# Statistical Annex

## The international banking market



## Securities markets



## Derivatives markets

## The BIS international financial statistics summary tables

The BIS publishes a variety of international financial statistics, most of them on a quarterly basis. They cover banking statistics on both a locational and a consolidated basis, debt securities issues in both domestic and international markets, and statistics on derivatives traded on exchanges and over the counter. The main purpose of the statistics is to provide a measure of the size and structure of key segments of the global financial market and to monitor their development. A summary of the most recent data is presented in seven tables (see below).①

### 1 International banking statistics (Tables A1, A2, B1 and B2)

The locational reporting system provides quarterly data on the international financial claims and liabilities of banks resident in the 44 reporting countries on a gross basis. The methodology is consistent with the principles underlying the compilation of national accounts, balances of payments and external debt statistics. Breakdowns are provided in terms of instrument, currency, sector and vis-à-vis country. The currency breakdown allows the BIS to approximate global bank credit flows adjusted for exchange rate fluctuations.

The consolidated banking statistics cover banks' worldwide on-balance sheet claims, on both a contractual (immediate borrower) and an ultimate risk basis (ie net of risk mitigants such as guarantees and collateral). Positions are reported by head offices in their home country and include all branches and subsidiaries on a worldwide consolidated basis, net of inter-office accounts. Breakdowns are available in terms of instrument, sector, maturity and vis-à-vis country. Information is also available on key off-balance sheet items such as guarantees extended, credit commitments and derivative contracts. Currently 31 countries provide consolidated banking data.

While the locational statistics are appropriate for measuring lending flows in a given period, the consolidated statistics are more suited to gauging the size of banks' country and liquidity risk exposures. The data are compiled by the BIS on the basis of national data reported by the respective central banks, which in turn collect these data from the internationally active banks in their jurisdiction.

### 2 Debt securities statistics (Tables C1 and C2)

Securities statistic are harmonised with recommendations from the Handbook on Securities Statistics Part 1 (jointly released by BIS, ECB and IMF; available at the IMF web site www.imf.org/external/np/sta/wgsd/pdf/051309.pdf). There are three datasets, each covering a different market of issue: international debt securities, domestic debt securities and total debt securities.

The sectoral breakdown presents data based on the sector of the borrower itself and not on the sector of the parent of the borrower or any guarantor. "General government" comprises central government and other governments, while "Financial corporations" comprises commercial banks, central bank, and other financial institutions.

The compilation methodology was changed in December 2012 for the full history of the statistics. For statistics compiled according to the old methodology, see the detailed Annex Tables in pre-December 2012 version of the *BIS Quarterly Review*.

### 3 Derivatives statistics (Table D)

Semi-annual data are compiled for activity in over-the-counter (OTC) markets whilst quarterly data are available on activity in exchange-traded markets. The data on OTC derivatives are based on the reporting to the BIS by central banks in major financial centres that in turn collect the information on a consolidated basis from reporting dealers headquartered in their respective country, while those on exchange-traded derivatives are obtained from market sources.

The derivatives data cover notional amounts outstanding and gross market values for a number of risk categories: foreign exchange, interest rates, equity-linked, commodities and credit default swaps. Gross credit exposure in OTC markets after bilateral netting is also available.

① More detailed tables and options to download the data in time series form are available at www.bis.org/statistics/index.htm.

## Table A1: International positions of banks by residence of counterparty, December 2014[1]

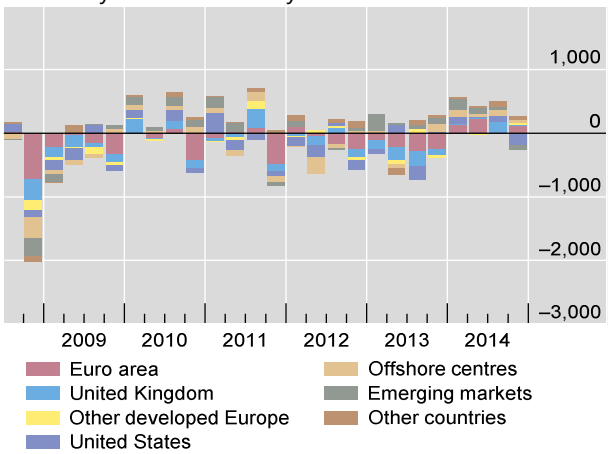
In billions of US dollars

| | Vis-à-vis advanced economies | Vis-à-vis offshore centres | Vis-à-vis emerging market economies | | | | | All countries |
|---|---|---|---|---|---|---|---|---|
| | | | Total | Africa | Asia | Europe | Latin America | |
| **Amounts outstanding** | | | | | | | | |
| **Total claims** | **22,969** | **4,909** | **4,421** | **519** | **2,327** | **837** | **739** | **32,924** |
| **Total cross-border claims** | **20,465** | **4,027** | **3,706** | **511** | **1,945** | **617** | **633** | **28,495** |
| Loans | 13,554 | 3,173 | 2,904 | 462 | 1,507 | 455 | 479 | 19,687 |
| Securities | 4,336 | 599 | 466 | 19 | 285 | 59 | 103 | 5,631 |
| Claims on banks | 12,381 | 2,150 | 2,062 | 223 | 1,238 | 337 | 264 | 16,652 |
| Claims on non-banks | 8,083 | 1,877 | 1,644 | 288 | 706 | 281 | 369 | 11,843 |
| US dollar | 8,114 | 2,460 | 1,504 | 303 | 533 | 195 | 472 | 12,143 |
| Euro | 8,026 | 305 | 399 | 67 | 67 | 242 | 23 | 8,897 |
| **Foreign currency claims on residents** | **2,505** | **883** | **715** | **8** | **382** | **219** | **106** | **4,102** |
| **Estimated exchange rate-adjusted changes during the quarter[2]** | | | | | | | | |
| **Total claims** | **-47** | **63** | **-67** | **10** | **-76** | **-27** | **26** | **-56** |
| **Total cross-border claims** | **38** | **59** | **-75** | **12** | **-84** | **-30** | **27** | **12** |
| Loans | -171 | 41 | -80 | 9 | -89 | -27 | 27 | -214 |
| Securities | 8 | 16 | -3 | -1 | 1 | 2 | -5 | 11 |
| Claims on banks | -117 | 4 | -64 | 11 | -83 | -15 | 23 | -178 |
| Claims on non-banks | 155 | 55 | -11 | 1 | -1 | -15 | 4 | 190 |
| US dollar | -197 | -17 | -14 | 9 | -27 | -15 | 19 | -225 |
| Euro | 131 | 41 | -2 | -3 | 4 | -4 | 1 | 154 |
| **Foreign currency claims on residents** | **-85** | **4** | **8** | **-2** | **8** | **3** | **-1** | **-73** |
| **Amounts outstanding** | | | | | | | | |
| **Total liabilities** | **20,011** | **5,417** | **3,544** | **907** | **1,667** | **424** | **547** | **32,202** |
| **Total cross-border liabilities** | **17,065** | **4,257** | **2,804** | **896** | **1,166** | **274** | **468** | **25,181** |
| Deposits | 13,855 | 3,995 | 2,598 | 855 | 1,069 | 259 | 416 | 20,669 |
| Securities | 1,508 | 87 | 32 | 8 | 12 | 1 | 11 | 2,445 |
| Liabilities to banks | 12,172 | 2,626 | 1,756 | 560 | 782 | 177 | 238 | 17,445 |
| Liabilities to non-banks | 4,893 | 1,631 | 1,048 | 336 | 385 | 98 | 230 | 7,736 |
| US dollar | 7,115 | 2,756 | 1,565 | 619 | 455 | 122 | 370 | 11,835 |
| Euro | 6,232 | 426 | 268 | 93 | 42 | 95 | 39 | 7,380 |
| **Foreign currency liabilities to residents** | **2,946** | **1,160** | **740** | **10** | **501** | **149** | **79** | **4,845** |
| **Estimated exchange rate-adjusted changes during the quarter[2]** | | | | | | | | |
| **Total liabilities** | **-189** | **4** | **-15** | **-24** | **16** | **-16** | **8** | **-252** |
| **Total cross-border liabilities** | **-142** | **-14** | **-19** | **-21** | **9** | **-14** | **7** | **-215** |
| Deposits | -289 | -17 | -22 | -23 | 8 | -13 | 5 | -351 |
| Securities | -14 | 2 | -1 | 1 | -1 | 0 | -1 | -34 |
| Liabilities to banks | -99 | -32 | -33 | -17 | -5 | -20 | 9 | -192 |
| Liabilities to non-banks | -42 | 18 | 14 | -4 | 14 | 6 | -2 | -23 |
| US dollar | -202 | -71 | -21 | -7 | -18 | 1 | 4 | -309 |
| Euro | 29 | 53 | -25 | -11 | -4 | -8 | -2 | 45 |
| **Foreign currency liabilities to residents** | **-48** | **18** | **4** | **-2** | **7** | **-3** | **2** | **-26** |

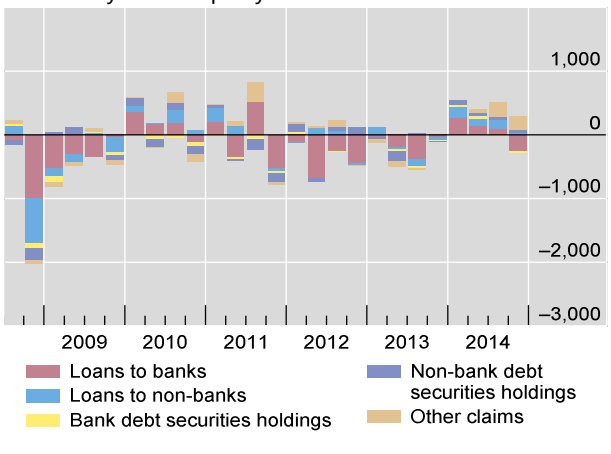
## Cross-border positions

### Exchange rate-adjusted changes in stocks

Claims by vis-à-vis country




Claims by counterparty and instrument




[1] Detailed breakdowns and time series data are available at www.bis.org/statistics/bankstats.htm (Tables 1–7B ). [2] Taking into account exchange rate effects on outstanding balances in non-US dollar currencies.

