiscal consolidation on output and employment, and how these vary with the state of the business cycle, monetary policy, the level of public debt, the current account, and the strength of the financial cycle. The estimation makes use of local projection methods and fiscal consolidation shocks identified through the narrative approach. Our main finding is that short-term fiscal multipliers remain for the most part below unity, even in bad states, suggesting that important offsetting factors were at play in past consolidation episodes. In particular, we do not find evidence that fiscal multipliers are above unity when the output gap is negative or monetary policy is tight. Instead, we find evidence of lower than average multipliers when the

current account is in deficit and public debt is high (although in the latter case employment costs tend to be larger). One factor found to raise the costs of fiscal consolidation is weak private credit growth. Even in this case, however, point estimates indicate that fiscal multipliers are not larger than one. Our results suggest that fiscal consolidation multipliers are not necessarily, or everywhere, larger than average in the aftermath of the global financial crisis.

### **Fiscal sustainability and the financial cycle**

**Claudio Borio, Marco Jacopo Lombardi and Fabrizio Zampolli**

**March 2016 No. 552**

A frequently neglected aspect of financial booms and busts - financial cycles - is their impact on fiscal positions. And yet, the latest financial crisis and history show that these cycles can wreak havoc with public finances. After reviewing the impact of financial cycles on fiscal positions, we offer a new tool to estimate cyclically adjusted balances, illustrate its performance, explore its strengths and weaknesses, and sketch out a way forward to measuring sustainability in a more holistic way.

### **When the walk is not random: commodity prices and exchange rates**

**Emanuel Kohlscheen, Fernando Avalos and Andreas Schrimpf**

**March 2016 No. 551**

We show that there is a distinct commodity-related driver of exchange rate movements, even at fairly high frequencies. Commodity prices predict exchange rate movements of 11 commodity-exporting countries in an in-sample panel setting for horizons up to two months. We also find evidence of systematic (pseudo) out-of-sample predictability, overturning the results of Meese and Rogoff (1983): information embedded in our country-specific commodity price indices clearly helps improving upon the predictive accuracy of the random walk in the majority of countries. We further show that the link between commodity prices and exchange rates is not driven by changes in global risk appetite or carry.

### **A new dimension to currency mismatches in the emerging markets - non-financial companies**

**Michael Chui, Emese Kuruc and Philip Turner**

**March 2016 No. 550**

A new dimension to currency mismatches has been created by policies that have increased global liquidity. Lower policy rates and a huge expansion in central bank balance sheets - purchases of domestic bonds in the advanced economies and of foreign assets in the emerging market economies (EMEs) - have served to ease financing conditions facing EME companies. This has allowed these companies to increase their gearing, notably by greater foreign currency borrowing. Aggregate foreign currency mismatches of the non-government sector in the EMEs have therefore risen sharply since 2010. Microeconomic data show that it was not only companies providing tradable goods and services but also those producing non-tradable goods which have increased their foreign currency borrowing. The across-the-board decline in EME companies' profitability since mid-2014 has brought to light significant vulnerabilities that may aggravate market volatility. Weak corporate profitability is also likely to constrain business fixed investment, and therefore growth, in the near term. But the strong external asset positions of most emerging market economies will help the authorities cope with these challenges.

### **Monetary policy spillovers and currency networks in cross-border bank lending**

**Stefan Avdjiev and Előd Takáts**

**March 2016 No. 549**

We demonstrate that currency networks in cross-border bank lending have a significant impact on the size, distribution and direction of international monetary policy spillovers. Using the recently enhanced BIS international banking statistics, which simultaneously provide information on the lender, borrower and currency composition of cross-border bank claims, we map the major currency networks in international banking. Next, we show that during the 2013 Fed taper tantrum, exposure to dollar lending was associated with safe haven flows to the United States, virtually unchanged flow dynamics vis-à-vis other advanced

economies, and strong outflows from emerging markets. Furthermore, this pattern was shaped by interbank lending rather than by lending to non-banks.

### **Moving in tandem: bank provisioning in emerging market economies**

**Andrés Murcia Pabón and Emanuel Kohlscheen**

**March 2016 No. 548**

We study the determinants of loan loss provisions and delinquency ratios based on the balance sheets of 554 banks from emerging market economies (EMEs). We find that provisions in EME banks respond mostly to aggregate variables, and very little to idiosyncratic factors. In particular, the bank-specific credit growth rates - usually thought of as a measure of individual risk-taking - do not explain the level of loan loss provisions. There is some evidence that earnings and the size of the intermediaries have an effect on provisions. The predominant effect however is that provisions and actual losses are negatively related to past economic growth and positively related to past aggregate credit growth. We also estimate the forward and backward-looking component of provisions, finding that provisions respond mainly to past reported losses. These findings suggest that EME banks' provisioning decisions are highly correlated. Since provisions fall when output grows, macroprudential tools that counter this effect could dampen pro-cyclical behavior.

