



August 25, 2015

To the G20 Finance Ministers and Central Bank Governors:

Work on Foreign Currency Exposures

We are pleased to report on the work undertaken during the last year by the IMF, FSB, and BIS on addressing data gaps involving foreign currency exposures. The main objective of this work is to set the stage for improved assessments of cross-border risks. The work has built as far as possible on existing data initiatives and has been coordinated by our three institutions.

- The IMF staff prepared the enclosed *Report to G20 Economies* for the September 2015 G20 Finance Ministers and Central Bank Governors (FMCBG) meeting. In addition to highlighting the growing policy interest in foreign currency exposure data in the IMF, including through balance sheet analysis, the Report updates on: i) the progress made over the past year in reporting data with foreign currency breakdown through collection forms used by the IMF Statistics Department (STA); ii) the recent outreach activities through technical assistance (TA) and training by STA; and iii) feedback received through regional conferences and bilateral consultations within the G20 Data Gaps Initiative.

The recent IMF work on balance sheet analysis underscores the need to address key data gaps, particularly on information related to currency and related maturity breakdowns. In this context, the IMF is emphasizing the collection of data on cross-border foreign currency exposures through the memorandum Table A9-I in the sixth edition of the IMF's *Balance of Payments and International Investment Position Manual (BPM6)* that is included in the reporting forms for international investment position (IIP). STA's data collections for financial and government finance statistics also include foreign currency and related maturity breakdowns.

- The enclosed BIS note presents two datasets—the International Banking Statistics (IBS) and the International Debt Statistics (IDS)—that can be used to analyse cross-border and foreign-exchange risks. The note pays particular attention to recent IBS enhancements that target improved monitoring of system-wide funding risks in general and the currency composition of banking activities in particular. Among other

things, these enhancements involve more granular information on banks' claims and liabilities in major currencies. Notably, the statistics now break down positions in a given currency according to both the nationality of reporting banks and the country of residence of their counterparties. In addition, the enhanced IBS include information on reporting banks' domestic positions in the local currency. All this provides the basis for deriving a more detailed picture of internationally active banks' balance sheets—aggregated at the reporting country level—and thus for measuring potential currency mismatches more accurately.

A number of studies, some of which are discussed in the BIS note, have exploited synergies between IBS and IDS and / or have made direct use of IBS enhancements. For instance, one recent strand of BIS research uses the statistics to analyse the dynamics of US dollar credit to non-US entities. Other work derives the distribution of lending in major currencies by both bank nationality and borrower residency. It then studies how the stability of bank lending varies by currency or between advanced and emerging market economies.

- The FSB launched in late 2014 a peer review of the trade repository reporting of over the counter (OTC) derivatives to assess, among other objectives, data usability and legal barriers that hinder reporting or limit authority access to this information. The peer review covers all types of OTC derivatives, including foreign exchange derivatives and others that create foreign currency (FX) exposures. The peer review report, to be published in October 2015, will make recommendations to address the identified legal barriers and practical challenges. To improve the supervisory use of data on FX and other OTC derivatives, the FSB also asked the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) to develop global guidance on the harmonisation of data elements—including those elements relating to foreign exchange exposures—that are reported to trade repositories and are important for aggregation by authorities. A consultation document on a Unique Transaction Identifier (UTI) was published in August 2015 and consultation papers on a Unique Product Identifier (UPI) and on other data elements will be published over the next months.

As requested by the G20 in February 2015, the FSB is separately delivering a report on non-financial corporates' funding structures and incentives to the September 2015 meeting of G20 Ministers and Governors, coordinating the inputs of the IMF, OECD, BIS, IOSCO and the World Bank Group (WBG). The report highlights the continuing need to fill data gaps, not least those related to foreign exchange exposures, including the extent of foreign currency hedging and other derivatives positions. Such data gaps were identified at the 2014 joint workshop of the BIS Committee on the Global Financial System and the FSB Standing Committee on Assessment of Vulnerabilities and were reported to the G20 in September 2014.

Advancing work on foreign currency exposures is an important component of proposals for Phase 2 of the G20 Data Gaps Initiative (DGI-2). In particular, three recommendations of DGI-2 make explicit reference to data on foreign currency exposures, with an eye on improving the analysis of risks and vulnerabilities arising from such exposures.

- The DGI-2 recommendation on the IIP includes a specific reference to the reporting of currency composition data consistent with *BPM6*. However, it is recognized that this work may have a long time horizon.
- The DGI-2 recommendation on the cross border exposures of non-bank corporations spells out the need for work on improving the consistency and dissemination of data on non-bank corporations' cross-border exposures, including foreign currency mismatches.
- The DGI-2 recommendation on “securities statistics” proposes that the G20 economies provide debt securities issuance data to the BIS, including currency breakdowns, consistent with the *Handbook on Securities Statistics*.

In 2016, the BIS will conduct the eleventh Triennial Central Bank Survey. This survey is the most comprehensive source of information on the size and structure of global foreign-exchange and OTC derivatives markets.

We will continue to work with the G20 economies and among the three institutions, to encourage countries to close gaps in the reporting of foreign currency information within existing data initiatives.