## Table A2: International positions of banks by nationality of head office, December 2014[1]

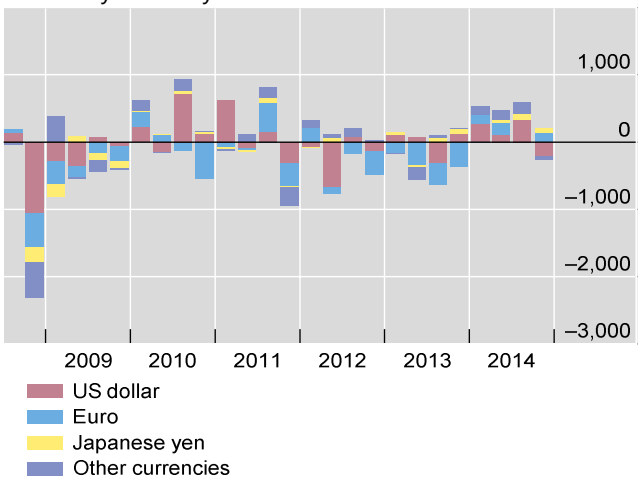
In billions of US dollars

| | Nationality of banks | | | | | | | | | | All countries |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | France | Germany | Italy | Nether-lands | Spain | Switzer-land | United Kingdom | Japan | United States | Emerging markets | |
| **Amounts outstanding** | | | | | | | | | | | |
| **Total claims** | **3,414** | **3,439** | **849** | **1,681** | **681** | **2,466** | **3,493** | **4,546** | **3,988** | **1,716** | **32,906** |
| On banks | 2,116 | 1,984 | 529 | 732 | 321 | 1,412 | 1,725 | 2,041 | 2,370 | 887 | 18,074 |
| On related foreign offices | 1,244 | 1,162 | 164 | 467 | 173 | 1,021 | 1,092 | 1,151 | 1,577 | 353 | 10,461 |
| On other banks | 862 | 796 | 364 | 254 | 147 | 380 | 611 | 886 | 753 | 477 | 7,384 |
| On official monetary institutions | 11 | 25 | 0 | 11 | 1 | 11 | 22 | 5 | 40 | 57 | 229 |
| On non-banks | 1,298 | 1,456 | 319 | 949 | 360 | 1,054 | 1,768 | 2,505 | 1,619 | 829 | 14,832 |
| US dollar | 1,050 | 1,200 | 151 | 513 | 244 | 1,289 | 1,592 | 2,657 | 2,561 | 1,326 | 15,273 |
| Euro | 1,747 | 1,783 | 615 | 881 | 297 | 461 | 981 | 550 | 704 | 117 | 9,716 |
| Other currencies | 617 | 456 | 83 | 286 | 139 | 716 | 921 | 1,338 | 723 | 274 | 7,917 |
| **Estimated exchange rate-adjusted changes during the quarter[2]** | | | | | | | | | | | |
| **Total claims** | **-63** | **-1** | **9** | **35** | **10** | **-103** | **-202** | **151** | **-16** | **30** | **-59** |
| On banks | -78 | 37 | 3 | -21 | -13 | -100 | -156 | 93 | -65 | 10 | -253 |
| On related foreign offices | -36 | 113 | -3 | 1 | -32 | -96 | -130 | 79 | -60 | 1 | -164 |
| On other banks | -36 | -65 | 7 | -22 | 19 | -8 | -16 | 13 | -15 | 19 | -59 |
| On official monetary institutions | -5 | -11 | 0 | 0 | 0 | 4 | -10 | 1 | 10 | -10 | -29 |
| On non-banks | 15 | -38 | 5 | 55 | 23 | -3 | -47 | 58 | 49 | 20 | 194 |
| US dollar | -76 | -22 | -5 | -1 | 5 | -83 | -97 | 73 | -57 | 21 | -200 |
| Euro | 52 | 56 | 11 | 40 | -5 | -21 | -70 | 6 | 22 | 0 | 126 |
| Other currencies | -39 | -35 | 3 | -4 | 11 | 1 | -35 | 71 | 19 | 9 | 15 |
| **Amounts outstanding** | | | | | | | | | | | |
| **Total liabilities** | **3,339** | **3,099** | **651** | **1,651** | **684** | **2,639** | **3,665** | **2,703** | **4,778** | **1,831** | **32,257** |
| To banks | 1,797 | 1,659 | 392 | 573 | 446 | 1,292 | 1,678 | 1,983 | 2,393 | 943 | 17,095 |
| To related foreign offices | 1,049 | 1,102 | 161 | 395 | 148 | 979 | 1,062 | 939 | 1,404 | 261 | 9,253 |
| To other banks | 646 | 476 | 219 | 154 | 257 | 287 | 509 | 964 | 760 | 646 | 6,868 |
| To official monetary institutions | 102 | 82 | 13 | 24 | 41 | 27 | 108 | 80 | 230 | 37 | 974 |
| To non-banks | 1,542 | 1,439 | 259 | 1,078 | 237 | 1,346 | 1,987 | 720 | 2,385 | 888 | 15,162 |
| US dollar | 1,160 | 1,221 | 142 | 581 | 265 | 1,383 | 1,620 | 1,805 | 3,382 | 1,298 | 16,028 |
| Euro | 1,606 | 1,336 | 459 | 706 | 340 | 533 | 932 | 325 | 628 | 145 | 8,653 |
| Other currencies | 573 | 543 | 51 | 365 | 79 | 722 | 1,113 | 573 | 768 | 389 | 7,575 |
| **Estimated exchange rate-adjusted changes during the quarter[2]** | | | | | | | | | | | |
| **Total liabilities** | **-157** | **-62** | **-4** | **31** | **16** | **-91** | **-170** | **115** | **21** | **37** | **-247** |
| To banks | -103 | 42 | 2 | -18 | 31 | -112 | -86 | 95 | -51 | 4 | -202 |
| To related foreign offices | -37 | 121 | 0 | -2 | 0 | -103 | -75 | 64 | -64 | 8 | -141 |
| To other banks | -77 | -69 | 6 | -13 | 15 | -14 | 7 | 29 | 6 | 5 | -68 |
| To official monetary institutions | 11 | -11 | -4 | -3 | 15 | 5 | -18 | 3 | 7 | -9 | 6 |
| To non-banks | -54 | -105 | -6 | 48 | -15 | 22 | -84 | 20 | 72 | 33 | -45 |
| US dollar | -128 | -49 | -7 | -6 | 10 | -76 | -74 | 74 | -3 | 23 | -270 |
| Euro | 10 | 38 | 2 | 44 | 3 | -15 | -78 | -2 | -2 | -1 | 27 |
| Other currencies | -39 | -51 | 1 | -7 | 3 | 0 | -18 | 44 | 26 | 15 | -4 |

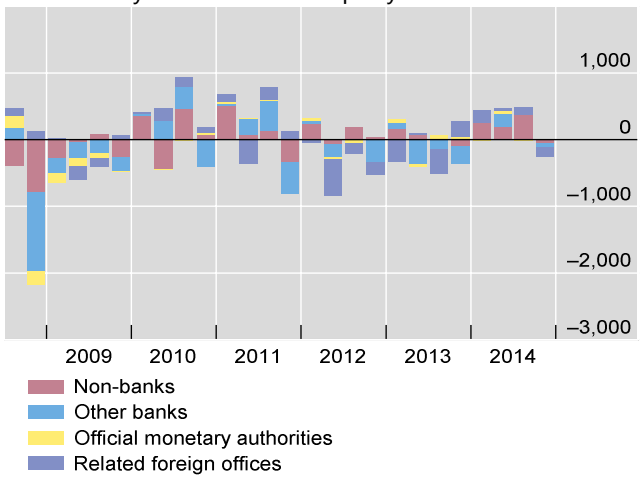
## International positions of BIS reporting banks

Exchange rate-adjusted changes in stocks

Claims by currency




Liabilities by sector of counterparty




[1] Detailed breakdowns and time series data are available at www.bis.org/statistics/bankstats.htm (Tables 8A–8B). [2] Taking into account exchange rate effects on outstanding balances in non-US dollar currencies.

## Table B1: Consolidated claims, immediate borrower basis, December 2014[1]

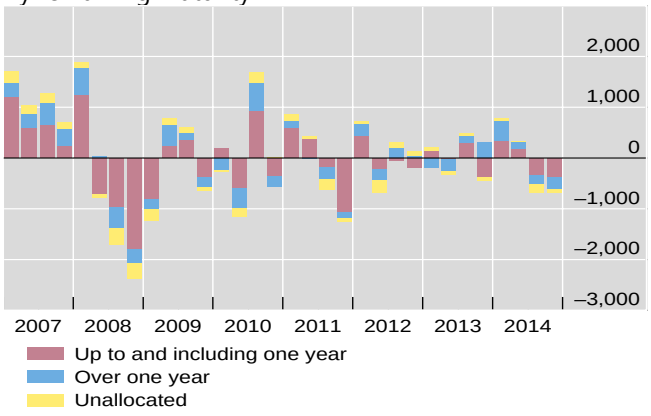
Amounts outstanding, in billions of US dollars