### **When pegging ties your hands**

**Nikola Tarashev and Anna Zabai**

**March 2016 No. 547**

We show that there is a distinct commodity-related driver of exchange rate movements, even at fairly high frequencies. Commodity prices predict exchange rate movements of 11 commodity-exporting countries in an in-sample panel setting for horizons up to two months. We also find evidence of systematic (pseudo) out-of-sample predictability, overturning the results of Meese and Rogoff (1983): information embedded in our country-specific commodity price indices clearly helps improving upon the predictive accuracy of the random walk in the majority of countries. We further show that the link between commodity prices and exchange rates is not driven by changes in global risk appetite or carry.

### **Financial intermediation and monetary policy transmission in EMEs: What has changed post-2008 crisis?**

**Madhusudan Mohanty and Kumar Rishabh**

**March 2016 No. 546**

In contrast to the benign neglect of the financial system in traditional monetary models, there has been growing evidence in recent years that the size and the structure of financial intermediation play a critical role in the transmission of monetary policy. This paper reviews the implications of three key post-2008 crisis developments in financial intermediation - the role of banks, the globalisation of debt markets and the sustained decline in global long-term interest rates - for various transmission channels of monetary policy in EMEs. The paper argues that the globalisation of debt markets means that monetary policy can no longer be conducted through the short-term interest rate alone. This raises questions about the appropriate instruments to be used for economic stabilisation in this new environment.

## **Basel Committee on Banking Supervision**

### **Interest rate risk in the banking book**

**April 2016**

The standards revise the Committee's 2004 Principles for the management and supervision of interest rate risk, which set out supervisory expectations for banks' identification, measurement, monitoring and control of IRRBB as well as its supervision. The key enhancements to the 2004 Principles include:

- More extensive guidance on the expectations for a bank's IRRBB management process in areas such as the development of interest rate shock scenarios, as well as key

behavioural and modelling assumptions to be considered by banks in their measurement of IRRBB;

- Enhanced disclosure requirements to promote greater consistency, transparency and comparability in the measurement and management of IRRBB. This includes quantitative disclosure requirements based on common interest rate shock scenarios;
- An updated standardised framework, which supervisors could mandate their banks to follow or banks could choose to adopt; and
- A stricter threshold for identifying outlier banks, which has been reduced from 20% of a bank's total capital to 15% of a bank's Tier 1 capital.

The standards reflect changes in market and supervisory practices since the Principles were first published in 2004, which is particularly pertinent in light of the current exceptionally low interest rates in many jurisdictions. The revised standards, which were published for consultation in June 2015, are expected to be implemented by 2018.

The Basel Committee wishes to thank all those who contributed time and effort to express their views during the consultation process.

### **Prudential treatment of problem assets - definitions of non-performing exposures and forbearance - consultative document April 2016**

The Basel Committee on Banking Supervision has today issued for consultation Prudential treatment of problem assets - definitions of non-performing exposures and forbearance.

At present, banks categorise problem loans in a variety of ways and there are no consistent international standards for categorising problem loans. The definitions proposed by the Basel Committee aim to foster harmonisation in the measurement and application of two important measures of asset quality and thereby promote consistency in supervisory reporting and disclosures by banks.

(i) The definition of non-performing exposures introduces criteria for categorising loans and debt securities that are centred around delinquency status (90 days past due) or the unlikelihood of repayment. It also clarifies the consideration of collateral in categorising assets as non-performing. The definition also introduces clear rules regarding the upgrading of an exposure from "non-performing" to "performing" as well as for the interaction between non-performing status and forbearance.

(ii) Forbearance refers to concessions, such as a modification or refinancing of loans and debt securities, that are granted as a result of a counterparty's financial difficulty. The proposed definition sets out criteria for when a forbore exposure can cease being identified as such and emphasises the need to ensure a borrower's soundness before the discontinuation.

The proposed definitions complement the existing accounting and regulatory framework in relation to asset categorisation. They are intended to be used, for example, in the supervisory monitoring of a bank's asset quality as well as by banks in their credit risk management and as part of their internal credit categorisation systems.

The Committee welcomes comments from the public on all aspects of the proposals described in this document. Comments on the proposals should be uploaded here by Friday 15 July 2016. All comments will be published on the Bank for International Settlements website unless a respondent specifically requests confidential treatment.

### **Tenth progress report on adoption of the Basel regulatory framework April 2016**

This updated Progress report on adoption of the Basel regulatory framework provides a high-level view of Basel Committee members' progress in adopting Basel III standards as of end-March 2016.

The report focuses on the status of adoption of all the Basel III standards (which will become effective by 2019) to ensure that the Basel standards are transformed into national law or regulation according to the internationally agreed timeframes. The report is based on information provided by individual members as part of the Committee's Regulatory Consistency Assessment Programme (RCAP). The report includes the status of adoption of the Basel III risk-based capital standards, the leverage ratio, the liquidity coverage ratio (LCR), the net stable funding ratio (NSFR), the standards for global and domestic systemically important banks (SIBs), Pillar 3 disclosure requirements and the large exposure framework.