| | Vis–à–vis advanced economies | | | | Vis-à-vis offshore centres | Vis–à–vis emerging market economies | | | | | All countries |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | United States | Euro area | Japan | | Total | Africa | Asia | Europe | Latin America | |
| **Foreign claims** | **21,152** | **6,048** | **8,038** | **1,213** | **3,012** | **5,989** | **663** | **2,761** | **1,266** | **1,299** | **30,493** |
| **International claims** | **13,045** | **2,576** | **6,004** | **825** | **2,405** | **3,664** | **451** | **1,938** | **681** | **594** | **19,451** |
| Up to and including one year | 6,443 | 1,012 | 2,614 | 694 | 1,206 | 2,030 | 217 | 1,289 | 253 | 271 | 9,749 |
| Over one year | 4,606 | 997 | 2,419 | 74 | 764 | 1,349 | 208 | 495 | 363 | 281 | 6,867 |
| Unallocated by maturity | 1,995 | 566 | 971 | 57 | 434 | 284 | 26 | 153 | 64 | 41 | 2,836 |
| **Local currency claims** | **8,108** | **3,472** | **2,034** | **388** | **607** | **2,325** | **211** | **823** | **585** | **706** | **11,042** |
| **Local currency liabilities** | **5,928** | **2,336** | **1,852** | **174** | **516** | **1,672** | **169** | **513** | **461** | **529** | **8,300** |
| | **Unadjusted changes during the quarter[2]** | | | | | | | | | | |
| *Foreign claims* | *-745* | *-135* | *-373* | *-17* | *-60* | *-181* | *9* | *-80* | *-84* | *-25* | *-1,002* |
| *International claims* | *-510* | *-14* | *-286* | *-6* | *-43* | *-118* | *8* | *-83* | *-48* | *6* | *-685* |
| *Local currency claims* | *-236* | *-120* | *-87* | *-10* | *-17* | *-63* | *1* | *3* | *-36* | *-31* | *-316* |
| *Local currency liabilities* | *-217* | *-105* | *-121* | *-15* | *-3* | *-30* | *-2* | *4* | *-21* | *-11* | *-307* |
| **Nationality of reporting banks:** | **Foreign claims** | | | | | | | | | | |
| **Domestically owned banks (total)** | **17,627** | **5,564** | **6,458** | **717** | **2,863** | **5,177** | **610** | **2,172** | **1,204** | **1,191** | **25,991** |
| Euro area | 7,064 | 1,487 | 3,535 | 224 | 371 | 2,094 | 215 | 352 | 948 | 579 | 9,711 |
| Switzerland | 1,309 | 621 | 337 | . | 237 | 141 | 30 | . | . | . | 1,721 |
| United Kingdom | 2,010 | 991 | 695 | 91 | 634 | 904 | 210 | 507 | 57 | 130 | 3,599 |
| Japan | 2,257 | 1,252 | 582 | . | 644 | 470 | 37 | 335 | 35 | 63 | 3,371 |
| United States | 1,781 | . | 707 | 282 | 519 | 770 | 79 | 361 | 89 | 240 | 3,092 |
| Other countries[3] | 3,205 | 1,212 | 602 | 120 | 458 | 798 | 40 | 617 | 74 | 178 | 4,498 |
| **Other foreign banks** | **3,526** | **484** | **1,580** | **495** | **150** | **812** | **53** | **589** | **62** | **108** | **4,502** |
| | **International claims, all maturities** | | | | | | | | | | |
| **Domestically owned banks (total)** | **9,617** | **2,117** | **4,493** | **330** | **2,255** | **2,856** | **401** | **1,349** | **620** | **486** | **15,051** |
| Euro area | 3,872 | 489 | 2,131 | 110 | 349 | 1,010 | 147 | 271 | 435 | 156 | 5,412 |
| Switzerland | 700 | 176 | 319 | 22 | 216 | 139 | 27 | 71 | 16 | 25 | 1,088 |
| United Kingdom | 927 | 297 | 469 | 46 | 267 | 411 | 90 | 232 | 39 | 49 | 1,656 |
| Japan | 1,725 | 835 | 558 | . | 591 | 327 | 37 | 197 | 34 | 59 | 2,643 |
| United States | 1,120 | . | 620 | 101 | 466 | 436 | 61 | 207 | 52 | 117 | 2,044 |
| Other countries[3] | 1,273 | 321 | 396 | 51 | 366 | 532 | 39 | 371 | 44 | 78 | 2,209 |
| **Other foreign banks** | **3,428** | **459** | **1,511** | **495** | **150** | **808** | **50** | **589** | **61** | **108** | **4,400** |
| | **International claims, short–term** | | | | | | | | | | |
| **Domestically owned banks (total)** | **4,172** | **717** | **1,762** | **218** | **1,107** | **1,475** | **187** | **831** | **231** | **226** | **6,817** |
| Euro area | 1,716 | 257 | 703 | 76 | 180 | 403 | 54 | 147 | 133 | 70 | 2,321 |
| Switzerland | 374 | 84 | 156 | 10 | 169 | 89 | 19 | 47 | 10 | 14 | 655 |
| United Kingdom | 401 | 114 | 224 | 11 | 163 | 225 | 43 | 135 | 24 | 24 | 791 |
| Japan | 206 | 74 | 59 | . | 53 | 112 | 8 | 82 | 11 | 11 | 370 |
| United States | 758 | . | 400 | 85 | 333 | 320 | 46 | 172 | 31 | 71 | 1,421 |
| Other countries[3] | 717 | 188 | 220 | 36 | 208 | 326 | 18 | 248 | 23 | 36 | 1,259 |
| **Other foreign banks** | **2,271** | **296** | **851** | **476** | **100** | **555** | **30** | **458** | **22** | **45** | **2,932** |

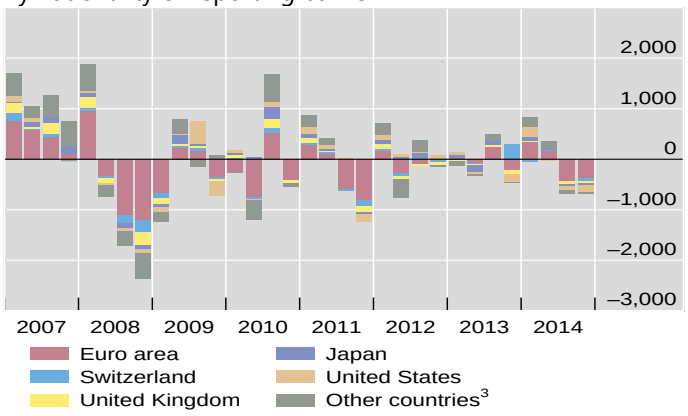
## International claims of BIS reporting banks on an immediate borrower basis[4]

Changes in stocks[2]

By remaining maturity




By nationality of reporting banks




[1] Detailed breakdowns and time series data are available at www.bis.org/statistics/consstats.htm (Tables 9A–9B) and BIS WebStats. [2] Quarterly difference in outstanding stocks, excluding effects of breaks in series, not adjusted for exchange rate movements. [3] Domestically owned banks in other reporting countries. [4] Worldwide consolidated positions of domestically owned banks and unconsolidated positions of foreign banks in 31 reporting countries.

## Table B2: Consolidated claims, ultimate risk basis, December 2014[1]

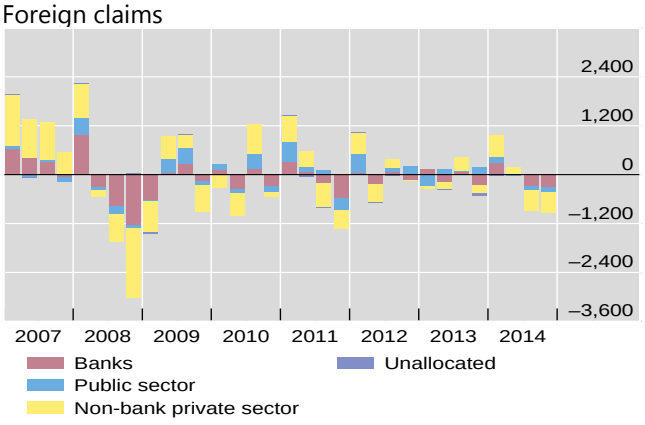
Amounts outstanding, in billions of US dollars