In addition to periodically reporting on the status of adoption, all Committee members undergo an assessment of the consistency of their domestic rules with the Basel standards.

### **Revisions to the Basel III leverage ratio framework - consultative document April 2016**

A revised version of this document was published on 25 April 2016 to address errors in select paragraphs of the proposed revisions to the framework text.

The Basel III framework introduced a simple, transparent, non-risk based leverage ratio to act as a credible supplementary measure to the risk-based capital requirements. The Basel Committee is of the view that a simple leverage ratio framework is critical and complementary to the risk-based capital framework and that a credible leverage ratio is one that ensures broad and adequate capture of both the on- and off-balance sheet sources of banks' leverage.

This document sets out the Committee's proposed revisions to the design and calibration of the Basel III leverage ratio framework. The proposed changes have been informed by the monitoring process in the parallel run period since 2013, by feedback from market participants and stakeholders and by the frequently asked questions process since the January 2014 release of the standard Basel III leverage ratio framework and disclosure requirements.

Among the areas subject to proposed revision in this consultative document are:

- measurement of derivative exposures;
- treatment of regular-way purchases and sales of financial assets;
- treatment of provisions;
- credit conversion factors for off-balance sheet items; and
- additional requirements for global systemically important banks.

The final design and calibration of the proposals will be informed by a comprehensive quantitative impact study.

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 Wednesday 6 July 2016. All comments will be published on the website of the Bank for International Settlements unless a respondent specifically requests confidential treatment.

### **Frequently asked questions on the Basel III leverage ratio framework April 2016**

In January 2014, the Basel Committee on Banking Supervision published the Basel III leverage ratio framework and disclosure requirements together with the public disclosure requirements applicable as of 1 January 2015. To promote consistent global implementation of those requirements, the Committee has agreed to periodically review frequently asked questions (FAQs) and publish answers along with any technical elaboration of the standards text and interpretative guidance that may be necessary.

The document published today sets out the third set of FAQs that relate to the Basel III leverage ratio framework. The questions and answers, combined with those published earlier in the first and second sets of FAQs, are grouped according to the following themes:

- (i) on-balance sheet exposures;
- (ii) derivative exposures;
- (iii) specific treatment for written credit derivatives;
- (iv) securities financing transaction (SFT) exposures;
- (v) cross-product netting agreements for derivative exposures and SFTs;
- (vi) treatment of long settlement transactions and failed trades;
- (vii) off-balance sheet items; and
- (viii) scope of consolidation and disclosure

**Regulatory consistency assessment programme (RCAP) - Analysis of risk-weighted assets for credit risk in the banking book  
April 2016**

This report is the second by the Basel Committee to analyse variation in risk-weighted assets (RWA) in banks using internal ratings-based models to calculate credit risk capital requirements. The study evaluates two types of risk estimates. First, it considers those risk estimates used for exposures to retail customers and small and medium-sized enterprises. Second, it explores the way banks evaluate the likely exposure at default across all asset classes.

This report is part of the Committee's wider Regulatory Consistency Assessment Programme (RCAP), which is intended to ensure consistent implementation of the Basel III framework. Its analysis of regulatory outcomes complements other reports by the Committee on variation in RWA for market risk and counterparty credit risk, as well as an earlier report on RWA variation for credit risk published in July 2013.

During this study, the Committee observed different practices in the way that banks ensure independent evaluation of credit risk models used to calculate capital requirements. The report describes sound practices observed in banks' independent model validation functions, including the governance of the validation process, the methodology and scope of banks' validation functions and the role of the validation function across different phases of model development and implementation.

**Reducing variation in credit risk-weighted assets - constraints on the use of internal model approaches - consultative document  
March 2016**

The consultative document Reducing variation in credit risk-weighted assets - constraints on the use of internal model approaches - sets out the Committee's proposed changes to the advanced internal ratings-based approach and the foundation internal ratings-based approach.

The proposed changes include a number of complementary measures that aim to: (i) reduce the complexity of the regulatory framework and improve comparability; and (ii) address excessive variability in the capital requirements for credit risk. Specifically, the Basel Committee proposes to:

- remove the option to use the IRB approaches for certain exposures, where it is judged that the model parameters cannot be estimated sufficiently reliably for regulatory capital purposes;
- adopt exposure-level, model-parameter floors to ensure a minimum level of conservatism for portfolios where the IRB approaches remain available; and
- provide greater specification of parameter estimation practices to reduce variability in risk-weighted assets (RWA) for portfolios where the IRB approaches remain available.

The Committee has previously consulted on the design of aggregate capital floors based on standardised approaches and is still considering the design and calibration. This would complement the proposed constraints discussed in this consultation paper.

The final design and calibration of the proposals will be informed by a comprehensive quantitative impact study and by the Committee's aim to not significantly increase overall capital requirements.

The Committee welcomes comments from the public on all aspects of the proposals described in this document here by Friday 24 June 2016. All comments will be published on the Bank for International Settlements website unless a respondent specifically requests confidential treatment.