| | Vis–à–vis advanced economies | | | | Vis–à–vis offshore centres | Vis–à–vis emerging market economies | | | | | All countries |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | United States | Euro area | Japan | | Total | Africa | Asia | Europe | Latin America | |
| **Foreign claims** | **16,948** | **5,488** | **6,167** | **714** | **2,280** | **4,918** | **539** | **2,104** | **1,155** | **1,119** | **24,440** |
| Banks | 3,282 | 631 | 1,356 | 169 | 152 | 969 | 81 | 589 | 155 | 145 | 4,412 |
| Public sector | 4,305 | 1,757 | 1,555 | 310 | 216 | 1,153 | 127 | 422 | 271 | 333 | 5,931 |
| Non–bank private sector | 9,203 | 3,059 | 3,181 | 233 | 1,895 | 2,745 | 327 | 1,082 | 696 | 639 | 13,871 |
| Unallocated | 157 | 41 | 75 | 2 | 17 | 50 | 4 | 11 | 32 | 3 | 224 |
| **Cross–border claims** | **8,676** | **2,290** | **4,195** | **255** | **1,388** | **2,099** | **286** | **1,098** | **382** | **334** | **12,455** |
| **Local claims in all currencies** | **8,272** | **3,198** | **1,972** | **459** | **892** | **2,818** | **253** | **1,007** | **772** | **786** | **11,984** |
| | **Unadjusted changes during the quarter**[2] | | | | | | | | | | |
| *Foreign claims* | *-727* | *-177* | *-355* | *-25* | *-39* | *-140* | *9* | *-46* | *-76* | *-27* | *-919* |
| *Cross–border claims* | *-383* | *-57* | *-245* | *-1* | *-26* | *-60* | *8* | *-33* | *-33* | *-2* | *-483* |
| *Local claims in all currencies* | *-344* | *-120* | *-110* | *-24* | *-13* | *-79* | *1* | *-12* | *-43* | *-25* | *-437* |
| **Nationality of reporting banks**[3] | **Foreign claims** | | | | | | | | | | |
| **Total** | **16,948** | **5,488** | **6,167** | **714** | **2,280** | **4,918** | **539** | **2,104** | **1,155** | **1,119** | **24,440** |
| Euro area | 6,793 | 1,467 | 3,377 | 215 | 318 | 2,006 | 187 | 337 | 916 | 566 | 9,300 |
| France | 2,131 | 552 | 1,095 | 164 | 105 | 462 | 109 | 142 | 177 | 33 | 2,728 |
| Germany | 1,762 | 444 | 745 | 25 | 121 | 255 | 28 | 107 | 101 | 19 | 2,194 |
| Italy | 532 | 28 | 433 | … | 10 | 201 | 9 | 11 | 176 | 4 | 753 |
| Spain | 898 | 241 | 249 | 8 | 17 | 553 | 3 | 11 | 62 | 477 | 1,485 |
| Switzerland | 1,206 | 635 | 295 | . | 120 | 6 | 6 | . | . | . | 1,332 |
| United Kingdom | 2,044 | 965 | 723 | 110 | 596 | 918 | 206 | 523 | 58 | 132 | 3,609 |
| Japan | 2,276 | 1,306 | 561 | . | 471 | 462 | 35 | 328 | 33 | 66 | 3,209 |
| United States | 1,795 | . | 701 | 295 | 448 | 775 | 75 | 369 | 92 | 240 | 3,043 |
| Other countries | 2,834 | 1,115 | 510 | 94 | 327 | 750 | 30 | 548 | 55 | 116 | 3,947 |
| | **Cross–border claims** | | | | | | | | | | |
| **Total** | **8,676** | **2,290** | **4,195** | **255** | **1,388** | **2,099** | **286** | **1,098** | **382** | **334** | **12,455** |
| Euro area | 3,281 | 460 | 1,936 | 79 | 204 | 685 | 109 | 239 | 245 | 92 | 4,351 |
| France | 956 | 111 | 571 | 41 | 65 | 219 | 60 | 97 | 39 | 24 | 1,269 |
| Germany | 1,163 | 244 | 638 | 17 | 87 | 170 | 25 | 71 | 55 | 18 | 1,476 |
| Italy | 249 | 19 | 170 | … | 8 | 43 | 3 | 10 | 25 | 4 | 310 |
| Spain | 205 | 24 | 132 | 8 | 14 | 43 | 2 | 10 | 3 | 28 | 279 |
| Switzerland | 748 | 368 | 277 | . | 84 | 4 | 4 | . | . | . | 836 |
| United Kingdom | 936 | 285 | 487 | 51 | 153 | 329 | 60 | 192 | 35 | 42 | 1,470 |
| Japan | 1,767 | 916 | 538 | . | 393 | 269 | 32 | 148 | 28 | 61 | 2,429 |
| United States | 947 | . | 609 | 80 | 368 | 387 | 53 | 190 | 45 | 99 | 1,727 |
| Other countries | 997 | 261 | 348 | 45 | 185 | 425 | 28 | 328 | 29 | 40 | 1,642 |
| | **Other potential exposures**[4, 5] | | | | | | | | | | |
| Derivatives contracts | 4,091 | 871 | 1,325 | 139 | 142 | 179 | 35 | 73 | 30 | 41 | 4,423 |
| Guarantees extended | 3,752 | 947 | 1,575 | 115 | 240 | 785 | 123 | 263 | 233 | 165 | 4,988 |
| Credit commitments | 2,926 | 1,150 | 888 | 70 | 273 | 529 | 78 | 188 | 112 | 152 | 3,795 |

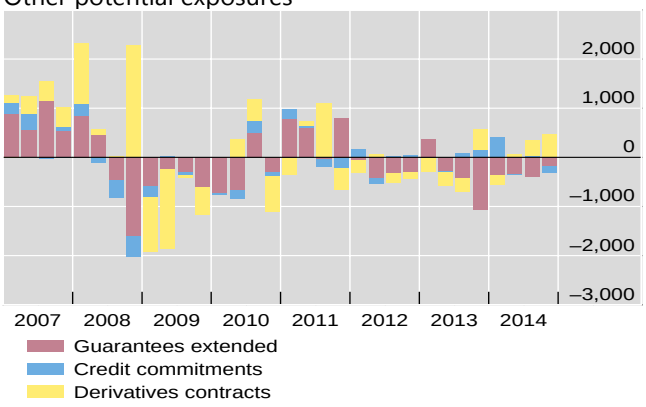
## Consolidated claims and other potential exposures of BIS reporting banks on an ultimate risk basis

Changes in stocks[2]

Foreign claims




Other potential exposures[4, 5]




[1] Detailed breakdowns and time series data are available at www.bis.org/statistics/consstats/htm (Tables 9C–9E). [2] Quarterly difference in outstanding stocks, excluding effects of breaks in series, not adjusted for exchange rate movements. [3] Worldwide consolidated positions of domestically owned banks of 25 reporting countries. [4] Not included in foreign claims. [5] Derivatives relate to positive market values recorded as on- or off-balance sheet items. Credit commitments and guarantees are recorded as off-balance sheet items.

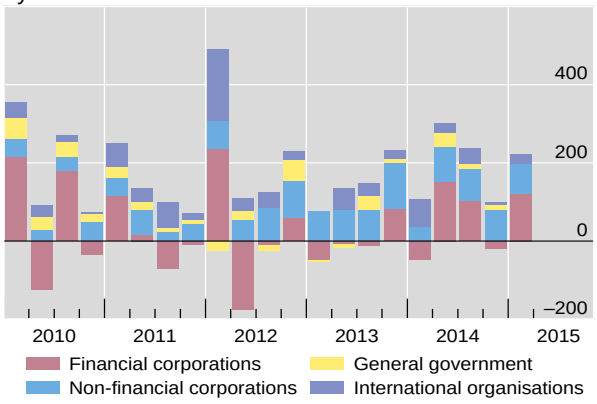
## Table C1: International debt securities issuance, March 2015

In billions of US dollars

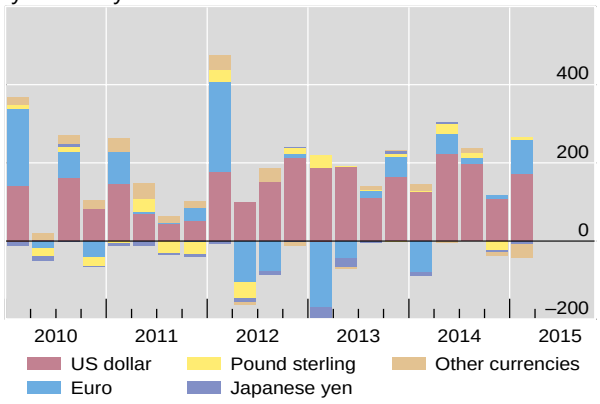
| | Developed countries | | | | Off-shore centres | Emerging markets | | | | | Int'l organi-sations | All countries |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | United States | Euro area | Japan | | Total | Africa | Asia | Europe | Latin America | | |
| **Amounts outstanding** | | | | | | | | | | | | |
| **Total issues** | **15,638** | **2,127** | **7,887** | **241** | **1,982** | **1,853** | **242** | **520** | **433** | **657** | **1,418** | **20,890** |
| **Money market instruments** | **746** | **23** | **418** | **4** | **88** | **20** | **7** | **9** | **4** | **0** | **34** | **888** |
| Financial corporations | 676 | 13 | 381 | 4 | 88 | 20 | 7 | 9 | 4 | 0 | 0 | 784 |
| Non-financial corporations | 45 | 10 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| General government | 24 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| US dollar | 286 | 2 | 177 | 2 | 51 | 13 | 3 | 6 | 3 | 0 | 30 | 380 |
| Euro | 278 | 16 | 148 | 0 | 7 | 2 | 1 | 1 | 0 | 0 | 0 | 288 |
| Other currencies | 181 | 5 | 92 | 1 | 30 | 5 | 3 | 2 | 0 | 0 | 3 | 220 |
| **Bonds and notes** | **14,892** | **2,105** | **7,470** | **237** | **1,893** | **1,832** | **235** | **511** | **429** | **657** | **1,384** | **20,002** |
| Financial corporations | 11,915 | 1,725 | 5,957 | 186 | 1,740 | 556 | 77 | 252 | 108 | 120 | 0 | 14,211 |
| Non-financial corporations | 2,249 | 375 | 1,016 | 46 | 95 | 524 | 73 | 141 | 60 | 250 | 0 | 2,868 |
| General government | 729 | 4 | 496 | 5 | 58 | 752 | 86 | 117 | 261 | 288 | 0 | 1,539 |
| US dollar | 5,175 | 1,528 | 1,491 | 158 | 1,558 | 1,424 | 198 | 401 | 276 | 549 | 471 | 8,628 |
| Euro | 6,862 | 349 | 5,193 | 11 | 110 | 207 | 20 | 17 | 123 | 48 | 583 | 7,763 |
| Other currencies | 2,855 | 228 | 786 | 68 | 225 | 201 | 18 | 93 | 30 | 60 | 329 | 3,611 |
| Floating rate | 4,289 | 401 | 2,307 | 28 | 560 | 62 | 9 | 26 | 10 | 17 | 127 | 5,037 |
| Fixed rate | 10,298 | 1,569 | 5,078 | 178 | 1,281 | 1,733 | 216 | 464 | 416 | 636 | 1,257 | 14,570 |
| Equity-related | 305 | 134 | 85 | 31 | 52 | 38 | 10 | 21 | 3 | 4 | 0 | 395 |
| **Net issuance during the quarter** | | | | | | | | | | | | |
| **Total issues** | **131** | **50** | **23** | **7** | **31** | **35** | **5** | **14** | **1** | **14** | **25** | **222** |
| **Money market instruments** | **40** | **6** | **43** | **-1** | **-2** | **1** | **0** | **1** | **0** | **0** | **11** | **49** |
| Financial corporations | 36 | 0 | 40 | -1 | -2 | 1 | 0 | 1 | 0 | 0 | 0 | 35 |
| Non-financial corporations | 9 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| General government | -5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -5 |
| US dollar | 4 | 0 | 23 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 12 | 18 |
| Euro | 38 | 5 | 17 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | -1 | 38 |
| Other currencies | -2 | 0 | 3 | -1 | -4 | 0 | -1 | 1 | 0 | 0 | -1 | -6 |
| **Bonds and notes** | **92** | **45** | **-20** | **8** | **34** | **33** | **5** | **13** | **1** | **14** | **14** | **173** |
| Financial corporations | 47 | 22 | -16 | 11 | 31 | 8 | 4 | 4 | 3 | -3 | 0 | 86 |
| Non-financial corporations | 58 | 23 | 15 | -3 | 1 | 9 | 2 | 1 | 0 | 6 | 0 | 68 |
| General government | -13 | 0 | -20 | 0 | 2 | 16 | -1 | 7 | -2 | 11 | 0 | 5 |
| US dollar | 81 | 28 | 17 | 9 | 35 | 24 | 3 | 13 | -3 | 12 | 13 | 152 |
| Euro | 39 | 19 | -29 | 2 | 3 | 8 | 2 | 0 | 4 | 1 | 0 | 49 |
| Other currencies | -28 | -2 | -8 | -3 | -4 | 2 | 0 | 0 | 0 | 1 | 2 | -28 |
| Floating rate | -36 | 5 | -35 | 1 | 5 | 0 | 0 | -1 | 0 | 0 | -9 | -40 |
| Fixed rate | 123 | 35 | 14 | 8 | 30 | 34 | 4 | 14 | 1 | 14 | 24 | 210 |
| Equity-related | 5 | 5 | 0 | 0 | -1 | -1 | 1 | -1 | 0 | -1 | 0 | 3 |

## Net international debt securities issuance

### By sector




### By currency



## Table C2: Domestic and total debt securities, December 2014

In billions of US dollars

| | Domestic debt securities | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | China | Brazil | Korea | Mexico | Malaysia | Thailand | Turkey | South Africa | Russia | Israel | Indonesia | Singapore |
| **Amounts outstanding** | | | | | | | | | | | | |
| All issuers | ... | ... | 1,425 | 597 | 339 | 287 | 198 | 201 | 188 | ... | 117 | 74 |
| Financial corporations | ... | ... | 448 | 166 | 73 | 126 | 16 | 40 | 59 | ... | 11 | ... |
| Non-financial corporations | ... | ... | 496 | 45 | 110 | 56 | 3 | 24 | 58 | ... | 7 | ... |
| General government | ... | ... | 481 | 385 | 156 | 105 | 179 | 136 | 71 | ... | 99 | 74 |
| Short-term | ... | ... | 100 | 105 | 51 | 58 | 12 | 26 | ... | ... | ... | 6 |
| Long-term | ... | ... | 1,325 | 492 | 288 | 229 | 186 | 175 | 188 | ... | ... | 68 |
| Unallocated | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 117 | 0 |
| **Exchange rate adjusted changes** | | | | | | | | | | | | |
| All issuers | ... | ... | 19 | 17 | 8 | 3 | 3 | 6 | 20 | ... | 0 | -2 |
| Financial corporations | ... | ... | 53 | 8 | 8 | 3 | 0 | 0 | 7 | ... | -2 | ... |
| Non-financial corporations | ... | ... | -35 | 0 | -5 | 1 | 0 | 0 | 14 | ... | 0 | ... |
| General government | ... | ... | 1 | 9 | 5 | -1 | 2 | 5 | -1 | ... | 1 | -2 |
| Short-term | ... | ... | -2 | 13 | 0 | -1 | 0 | 1 | ... | ... | ... | ... |
| Long-term | ... | ... | 21 | 4 | 8 | 4 | 4 | 5 | 20 | ... | ... | -2 |
| Unallocated | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ... | 0 | 0 |

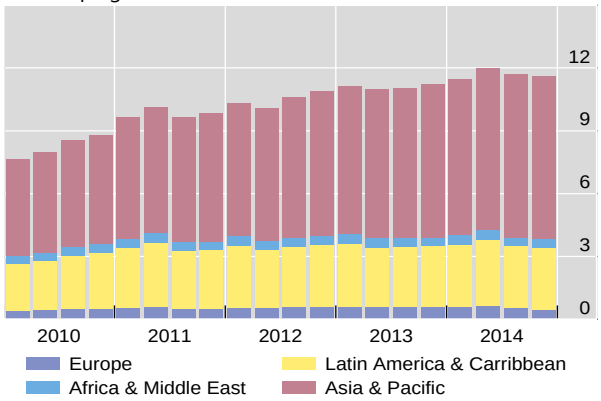
| | Total debt securities | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | United States | Japan | United Kingdom | France | Germany | Italy | Spain | Netherlands | Canada | Australia | Ireland | Denmark |
| **Amounts outstanding** | | | | | | | | | | | | |
| All issuers[1] | 35,781 | 11,072 | 6,122 | 4,310 | 3,780 | 3,469 | 2,024 | 2,246 | 2,137 | 1,898 | 1,044 | 823 |
| Financial corporations | 14,995 | 2,188 | 2,874 | 1,597 | 1,625 | 1,128 | 942 | 1,720 | 524 | 1,125 | 888 | 639 |
| Non-financial corporations | 5,109 | 658 | 615 | 628 | 155 | 159 | 26 | 92 | 411 | 203 | 10 | 34 |
| General government | 15,454 | 8,226 | 2,630 | 2,084 | 2,000 | 2,182 | 1,057 | 434 | 1,202 | 569 | 145 | 150 |

## Outstanding amounts

In trillions of US dollars

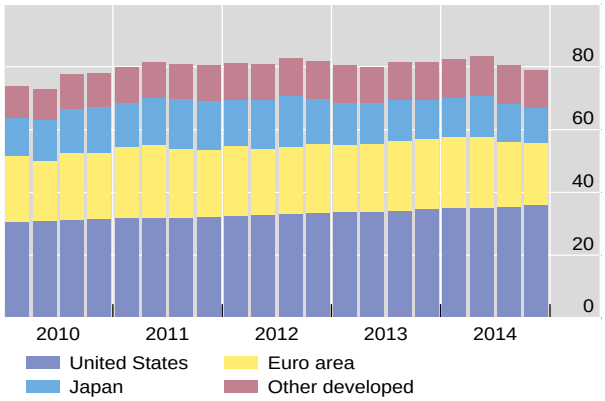
### Domestic debt securities

Developing countries




### Total debt securities

Developed countries




[1] All issuers include households and non-profit institutions serving households.

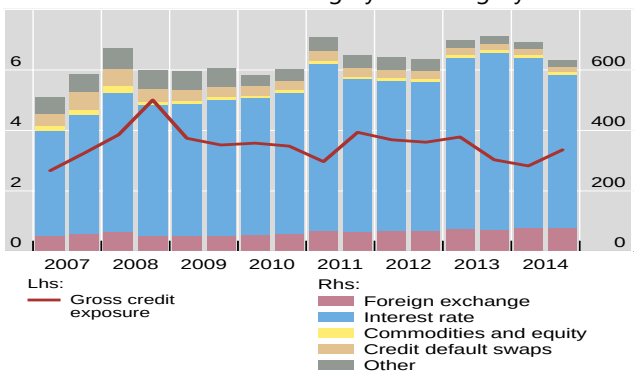
## Table D: Global OTC derivatives market, end-December 2014[1]