### **Basel III Regulatory Consistency Assessment Programme (RCAP) - Handbook for jurisdictional assessments**

**March 2016**

Basel Committee's Regulatory Consistency Assessment Programme: Jurisdictional Assessments

Implementation of the Basel III framework is a key global regulatory reform priority. Full and consistent implementation within the internationally agreed timeframe is aimed at strengthening the resilience of the banking system, improving market confidence in regulatory ratios and promoting a level playing field.

To facilitate the implementation process, the Basel Committee adopted in 2012 a comprehensive Regulatory Consistency Assessment Program (RCAP). The RCAP consists of two distinct but complementary work streams to monitor the timely adoption of Basel III standards, and to assess the consistency and completeness of the adopted standards including the significance of any deviations in the regulatory framework. It also facilitates an effective dialogue among Basel Committee members and informs its broader standards-development work.

The assessment work is carried out on a jurisdictional as well as on a thematic basis. Currently, the focus of the RCAP is on risk-based capital standards, Liquidity Coverage Ratio (LCR) and Systemically Important Banks' (SIBs) framework. This will further expand from 2017 to cover Basel III standards on Net Stable Funding Ratio (NSFR) and Leverage Ratio.

Based on the experience with the RCAP to date, the Basel Committee has updated the procedures and process for conducting jurisdictional assessments under the RCAP in one document, the Handbook for Jurisdictional Assessments (the Handbook). The Handbook describes the complete assessment programme and also introduces the RCAP questionnaires, which member jurisdictions complete ahead of the assessment and update it regularly. Both the Handbook and the RCAP questionnaires will help all regulators, supervisors and financial stability authorities to evaluate their own progress with implementation of Basel III framework and identify areas for improvement. These documents will be kept under review and updated as the scope of the RCAP expands to include other aspects of the Basel III framework.

### **Regulatory Consistency Assessment Programme (RCAP) - Assessment of Basel III risk-based capital regulations - Turkey**

**March 2016**

The Turkish risk-based capital framework came into force in 2006 (Annex 2). The prudential framework applies to all credit institutions, including commercial banking institutions and state-owned institutions. Over time, the framework has been periodically updated to include Basel 2.5 and Basel III standards and was further amended in August 2015 and January 2016.

In early 2015, in preparation for the RCAP assessment, the BRSA made a comprehensive self-assessment of the consistency of its domestic regulations with the Basel standard. Based on this self-assessment, the BRSA issued a set of amendments in August 2015 to align its domestic regulations. In September 2015, the BRSA submitted the updated self-assessment and amended regulations to the Assessment Team for review. The RCAP Assessment Team identified a number of additional variations from the Basel framework, which the BRSA subsequently resolved to rectify. The amendments were passed in January 2016, in coordination with the Central Bank of Turkey (CBRT) and the Turkish Ministry of Development.

Based on the amended regulations issued in August and January 2016, the Assessment Team assessed Turkey as compliant with the Basel risk-based capital standards. Also, all underlying components of the risk-based capital framework are assessed as compliant. The regulatory reforms undertaken by the BRSA throughout 2015 and early 2016 have significantly strengthened the Turkish prudential framework and substantially improved its level of compliance with the Basel minimum standards. In the absence of these reforms, the RCAP assessment would have generated a less positive result.

The Assessment Team compliments the BRSA for its efforts to align the domestic prudential regulations with the Basel capital framework. The implementation work on many reforms, however, has only just begun. Whereas the RCAP assessment focused on the consistency and completeness of prudential regulations, the intended prudential outcomes in Turkey will critically depend on how effectively the regulations are put into practice, monitored, and supervised. In this regard, the Internal Ratings-Based (IRB) approach for credit risk, has, at this point, either minimal or no current participation by Turkish banks. Whilst the RCAP team is confident that Turkish rules in these areas comply with the Basel framework, these regulations have yet to be applied in practice to a Turkish bank. In addition, some elements in the BRSA's toolbox, notably the Pillar 2 framework, are still in early stages of implementation and their effectiveness will require the BRSA and the banks to gain further experience with these tools. The Assessment Team further recommends keeping under review the regulatory framework for securitisations, of which the IRB approach has not been implemented yet (Annex 12). The team also identified a few items that would benefit from further clarification by the Basel Committee (Annex 11).

### **Regulatory Consistency Assessment Programme (RCAP) - Assessment of Basel III LCR regulations -Turkey March 2016**

The Turkish framework for LCR requirements was issued in March 2014 through the publication of the Regulation on Calculation of the Liquidity Coverage Ratio of Banks and a set of supplementary Guidelines (see Annex 2). The requirements were amended and updated in August 2015 and in January 2016. The LCR applies to all commercial banking institutions and state-owned institutions in Turkey.

In September 2015, the BRSA submitted an extensive self-assessment of the domestic LCR rules. Based on the self-assessment, the RCAP Assessment Team identified a number of variations in the LCR rules from the Basel framework. The BRSA used the RCAP findings to amend the rule to the extent feasible and consistent with Turkish national interests. This resulted in a further strengthening of the Turkish liquidity regime.