In billions of US dollars

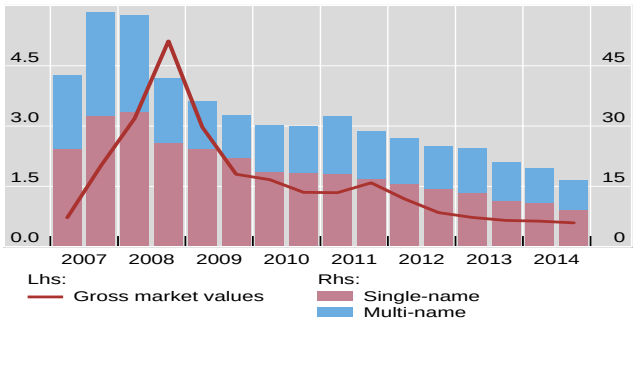
| | Forwards and swaps | | | | Options | | | |
|---|---|---|---|---|---|---|---|---|
| | Total | with reporting dealers | with other financial institutions | with non-financial customers | Total | with reporting dealers | with other financial institutions | with non-financial customers |
| | | | | Notional amounts outstanding | | | | |
| **All contracts**[2] | **563,467** | **80,862** | **459,922** | **21,424** | **66,682** | **35,120** | **26,631** | **4,253** |
| **Foreign exchange** | **61,279** | **25,149** | **27,895** | **8,235** | **14,600** | **6,784** | **6,439** | **1,377** |
| US dollar | 54,390 | 24,003 | 24,124 | 6,262 | 12,845 | 6,015 | 5,781 | 1,049 |
| Euro | 21,150 | 7,720 | 9,486 | 3,943 | 4,365 | 1,912 | 1,777 | 676 |
| Japanese yen | 10,386 | 5,185 | 4,144 | 1,057 | 3,858 | 2,103 | 1,480 | 276 |
| Pound sterling | 7,598 | 2,657 | 3,671 | 1,270 | 823 | 349 | 365 | 109 |
| Other | 29,035 | 10,732 | 14,365 | 3,938 | 7,308 | 3,189 | 3,475 | 645 |
| Up to one year | 44,589 | 17,078 | 22,134 | 5,377 | 12,242 | 5,536 | 5,638 | 1,069 |
| Over one year | 16,690 | 8,071 | 5,761 | 2,858 | 2,358 | 1,248 | 801 | 308 |
| *Memo: Exchange-traded*[3] | *234* | . | . | . | *143* | . | . | . |
| **Interest rate** | **461,863** | **44,441** | **405,425** | **11,997** | **43,591** | **25,365** | **15,972** | **2,254** |
| US dollar | 156,006 | 12,743 | 138,945 | 4,318 | 16,540 | 8,241 | 7,232 | 1,066 |
| Euro | 148,135 | 11,312 | 132,429 | 4,394 | 19,132 | 12,882 | 5,372 | 879 |
| Japanese yen | 43,250 | 5,267 | 37,102 | 881 | 2,877 | 1,864 | 922 | 90 |
| Pound sterling | 53,636 | 3,100 | 49,987 | 549 | 3,372 | 1,755 | 1,521 | 96 |
| Other | 60,837 | 12,020 | 46,961 | 1,855 | 1,670 | 622 | 925 | 122 |
| Up to one year | 187,456 | 13,288 | 171,994 | 2,174 | 13,345 | 6,842 | 5,823 | 680 |
| Over one year | 274,408 | 31,154 | 233,431 | 9,823 | 30,246 | 18,523 | 10,149 | 1,574 |
| *Memo: Exchange-traded*[3] | *25,348* | . | . | . | *31,874* | . | . | . |
| **Equity** | **2,495** | **654** | **1,616** | **226** | **5,445** | **1,710** | **3,265** | **470** |
| *Memo: Exchange-traded*[3] | *1,572* | . | . | . | *5,671* | . | . | . |
| **Commodities** | **1,214** | **...** | **...** | **...** | **654** | **...** | **...** | **...** |
| **Credit default swaps** | **16,399** | **7,717** | **8,485** | **197** | **...** | **...** | **...** | **...** |
| **Unallocated** | **20,216** | **2,901** | **16,501** | **769** | **2,392** | **1,260** | **955** | **153** |
| | | | | Gross market values | | | | |
| **All contracts** | **18,114** | **4,519** | **12,197** | **1,397** | **2,434** | **1,497** | **728** | **208** |
| **Foreign exchange** | **2,555** | **1,117** | **1,016** | **422** | **389** | **198** | **146** | **44** |
| US dollar | 2,314 | 1,073 | 924 | 317 | 340 | 176 | 127 | 37 |
| Euro | 854 | 310 | 345 | 199 | 118 | 43 | 57 | 18 |
| Japanese yen | 603 | 319 | 200 | 85 | 182 | 116 | 51 | 14 |
| Pound sterling | 227 | 72 | 97 | 58 | 13 | 5 | 6 | 3 |
| Other | 1,112 | 460 | 467 | 184 | 125 | 57 | 52 | 16 |
| **Interest rate** | **14,091** | **2,912** | **10,290** | **890** | **1,517** | **1,069** | **392** | **56** |
| US dollar | 3,274 | 794 | 2,314 | 166 | 327 | 232 | 83 | 13 |
| Euro | 7,200 | 1,310 | 5,362 | 527 | 985 | 704 | 249 | 32 |
| Japanese yen | 752 | 192 | 537 | 22 | 46 | 37 | 9 | 1 |
| Pound sterling | 1,690 | 320 | 1,285 | 85 | 138 | 87 | 43 | 8 |
| Other | 1,176 | 296 | 792 | 89 | 20 | 9 | 8 | 3 |
| **Equity** | **177** | **28** | **126** | **24** | **435** | **173** | **162** | **100** |
| **Credit default swaps** | **593** | **289** | **296** | **8** | **...** | **...** | **...** | **...** |
| **Unallocated** | **697** | **174** | **469** | **54** | **94** | **58** | **28** | **8** |

## Global OTC derivatives[4]

### Notional amounts outstanding by risk category




### Credit default swaps




[1] Detailed breakdowns and time series data are available at http://www.bis.org/statistics/derstats.htm (Tables 19, 20A–C, 21A–C, 22A–C and 23A–B). [2] Due to incomplete counterparty breakdowns for the commodity derivatives, components do not add up to the total. [3] Futures and options. Data on exchange-traded and OTC derivatives are not directly comparable; the former refers to open interest while the latter refers to gross positions. [4] In trillions of US dollars.

# Notes to tables

Data for the most recent period are provisional. Data on changes in stocks have been calculated by converting the relevant stocks into their original currencies using end-of-period exchange rates and subsequently converting the changes in stocks into US dollar amounts using period average rates. Flow and turnover data have been calculated by converting flows and turnover in original currencies into US dollar amounts using period average exchange rates.

## Tables A1–A2

The data in Tables A1–A2 (the locational BIS banking statistics) cover banks' unconsolidated gross international on-balance sheet assets and liabilities. These data are based on the residence of the reporting institution and therefore measure the activities of all banking offices residing in each reporting country. Such offices report exclusively on their own unconsolidated business, which thus includes international transactions with any of their own affiliates. BIS reporting banks include banks residing in the G10 countries, plus Australia, Austria, the Bahamas, Bahrain, Bermuda, Brazil, the Cayman Islands, Chile, Chinese Taipei, Curacao, Cyprus, Denmark, Finland, Greece, Guernsey, Hong Kong SAR, India, Indonesia, Ireland, Isle of Man, Jersey, Korea, Luxembourg, Macao SAR, Malaysia, Mexico, the Netherlands Antilles (till Q3 2010), Norway, Panama, Portugal, Singapore, South Africa, Spain and Turkey. Breakdowns by currency are compiled from actual reported data and do not include any estimates done by the BIS for reporting countries that provide incomplete or partial currency information. Table A1 provides aggregated figures by residence of banks in all reporting countries. Table A2 provides figures by nationality of banks in reporting countries. The nationality statistics are prepared by regrouping the locational data into categories based on the control or ownership of the banking offices in question. Thus, for a reporting country, total assets and total liabilities of all banks reported under locational by residence statistics should be equal to the total assets and total liabilities of all banks reported under nationality statistics. Detailed tables, including time series data in CSV files, guidelines and information on breaks in series in the locational banking statistics, are available on the BIS website under www.bis.org/statistics/bankstats.htm.

## Tables B1–B2

The consolidated statistics are based mainly on the country of incorporation of the reporting institutions and measure the international lending activities of banks' head offices in the reporting countries and all their offices at home and abroad, with positions between offices of the same bank being netted out. The data in Table B1 cover BIS reporting banks' worldwide consolidated claims on an immediate borrower basis. These contractual claims are not adjusted for risk mitigants, such as guarantees and collateral. The 31 reporting countries comprise the G10 countries plus Australia, Austria, Brazil, Chile, Chinese Taipei, Denmark, Finland, Greece, Hong Kong SAR, India, Ireland, Luxembourg, Mexico, Norway, Panama, Portugal, Singapore, Spain and Turkey. The data in Table B2 cover BIS reporting banks' worldwide consolidated claims on an ultimate risk basis. These contractual claims are adjusted for risk mitigants, such as guarantees and collateral. The reporting population is a subset of 25 countries which reports both sets of data and comprises Australia, Austria, Belgium, Canada, Chile, Chinese Taipei, Finland, France, Germany, Greece, India, Ireland, Italy, Japan, Korea, the Netherlands, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The data in Table B1 cover both foreign and international claims, while Table B2 covers foreign claims only. International claims are defined as BIS reporting banks' cross-border claims in all currencies plus the local claims of their foreign affiliates in foreign currency. Foreign claims include, in addition, reporting banks' foreign affiliates' local claims in local currency, as shown below.

Austria and Portugal report on a partially consolidated basis. Detailed information on breaks in series in the consolidated banking statistics is available on the BIS website under www.bis.org/statistics/consstats.htm.

**Types of claims**

| **A** | **B** | **C** | **D** |
|---|---|---|---|
| Cross-border claims | Local claims of foreign affiliates in foreign currency | Local claims of foreign affiliates in local currency | Domestic claims in the reporting country |

***International claims*** (A + B)

***Foreign claims*** (A + B + C)

The shaded area indicates claims excluded from the consolidated banking statistics; bold italics indicate claims published within the consolidated banking statistics.

## Tables C1–C2

Securities statistic are harmonised with recommendations from the Handbook on Securities Statistics Part 1 (jointly released by BIS, ECB and IMF; available at the IMF web site, www.imf.org/external/np/sta/wgsd/pdf/051309.pdf). There are three datasets, each covering different market of issue: international debt securities, domestic debt securities and total debt securities.

The sectoral breakdown presents data based on the sector of the borrower itself and not on the sector of the parent company of the borrower or any guarantor. "General government" comprises central governments and other governments, while "Financial corporations" comprises commercial banks, central banks, and other financial institutions.

Detailed information about the compilation of the statistics on domestic and total debt securities is available on the BIS website.

## Table D

The data in Table D cover the activity recorded in the global over-the-counter (OTC) and exchange-traded derivatives markets. The data on exchange-traded derivatives are obtained from market sources, while those on OTC derivatives are based on the reporting to the BIS by central banks in major financial centres that in turn collect the information on a consolidated basis from reporting dealers headquartered in their respective countries.

The data on OTC derivatives are available in terms of notional amounts outstanding, gross market values and gross credit exposure. Gross credit exposure excludes credit default swap contracts for all countries except the United States. These statistics are adjusted for inter-dealer double-counting and cover foreign exchange, interest rate, equity, commodity and credit derivatives.

For the exchange-traded derivatives, data on open interest measured in terms of US dollars are available for the main financial derivatives contracts (interest rate, currency and equity-linked derivatives).

Information on the methodology used to compile these statistical sets and a more detailed description of their coverage can be found on pages 18 to 21 of the Guide to the international financial statistics, available at www.bis.org/publ/bppdf/bispap14.htm.