Overall, as on 20 January 2016, the cut-off date of the assessment, the final LCR regulations in Turkey are assessed as compliant with the minimum Basel LCR standard. All graded components of the LCR framework, including the high-quality liquid assets, the liquidity inflows and outflows and disclosure requirements, are assessed as compliant. The amendments issued by the BRSA in January 2016 improved the level of compliance with the Basel minimum standards.

The Assessment Team compliments the BRSA for their implementation of and alignment with the Basel LCR framework. The BRSA and Turkish banks now face the challenge of implementing the LCR standard in practice (see Annex 7 for the key liquidity indicators of the Turkish banking system). The BRSA has developed and implemented the necessary reporting templates and systems. However, the achievement of the intended prudential outcomes and effective implementation, monitoring and supervision of these requirements was not in the scope of the assessment.

In addition to the formal assessment of the LCR standard and disclosure requirements, this report contains annexes that summarise the BRSA's implementation of the LCR monitoring tools and the Basel Principles for sound liquidity risk management (see Annexes 9 and 10). Further, a summary is provided of the key national discretions and approaches that the BRSA has adopted in its implementation of the LCR standard (Annex 14). These annexes help to clarify how national authorities implement certain aspects of the Basel standards that are not in scope of the formal RCAP-LCR assessment at this point of time. Over time, the information

detailed in these annexes will provide a basis for designing best practice and additional supervisory guidance that will benefit the regulatory community and the banking industry to raise consistency of the implementation of the LCR and to improve its effectiveness in practice.

**Regulatory Consistency Assessment Programme (RCAP) - Assessment of Basel III risk-based capital regulations - Russia**  
**March 2016**

The Russian framework for risk-based capital requirements is implemented through various regulatory documents, including Regulations, Ordinances and Instructions (Annex 2). The prudential framework applies to all credit institutions, including commercial banking institutions and state-owned institutions. The framework has since been periodically updated to include Basel 2.5 and Basel III standards and was further amended in December 2015.

In July 2015, the CBR completed an extensive self-assessment of the capital regime as part of their preparation for the RCAP exercise. This self-assessment identified several material elements where the Russian framework was inconsistent with the Basel requirements. The RCAP Assessment Team identified additional variations from the Basel framework, which the Russian authorities resolved to rectify. The CBR used the discipline of the RCAP exercise to undertake reform and upgrade their prudential capital framework – to the extent feasible and consistent with Russian national interests.

As of the cut-off date for the RCAP assessment, and based on the amended risk-based capital requirements issued in December 2015, Russia is considered compliant with the minimum Basel capital standards. All components of the Basel framework were assessed as being compliant. The Russian capital framework benefited from a number of amendments during the course of the RCAP assessment, most of which became effective in January 2016 (see Annex 5). The additional regulatory initiatives undertaken by the CBR significantly improved the level of compliance with the Basel minimum standards. In the absence of these reforms, the RCAP assessment would have generated a considerably less positive result.

Several elements of the Basel capital framework, notably the Internal Ratings-Based (IRB) Approach for credit risk, at this point have little or no current participation by Russian banks. The RCAP team is confident that Russian rules in these areas comply with the Basel framework, but notes that these regulations have yet to be applied in substantial practice to a Russian bank.

The Russian capital framework, while upgraded and compliant with the Basel capital framework, faces several challenges. Given the nature of some of the recent amendments, effective and ongoing implementation will continue to pose a material challenge for both the CBR and the Russian banking industry. Although the RCAP exercise focused mainly on the consistency and completeness of prudential regulations, the intended prudential outcomes in Russia will critically depend on how the regulations are effectively put into practice, monitored and supervised.

The Assessment Team compliments the CBR for its substantial reforms and alignment with the Basel capital framework. However, the implementation work on many reforms has only just begun. Several important elements in the CBR's toolbox, notably the Pillar 2 capital framework, are still in early stages of implementation and their effectiveness will require the CBR and the banks to build up further experience with these elements. Further, the Assessment Team recommends keeping under review the Russian securitisation framework, of which the internal ratings-based approach has not been implemented yet (Annex 12). The team also identified a few items that would benefit from further clarification by the Basel Committee (Annex 11).

**Regulatory Consistency Assessment Programme (RCAP) - Assessment of Basel III risk-based capital regulations - Russia**  
**March 2016**

In May 2014 the Central Bank of Russia (CBR) issued the reporting requirement of the Liquidity Coverage Ratio (LCR) on a solo basis through the publication of Regulation no 421-P "On the Calculation of the Liquidity Coverage Ratio (Basel III)" (see Annex 3). This regulation

was amended and updated in December 2015. Additionally, Regulation no 510-P "On the Calculation of the Liquidity Coverage Ratio ("Basel III") by Systemically Important Credit Institutions" was published in December 2015, which sets out the minimum LCR requirements on a consolidated basis. This regulation includes references to the calculation methodologies specified in Regulation no 421-P. The accompanying reporting and disclosure requirements were issued in May 2014 and December 2015. All internationally active systemically important banks, determined in accordance with Ordinance no 3737-U "On the Methodology of Defining Systematically Important Credit Institutions" are subject to the LCR prudential requirements.

In May 2015 the CBR completed an extensive self-assessment of their LCR rules as part of their preparation for the RCAP exercise against the Regulation no 421-P. Based on the self-assessment and the published draft rules, the RCAP Assessment Team identified a number of material variations in the LCR rules from the Basel framework. The CBR used the RCAP findings to amend the rule to the extent feasible and consistent with Russian national interests. This resulted in a significant strengthening of the Russian liquidity regime.

Overall, as on the cut-off date for the RCAP assessment, the final LCR regulations in Russia are assessed as compliant with the minimum Basel LCR standard. All graded components of the LCR framework, including the high-quality liquid assets, the liquidity inflows and outflows and disclosure requirements, are assessed as compliant. The amendments made by the CBR and issued in December 2015 considerably improved the level of compliance with the Basel minimum standards. In the absence of these reforms, the RCAP assessment would have generated a considerably less positive result.

A notable feature of the CBR's LCR implementation is the adoption of alternative liquidity approaches (ALA). In particular, the CBR created a committed liquidity facility (CLF) to ensure that sufficient liquid assets are available for Russian banks to comply with the minimum LCR requirements. The CBR also allows banks to use additional foreign currency HQLA to cover domestic liquidity needs. While the team considered the regulations implementing the ALA options to be in line with the Basel standard, the Assessment Team did not undertake a formal assessment or form a view on Russia's eligibility for adopting the ALA approach. As the use of ALA is permissible only in the case of a structural HQLA shortage, the eligibility of Russian banks to use ALA will be part of a separate peer review process by the Basel Committee (see Annex 15).

### **Pillar 3 disclosure requirements - consolidated and enhanced framework - consultative document March 2016**

Pillar 3 of the Basel framework seeks to promote market discipline through regulatory disclosure requirements. The proposed enhancements issued in this consultative document build on revisions to the Pillar 3 disclosure requirements that the Committee finalised in January 2015. Taken together, they form the consolidated and enhanced Pillar 3 framework. The proposals in this consultative document include:

- the addition of a "dashboard" of key metrics,
- disclosure of hypothetical risk-weighted assets calculated based on the Basel framework's standardised approaches, and
- enhanced granularity for disclosure of prudent valuation adjustments.

The proposals also incorporate additions to the Pillar 3 framework to reflect ongoing reforms to the regulatory framework. These include, disclosure requirements for:

- the total loss-absorbing capacity (TLAC) regime for global systemically important banks,
- the proposed operational risk framework, and
- the final standard for market risk.

The Committee welcomes comments from both Pillar 3 users and preparers on the proposals described in this consultative document here by Friday 10 June 2016. All comments will be

published on the website of the Bank for International Settlements unless a respondent specifically requests confidential treatment.

**Literature review on integration of regulatory capital and liquidity instruments**  
**BCBS Working Papers No 30**  
**March 2016**

This working paper aims at reviewing the literature's assessment of recent reforms. It consists of "three essays" on capital, on liquidity and its interaction with capital and on other supervisory requirements. Although there are many studies on the effects of capital requirements, there are relatively few on the effects of liquidity requirements and other supervisory tools. In part, this is because capital requirements have been in place for a considerable time and over more than one business cycle, while liquidity requirements and other supervisory tools, such as buffers, macroprudential policies and stress tests, have only been implemented since the recent financial crisis.

The essay on capital reviews a large number of papers that assess the impact of higher capital requirements in terms of the costs and benefits to economic activity and welfare. The essay on liquidity and its interaction with capital identifies a number of potential channels through which liquidity requirements can affect bank behaviour, balance sheets and profitability. Finally, the essay on other supervisory requirements discusses (1) whether measures other than capital and liquidity requirements adequately complement these regulations in making the banking system more resilient; and (2) whether simpler regulatory rules may be more robust to extreme stress events than the ones in place and whether stress testing can enhance robustness.

**Standardised Measurement Approach for operational risk - consultative document**  
**March 2016**

In October 2014, the Committee proposed revisions to the standardised approaches for calculating operational risk capital. This updated consultative document proposes further revisions to the framework, which emerged from the Committee's broad review of the capital framework.

The Committee's review of banks' operational risk modelling practices and capital outcomes revealed that the Advanced Measurement Approach's (AMA) inherent complexity, and the lack of comparability arising from a wide range of internal modelling practices, have exacerbated variability in risk-weighted asset calculations, and eroded confidence in risk-weighted capital ratios. The Committee is therefore proposing to remove the AMA from the regulatory framework.