# Special features in the BIS Quarterly Review

| | | |
|---|---|---|
| March 2015 | The costs of deflations: a historical perspective | Claudio Borio, Magdalena Erdem, Andrew Filardo & Boris Hofmann |
| March 2015 | Oil and debt | Dietrich Domanski, Jonathan Kearns, Marco Jacopo Lombardi & Hyun Song Shin |
| March 2015 | (Why) Is investment weak? | Ryan Banerjee, Jonathan Kearns & Marco Lombardi |
| March 2015 | Financial inclusion - issues for central banks | Aaron Mehrotra & James Yetman |
| March 2015 | Shifting tides - market liquidity and market-making in fixed income instruments | Ingo Fender & Ulf Lewrick |
| December 2014 | Currency movements drive reserve composition | Robert N McCauley & Tracy Chan |
| December 2014 | Securitisations: tranching concentrates uncertainty | Adonis Antoniades & Nikola Tarashev |
| December 2014 | Bank business models | Rungporn Roengpitya, Nikola Tarashev & Kostas Tsatsaronis |
| December 2014 | Non-financial corporations from emerging market economies and capital flows | Stefan Avdjiev, Michael Chui & Hyun Song Shin |
| September 2014 | Asset managers in emerging market economies | Ken Miyajima & Ilhyock Shim |
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| September 2014 | Cross-border bank lending during the taper tantrum: the role of emerging market fundamentals | Stefan Avdjiev & Előd Takáts |
| September 2014 | Residential property price statistics across the globe | Michela Scatigna, Robert Szemere & Kostas Tsatsaronis |
| March 2014 | Financial structure and growth | Leonardo Gambacorta, Jing Yang & Kostas Tsatsaronis |
| March 2014 | Forward guidance at the zero lower bound | Andrew Filardo & Boris Hofmann |

# Recent BIS publications[1]

## BIS Papers

**Currency carry trades in Latin America**
**April 2015**

This report seeks to shed light on the characteristics of currency carry trades in Latin America. Partly reflecting the degree of financial market integration and development, as well as the effects of regulation, carry trades in the region have typically been implemented by taking long forward positions in foreign exchange derivatives markets (offshore or onshore), or in some cases through the acquisition of domestic debt securities in destination currencies. Carry trades have traditionally been implemented at short investment horizons by highly leveraged investors such as hedge funds. However, interviews with market participants have indicated that currency carry trade strategies and investor composition have changed significantly in Latin America since the global financial crisis due to the reduced attractiveness of carry trade investments, shortage of financing for risky, highly leveraged investments like carry trades, and the effects of regulation. Partly as a result, in recent years real money investors who rely less on leverage and who have longer investment horizons have reportedly played a larger role in cross-border portfolio investment, while the relative importance of hedge funds has been declining.

## BIS Working Papers

**Leverage dynamics and the real burden of debt**
**Mikael Juselius and Mathias Drehmann**

In addition to leverage, the aggregate debt service burden is an important link between financial and real developments. Using US data from 1985 to 2013, we find that it has sizable negative effects on credit and expenditure growth. Strong interactions between leverage and the debt service burden lead to large and protracted cycles in credit and expenditure that match the stylised facts of credit booms and busts. Even with real-time estimates, the predicted adjustment to leverage and the debt service burden from 2005 onwards imply paths for credit and expenditure that closely match actual developments before and during the Great Recession.

**Prolonged reserves accumulation, credit booms, asset prices and monetary policy in Asia**
**Andrew Filardo and Pierre Siklos**

This paper examines past evidence of prolonged periods of foreign exchange reserves accumulation in the Asia-Pacific region. One empirical challenge is to identify periods of reserve accumulation that are sufficiently large and persistent to be categorised as prolonged. Several proxies for prolonged episodes are considered, including a newly proposed one based on a factor model. We then identify the key macrofinancial determinants of prolonged reserve accumulation. Two broad conclusions emerge from the stylised facts and the econometric evidence. First, the best protection against costly reserves

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

accumulation is a more flexible exchange rate. Second, the necessity of accumulating reserves as a bulwark against goods price inflation is misplaced. Instead, there is a strong link between asset price movements and the likelihood of accumulating foreign exchange reserves that are costly. Policy implications are also drawn.

### Foreign exchange intervention: strategies and effectiveness

**Nuttathum Chutasripanich and James Yetman**

Foreign exchange intervention has been actively used as a policy tool in many economies in Asia and elsewhere. In this paper, we examine two intervention rules (leaning against exchange rate misalignment and leaning against the wind), utilised with varying degrees of transparency, based on a simple model with three kinds of agents: fundamentalists, speculators and the central bank. We assess the effectiveness of these rules against five criteria: stabilising the exchange rate, reducing current account imbalances, discouraging speculation, minimising reserves volatility and limiting intervention costs. Overall we find no dominant intervention strategy. Intervention that reduces exchange rate volatility, for example, also reduces the risks of speculation, creating a feedback loop and potentially leading to high levels of speculation, reserves volatility and intervention costs. These intervention costs will be especially large when exchange rate movements are driven by interest rate shocks, although some degree of opaqueness can help to reduce them. Survey evidence from BIS (2005, 2013) indicates that central banks follow a range of different strategies when intervening in foreign exchange rates. Given the trade-offs that different strategies entail in our model, this is not surprising.

### Liquidity squeeze, abundant funding and macroeconomic volatility

**Enisse Kharroubi**

This paper studies the choice between building liquidity buffers and raising funding ex post, to deal with liquidity shocks. We uncover the possibility of an inefficient liquidity squeeze equilibrium. Agents typically choose to build smaller liquidity buffers when they expect cheap funding. However, when agents hold smaller liquidity buffers, they can raise less funding because of limited pledgeability, which in the aggregate depresses the funding cost. This incentive structure yields multiple equilibria, one being an inefficient liquidity squeeze equilibrium where agents do not build any liquidity buffer. Comparative statics show that this inefficient equilibrium is more likely when the supply of funding is large, and/or when aggregate shocks display low volatility. Last, the effectiveness of policy options to restore efficiency is limited because the net gain to intervention decreases with the availability of funding. In other words, policy becomes ineffective when the equilibrium becomes inefficient.

### Global asset allocation shifts

**Tim A Kroencke, Maik Schmeling and Andreas Schrimpf**

We show that global asset reallocations of U.S. fund investors obey a strong factor structure, with two factors accounting for more than 90% of the overall variation. The first factor captures switches between U.S. bonds and equities. The second reflects reallocations from U.S. to international assets. Portfolio allocations respond to U.S. monetary policy, most prominently around FOMC events when institutional investors reallocate from basically all other asset classes to U.S. equities. Reallocations of both retail and institutional investors show return-chasing behaviour. Institutional investors tend to reallocate toward riskier, high-yield fixed income segments, consistent with a search for yield.

### When is macroprudential policy effective?

**Chris McDonald**

Previous studies have shown that limits on loan-to-value (LTV) and debt-to-income (DTI) ratios can stabilise the housing market, and that tightening these limits tends to be more effective than loosening them. This paper examines whether the relative effectiveness of tightening vs. loosening macroprudential measures depends on where in the housing cycle they are implemented. I find that tightening measures have greater effects when credit is expanding quickly and when house prices are high relative to income. Loosening measures seem to have smaller effects than tightening, but the difference is negligible in downturns. Loosening being found to have small effects is consistent with where it occurs in the cycle.

**The transmission of monetary policy in EMEs in a changing financial environment: a longitudinal analysis**
**Emanuel Kohlscheen and Ken Miyajima**

The departure from the Modigliani-Miller conditions, due for instance to market incompleteness, asymmetric information or taxation, tends to increase the importance of indirect channels by which monetary policy affects the level of economic activity in emerging market economies (EMEs). The bank lending channel highlighted by Bernanke and Blinder (1988) is a prominent example of such indirect effect of monetary policy. In this study we investigate how the bank lending channel acts above and beyond the traditional money channel that most macroeconomic models emphasize. We find that, particularly in EMEs with high bank reliance, changes in the volume of bank credit are important drivers of fixed capital formation. Using micro-level bank balance sheet data, we then show how monetary policy and sovereign risk premia affected bank credit growth in EMEs between 2001 and 2013. We find that both, changes in the monetary policy stance and changes in risk premia have had significant effects on credit volumes. Furthermore, we show that these effects tend to affect smaller banks more strongly. Our results suggest that the accommodative monetary policies that have been seen recently were contributing factors to the rapid expansion of credit in many EMEs.

**Financial crisis, US unconventional monetary policy and international spillovers**
**Qianying Chen, Andrew Filardo, Dong He and Feng Zhu**

We study the impact of US quantitative easing (QE) on both the emerging and advanced economies, estimating a global vector error correction model (GVECM). We focus on the effects of reductions in the US term and corporate spreads. The estimated effects of QE are sizeable and vary across economies. First, we find the QE impact from reducing the US corporate spread to be more important than that from lowering the US term spread, consistent with Blinder's (2012) argument. Second, counterfactual exercises suggest that US QE measures, especially the cumulative effects of successive QE measures starting with the sizeable impact of the early actions, countered forces that could have led to episodes of prolonged recession and deflation in the advanced economies. Third, the estimated effects on emerging economies are diverse but generally larger than those found for the United States and other advanced economies. The estimates suggest that US monetary policy spillovers contributed to overheating in Brazil, China and some other emerging economies in 2010 and 2011, but supported their respective recoveries in 2009 and 2012. These heterogeneous effects point to unevenly distributed benefits and costs of monetary policy spillovers.

## Basel Committee on Banking Supervision

**Eighth progress report on adoption of the Basel regulatory framework**
**April 2015**

This updated *Progress report on adoption of the Basel regulatory framework* provides a high-level view of Basel Committee members' progress in adopting Basel II, Basel 2.5 and Basel III standards as of end-March 2015.

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

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

The Committee believes that disclosure provides additional incentive for members to fully comply with the international agreements.

**Margin requirements for non-centrally cleared derivatives**
**March 2015**

The Basel Committee on Banking Supervision and the International Organization of Securities Commissions (IOSCO) have revised the framework for margin requirements for non-centrally cleared derivatives.

Relative to the 2013 framework, the revisions delay the beginning of the phase-in period for collecting and posting initial margin on non-centrally cleared trades from 1 December 2015 to 1 September 2016. The full phase-in schedule has been adjusted to reflect this nine-month delay. The revisions also institute a six-month phase-in of the requirement to exchange variation margin, beginning 1 September 2016.