The revised operational risk capital framework will be based on a single non-model-based method for the estimation of operational risk capital, which is termed the Standardised Measurement Approach (SMA). The SMA builds on the simplicity and comparability of a standardised approach, and embodies the risk sensitivity of an advanced approach. The combination, in a standardised way, of financial statement information and banks' internal loss experience promotes consistency and comparability in operational risk capital measurement.

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 3 June 2016. All comments will be published on the website of the Bank for International Settlements unless a respondent specifically requests confidential treatment.

**Basel III Monitoring Report March 2016**  
**March 2016**

This report presents the results of its latest Basel III monitoring exercise. The Committee established a rigorous reporting process to regularly review the implications of the Basel III standards for banks, and it has published the results of previous exercises since 2012. Data have been provided for a total of 230 banks, comprising 101 large internationally active

banks ("Group 1 banks", defined as internationally active banks that have Tier 1 capital of more than €3 billion) and 129 "Group 2 banks" (ie representative of all other banks).

On a fully phased-in basis, data as of 30 June 2015 show that all large internationally active banks meet the Basel III risk-based capital minimum Common Equity Tier 1 (CET1) requirements as well as the target level of 7.0% (plus the surcharges on global systemically important banks - G-SIBs - as applicable). Between 31 December 2014 and 30 June 2015, Group 1 banks continued to reduce their capital shortfalls relative to the higher Tier 1 and total capital target levels; the additional Tier 1 (AT1) capital shortfall has decreased from €6.5 billion to €3.4 billion and the Tier 2 capital shortfall from €40.6 billion to €12.8 billion. Most of this Tier 2 capital shortfall is attributable to the G-SIBs in the sample, while the AT1 capital shortfall is fully attributable to the non-G-SIB Group 1 banks. As a point of reference, the sum of after-tax profits prior to distributions across the same sample of Group 1 banks for the six-month period ending 30 June 2015 was €307.2 billion.

Under the same assumptions, there is no capital shortfall for Group 2 banks included in the sample for the CET1 minimum of 4.5%. For a CET1 target level of 7.0%, the shortfall has narrowed from €1.5 billion to €0.2 billion since the previous period.

The monitoring reports also collect bank data on Basel III's liquidity requirements. Basel III's Liquidity Coverage Ratio (LCR) was set at 60% in 2015, increases to 70% in 2016 and will continue to rise in equal annual steps to reach 100% in 2019. The weighted average LCR for the Group 1 bank sample was 123.6% on 31 December 2015, slightly down from 125.3% six months earlier. For Group 2 banks, the weighted average LCR was 140.1%, down from 144.3% six months earlier. Of the 160 banks in the LCR sample, 84% reported an LCR that met or exceeded 100%, while all banks reported an LCR at or above the 60% minimum requirement that was in place for 2015.

Basel III also includes a longer-term structural liquidity standard - the Net Stable Funding Ratio (NSFR). The weighted average NSFR for the Group 1 bank sample was 111.9%, while for Group 2 banks the average NSFR was 114.0%. As of June 2015, 79% of the Group 1 banks and 83% of the Group 2 banks in the NSFR sample reported a ratio that met or exceeded 100%, while 92% of the Group 1 banks and 94% of the Group 2 banks reported an NSFR at or above 90%.

The results of the monitoring exercise assume that the final Basel III package is fully in force, based on data as of 30 June 2015. That is, they do not take account of the transitional arrangements set out in the Basel III framework, such as the gradual phase-in of deductions from regulatory capital. No assumptions were made about bank profitability or behavioural responses, such as changes in bank capital or balance sheet composition. For that reason, the results of the study may not be comparable with industry estimates.

## Committee on Payments and Market Infrastructures

### **Payment aspects of financial inclusion**

**April 2016**

The Committee on Payments and Market Infrastructures and the World Bank Group have issued the final report on Payment aspects of financial inclusion. This builds on an earlier version of the report that underwent public consultation in late 2015 and seeks to tackle barriers to the adoption and usage of transaction accounts, which sit at the heart of retail payment services.

In addition to outlining guiding principles to help countries advance financial inclusion, the report suggests possible key actions, including providing basic accounts at little or no cost, stepping up efforts to increase financial literacy, and leveraging large-volume payment programmes, such as government payments, by adopting electronic payment services. Financial inclusion efforts are beneficial not only for those who will become financially included, but also for the national payments infrastructure and, ultimately, the economy.

## Speeches

### **Financial regulation: cementing the gains of post-crisis reforms**

*Speech by Mr Jaime Caruana, General Manager of the BIS, at the CI Meeting of Central Bank Governors of the Centre for Latin American Monetary Studies (CEMLA), Lisbon, 10 May 2016.*

#### Abstract

It is time to cement the gains of the post-crisis regulatory reform. The immediate task is to complete the regulatory agenda. The overall calibration of capital regulation will need to recognise the fundamental importance of equity capital for financial intermediation. Regulatory risk weights will need to be rid of excess variability while maintaining risk sensitivity. In performing this task and in looking forward, policymakers should adopt a holistic view that takes account of the constant evolution of the financial system and the morphing of attendant risks. Such a view also demands that proactive supervision play a more prominent role, complementing regulation and corporate governance, in order to sustain the gains of the post-crisis reforms in the long run.

### **More pluralism, more stability?**

*Presentation by Mr Claudio Borio, Head of the Monetary and Economic Department of the BIS, at the Seventh high-level SNB-IMF conference on the international monetary system, Zurich, 10 May 2016.*

#### Abstract

Would a more pluralistic international monetary system - one with more international currencies on a more equal footing - enhance global monetary, financial and macroeconomic stability? There is no doubt that the dominance of one currency creates challenges for the international monetary and financial system (IMFS), since the domestic interests of the issuing country need not coincide with those of the system as a whole. But it is less clear whether a more pluralist approach could help address the system's main weakness or "excess (financial) elasticity" - that is, its inability to prevent the build-up and unwinding of hugely damaging financial imbalances, or outsize financial cycles, thereby amplifying weaknesses in national arrangements. Addressing this weakness would require stronger anchors at national and international level. Some progress has been made, especially at national level, but much more needs to be done.

### **Market liquidity and bank capital**

*Speech by Mr Hyun Song Shin, Economic Adviser and Head of Research of the BIS, at the "Perspectives 2016: Liquidity Policy and Practice" conference, AQR Asset Management Institute, London Business School, 27 April 2016.*

Market liquidity and its connection with dealer funding liquidity was at the centre of the policy discussions in the aftermath of the global financial crisis, and is back on the policy agenda on the back of perceptions that market liquidity has been impaired due to the diminished risk-taking capacity of dealer banks. The lesson from the global financial crisis was that resilient market liquidity differs from fickle, fair weather liquidity. Financial markets will always be subject to shocks, but more resilient market liquidity built on broader foundations of dealer capital will mitigate the endogenous, second-round effects that amplify financial shocks.

### **A possible way out from the "New Normal": Rebalancing fiscal-monetary policies by picking "Low-Hanging Fruits" to engineer more confidence**

*Remarks by Mr Luiz Awazu Pereira da Silva, Deputy General Manager of the BIS, at the Eurofi High Level Seminar 2016, Amsterdam, 20-22 April 2016.*

There is a broad agreement that monetary policy (MP) is not sufficient to fundamentally change growth prospects under the "New Normal" in most advanced economies (AEs). Conversely there is a heated debate as to whether unconventional monetary policy (UMP) is

still effective using Negative Interest Rate Policy (NIRP), especially in Europe and Japan. Moreover, without fully endorsing any of the explanations, many economists are wondering: why has the response to policies been so muted? Is it because of "debt deleveraging"? Or is it because of a fundamental shift such as the "secular stagnation" hypothesis? The answer is not easy, but perhaps one can try to propose an explanation and a possible alternative policy framework.

In these personal remarks, I will discuss one such possible alternative, a "way out" with all due respect to all. My main assumption is that the process of triggering the real sector "animal spirits" or "confidence" has been much more complex than we thought it would be. On the one hand, price incentives might not be enough to fully restore credit multipliers and might have created distortions. Hence, going further into NIRP with unknown results might produce more uncertainty that could itself undermine policy effectiveness. But on the other hand, "productivity-enhancing" stimulus directed to the real sector is needed in conjunction with structural reforms. The issue is how to achieve that with a rebalancing of policies that removes the excessive burden placed on MP. This rebalancing should be pro-growth without creating complacency and "free-riding".

So, here I will try to: (i) explain the muted response to policy, looking at the uncertainty and market scepticism, including doubts about NIRP; (ii) acknowledge that, despite the analytical reasons that might justify continuing UMP, there are also risks to financial stability that call for complementary policies; and hence (iii) propose a possible gradual "way out" with a rebalancing of our fiscal-monetary policy mix. My hope is that more confidence could be engineered and market expectations re-anchored if we use a pragmatic and more balanced policy framework.

### **Bank capital and monetary policy transmission**

*Panel remarks by Mr Hyun Song Shin, Economic Adviser and Head of Research of the BIS, at The ECB and its Watchers XVII conference, Frankfurt, 7 April 2016.*

Standard macroeconomic models make little explicit mention of banks. While this is an acceptable simplification normally, it may neglect important details in the current economic environment, especially with respect to negative interest rates. How banks manage their balance sheets has implications for monetary policy as well as for financial stability. Recent BIS research supports the notion that soundly capitalised banks enjoy lower funding costs and lend more. But a sample of 90 euro area banks reveals that retained earnings, a key source of bank capital, would have been 75% higher had profits been ploughed back into the banks. Negative interest rates may weaken bank profitability, given that deposit rates rarely follow policy rates below zero. Thus, bank funding costs may not fall much, if at all, below zero. The usual relationship that lower interest rates engender more lending may break down when market rates turn negative. A better understanding of banks' funding methods - which vary greatly worldwide - is therefore important when assessing the likely macroeconomic outcomes of monetary policy initiatives.