The Basel Committee and IOSCO will continue to monitor progress in implementation to ensure consistent implementation across products, jurisdictions and market participants. The Basel Committee and IOSCO will also liaise with industry as market participants continue their work to develop initial margin models that will be required to comply with the margin requirements. This engagement will help ensure that emerging quantitative initial margin models are consistent with the framework but will not provide an explicit review or approval of any initial margin model.

## Committee on the Global Financial System

**Regulatory change and monetary policy**
**May 2015**

Financial regulation is evolving, as policymakers seek to strengthen the financial system in order to make it more robust and resilient. Changes in the regulatory environment are likely to have an impact on financial system structure and on the behaviour of financial intermediaries that central banks will need to take into account in how they implement monetary policy.

Against this background, this report assesses the combined impact of key new regulations on monetary policy. It is based on information from a range of sources, including central bank case studies as well as structured interviews with private sector market participants. It argues that the likely impacts of the new financial regulations on financial institutions and markets should have only limited and manageable effects on monetary policy operations and transmission. Hence, as necessary, central banks should be able to make adjustments within their existing policy frameworks and in ways that preserve policy effectiveness. These adjustments will tend to differ across jurisdictions according to the financial systems and policy frameworks in place. Specific implications, and examples of potential policy responses, are set out and elaborated in more detail in the report.

**Central bank operating frameworks and collateral markets**
**March 2015**

Collateral markets have become increasingly important as demand for collateral assets has increased in recent years, driven by changing market practices and an evolving regulatory landscape. This report - prepared by a Study Group chaired by Timothy Lane (Bank of Canada) – explores whether and how the design of central banks' operational frameworks influences private collateral markets, including collateral availability, pricing, related market practices, and market performance under stress. It studies these issues by reviewing available information from a range of sources, including central bank case studies as well as surveys and interviews with private sector participants in collateral markets.

Central banks influence markets for collateral through either the supply of assets available for use as collateral (a scarcity channel), the pledgeability of assets in private transactions (a

structural channel), or both. They therefore have a variety of design choices at their disposal to influence collateral markets as well as to fine-tune the effects of their operations on these markets. While central bank operating frameworks are not usually the most important factor influencing collateral markets, the evidence presented in this report indicates that the influence of central banks may at times be significant, in particular during crisis times. This highlights the importance of carefully monitoring the effects of central bank operations on collateral markets, as well as the need for central banks to examine their operational frameworks to ensure preparedness for any future crisis response.

## Speeches

**The international monetary and financial system: eliminating the blind spot**

*Panel remarks by Mr Jaime Caruana, General Manager of the BIS, at the IMF conference "Rethinking macro policy III: progress or confusion?", Washington DC, 16 April 2015.*

The present-day international monetary and financial system does not constrain the build-up of financial imbalances within and across countries. Liquidity conditions often spill over across borders and can amplify domestic imbalances to the point of instability. The rules today are mainly local, even though the game has become global. To help eliminate this blind spot, central banks should enhance domestic policies by taking financial stability considerations into account, internalise the interactions among policies, and strengthen international cooperation so as to establish better rules of the game.

**Macroprudential tools, their limits and their connection with monetary policy**

*Panel remarks by Mr Hyun Song Shin, Economic Adviser and Head of Research of the BIS, at IMF Spring Meeting event: "Rethinking macro policy III: progress or confusion?", Washington, DC, 15 April.*

Both macroprudential policy and monetary policy influence the financial intermediation process and moderate the procyclicality of the financial system. They are similar in moderating the demand and supply of credit. They differ in two key respects, however. Macroprudential policy is directed at particular sectors and practices, and it is less susceptible to being undermined by global financial conditions. The evidence suggests that the two policies have been used in concert, pulling in the same direction rather than in opposite directions; there is a modest positive correlation of +0.2 between tighter macroprudential policy and tighter monetary policy. When they pull in opposite directions, firms and households are told simultaneously to borrow more and to borrow less. There is evidence that macroprudential policies have been effective in leaning against the credit cycle. However, the shifting patterns of financial intermediation mean that tools geared towards the regulated banking sector have diminishing efficacy. The term premium in deeply negative territory is one example of potential financial stability risks that are not amenable to traditional macroprudential tools.

**The international monetary and financial system: Its Achilles heel and what to do about it**

*Presentation by Mr Claudio Borio, Head of Monetary and Economic Department of the BIS, at the INET conference "New Economic Thinking: Liberté, Égalité, Fragilité", Paris, 9 April.*

This essay argues that the Achilles heel of the international monetary and financial system is that it amplifies the "excess financial elasticity" of domestic policy regimes, ie it exacerbates their inability to prevent the build-up of financial imbalances, or outsize financial cycles, that lead to serious financial crises and macroeconomic dislocations. This excess financial elasticity view contrasts sharply with two more popular ones, which stress the failure of the system to prevent disruptive current account imbalances and its tendency to generate a structural shortage of safe assets - the "excess saving" and "excess demand for safe assets" views, respectively. In particular, the excess financial elasticity view highlights financial rather than

current account imbalances and a persistent expansionary rather than contractionary bias in the system. The failure to adjust domestic policy regimes and their international interaction raises a number of risks: entrenching instability in the global system; returning to the modern-day equivalent of the divisive competitive devaluations of the interwar years; and, ultimately, triggering an epoch-defining seismic rupture in policy regimes, back to an era of trade and financial protectionism and, possibly, stagnation combined with inflation.

**Welcoming remarks**

*Welcoming remarks by Mr Jaime Caruana, General Manager of the BIS, at the Second BIS Research Network meeting on "Macroeconomics and global financial markets", Basel, 10 March 2015.*

Introduction

Good afternoon, everyone. It is a pleasure to extend my warmest welcome to all of you to the Second BIS Research Network meeting.

The BIS Research Network was set up last year as part of our effort to serve as a bridge between central banks and academics to tackle some of the most pressing conceptual and empirical questions facing central banks today. The network brings together active researchers from academia and central banks to meet regularly and share findings on issues related to banking, monetary policy, regulation and financial stability. We hold two network meetings a year, alternating between micro- and macro-related themes.

The inaugural meeting of the BIS Research Network in September last year was "Banking and asset management", and it explored the interaction between capital and liquidity regulation; the adjustment of bank capital to Basel III; the cyclical behaviour of leverage; asset management flows; and equilibrium asset prices.

Today, the second research network meeting is organised around the theme "Macroeconomics and global financial markets". Judging by the quality of the papers and the authors on the programme, we will have another very fruitful meeting that can enrich the research agenda on the functioning of the economy and its interaction with the financial system. The significance of this interaction has arguably been underestimated. And it would be especially useful to understand how the underlying links have evolved since the global financial crisis.

Four challenges - many questions

To help set the scene, let me highlight four key challenges that policymakers face today, and pose some of the questions that we at the BIS have been grappling with.

The first challenge is to better understand the current environment of ultra-low interest rates, ample liquidity and unconventional central bank policies. Interest rates in many countries are now incredibly low, or even negative. Quantitative measures have resulted in large central bank balance sheets. How far can this go? As even long-term yields have turned negative in some cases, we may need to revisit all the familiar analytical rules of thumb that were developed in a world of positive rates and ask how things will work in this new environment. Are such low rates effective in stimulating demand? Can they also have side effects that influence the profitability of the financial industry, the build-up of financial risks and the efficiency of resource allocation? Do they have an unusual impact on income and wealth distribution?

The research to be presented today in the first session sheds light on some of these questions - in particular, the measurement of unconventional monetary policies and their macroeconomic effects. But clearly more research is needed, especially to clarify the effects of unconventional monetary policies.

A second challenge is to understand better how financial risks have been migrating and morphing, and how much of this is due to central bank policies. Financial markets have been buoyant in recent years, and accommodative monetary conditions have arguably been an underlying factor. The dependence of markets on central banks, however, carries the risk of sharp market corrections and evaporating market liquidity, if and when expectations of

central bank support are disappointed or are being questioned. At the same time, as the banking system has been made safer, bond market actors have come to play a bigger role in intermediating funds, as evidenced by the growth of the asset management industry.

These developments pose several questions. How can we understand the broader impact of central banks on asset prices and risk premia? How is the behaviour of market participants - their risk-taking and investment decisions - influenced by monetary policy? Have new risks been emerging in the less regulated parts of the financial system, such as the asset management industry? Such issues are addressed by the research papers in the second session.

The third challenge is the fall in inflation below objectives in several countries, which has prompted more discussions on the risk of deflation. How serious is this risk, and what are the potential costs? How effective can monetary policy be in reducing it, especially when interest rates are already very low? Can downward wage rigidity be of help, by limiting second-round effects, or be harmful, by increasing the output costs?

Our view here at the BIS is that while we should be alert to deflation risks, we should also be mindful of the risk of overreacting. Understanding the drivers of disinflation is critical to understanding its potential costs. And we do not have a good handle on how long-term inflation expectations are formed. The papers in the third session will examine these issues.

The fourth challenge is the high level of debt. At the global level, total non-financial sector debt is at a record high and seems to be still on the rise. In other words, outside the financial sector, deleveraging has been limited in the past six to seven years. A key question for policymakers is how far debt can rise before it becomes a drag on growth or poses a threat to financial stability. In other words, what is a safe level of debt in an economy? How much is growth dependent on debt, and is there a way to reduce this dependence? Is fiscal consolidation self-defeating when the economy is weak, or can it help an economy rebalance? In the aftermath of a financial crisis, is a strong macroeconomic stimulus to mitigate recessions always a help, or would it at some point become a hindrance to the reallocations of resources necessary for sustaining long-run economic growth? Research on these critical issues is unfortunately scant. The papers in the fourth session will try to shed some light.

Closing

The questions are many and the challenges novel. Top-quality research is more important than ever for policymakers. And this is precisely the reason why we invited you here today. I am sure that you will come up with a few answers. But more importantly, I hope you will come up with good and relevant questions. So let me thank the presenters and all those who will be actively contributing to the discussion. I wish you a successful and fruitful meeting.