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Attachments

Work on Foreign Currency Exposures Report to G-20 Economies



Prepared by the Staff of the IMF

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ACRONYMS

BIS	Bank for International Settlements
<i>BPM6</i>	<i>IMF Balance of Payments and International Investment Position Manual</i> , sixth edition
COFER	Currency Composition of Official Foreign Exchange Reserves
CPIS	Coordinated Portfolio Investment Survey
DGI	Data Gaps Initiative
ECB	European Central Bank
FMCBG	Finance Ministers and Central Bank Governors
FSB	Financial Stability Board
<i>GFSM</i>	<i>Government Finance Statistics Manual</i>
G-20	Group of 20
IAG	Inter-Agency Group on Economic and Financial Statistics
IIP	International Investment Position
IMF	International Monetary Fund
NPISHs	Nonprofit Institutions Serving Households
OECD	Organization for Economic Cooperation and Development
OFCs	Other Financial Corporations
PSDS	Public Sector Debt Statistics
QEDS	Quarterly External Debt Statistics
RDT	Reserves Data Template
SDDS	IMF's Special Data Dissemination Standard
SDR	Special Drawing Rights
SRF	Standardized Report Form
STA	IMF Statistics Department

I. BACKGROUND

1. This paper on the work by IMF staff to address data gaps involving foreign currency exposures is in response to a request from the G-20 Finance Ministers and Central Bank Governors (G-20 FMCBG).¹ It is coordinated with parallel work being undertaken by the Financial Stability Board (FSB) and Bank for International Settlements (BIS).
2. The work on foreign currency exposures was initiated in April 2014 when the G-20 FMCBG requested the IMF, FSB and BIS to advance work to address data gaps involving foreign currency exposures to better assess cross-border risks, building to the extent possible on existing data initiatives. Following this request, IMF staff prepared the paper “*Advancing the Work on Foreign Currency Exposures*” for the September 2014 G-20 FMCBG meeting.² That paper reviewed existing report forms that the IMF Statistics Department (STA) uses to collect data in which foreign currency breakdowns are available, and further explored how the report forms conceptually fit together to provide a holistic view of the foreign currency positions of an economy (see Table 1).
3. This paper updates the 2014 report, covering: i) the growing policy interest in data on foreign currency exposures in the IMF, including through balance sheet analysis; ii) progress made over the past year in the reporting of data on foreign currency exposures by G-20 economies through collection forms used by STA; iii) recent outreach activities through technical assistance (TA) and training by STA as well as G-20 consultations; and, iv) proposed way forward, including the continuation of outreach activities and more explicit incorporation of data on foreign currency exposures in the recommendations of Phase II of the G-20 Data Gaps Initiative (DGI).

II. GROWING POLICY INTEREST IN DATA ON FOREIGN CURRENCY EXPOSURES IN THE IMF

4. There is a continued policy interest in understanding foreign currency exposures among policy makers and therefore it remains important to support such analysis with relevant data.³

¹ In their September 2014 communiqué the G-20 FMCBG stated: “We ask the IMF, FSB and BIS to take forward the work on data gaps on foreign currency exposures described in their respective submissions, building as far as possible on existing statistical and data initiatives, and report back to us in one year.”

² The document is available at: <http://www.imf.org/external/np/g20/pdf/2014/foreigncurrency.pdf>

³ This interest in foreign currency exposures is reflected in the IMF Staff Report to the G-20 FMCBG Meeting in February 2015 (<http://www.imf.org/external/np/g20/pdf/2015/020915.pdf>), BIS 85th Annual Report (<http://www.bis.org/publ/arpdf/ar2015e.pdf>), and the 2nd FSB Annual Report (<http://www.financialstabilityboard.org/wp-content/uploads/FSB-2nd-Annual-report.pdf>). At the present time there is particular interest in foreign currency borrowing in emerging market economies.

5. The importance of strengthening balance sheet analysis in IMF surveillance has been emphasized in recent work by IMF staff.⁴ With comprehensive balance sheet data, potential shocks to stock variables that drive economic activity as well as vulnerabilities arising from currency and maturity mismatches can be analyzed. For example, balance sheet data can be used to analyze the potential effects of sharp movements in exchange rates that could cause significant wealth transfers both within an economy and between an economy and the rest of the world. Further, data on currency and maturity mismatches of external debt can be used to assess the potential vulnerability of the economy to exchange rate and foreign interest rate shocks.

6. The recent IMF work on balance sheet analysis quoted above found the need to address key data gaps, with particular emphasis on other financial corporations (OFCs), nonfinancial corporations (NFCs), governments, and households, and information related to currency and remaining maturity breakdowns, counterparties, and off-balance sheet exposures.⁵ The foreign currency exposures data initiative of the G-20 will encourage countries to provide such data, particularly for the external sector.

III. PROGRESS MADE IN REPORTING DATA ON FOREIGN CURRENCY EXPOSURES THROUGH COLLECTION FORMS

7. As the statistical framework for monitoring the external position is the International Investment Position (IIP), the IMF is emphasizing the collection of cross-border foreign currency exposure data through the memorandum Table A9-I in the sixth edition of the IMF's *Balance of Payments and International Investment Position Manual (BPM6)*, which is included in IIP report forms (see Appendix). This table identifies separately the positions of individual institutional sectors vis-à-vis nonresidents, specifically: central bank, general government, other deposit taking corporations, OFCs, and inter-company lending; and for each of these sectors, provides a breakdown of debt claims and liabilities by domestic currency and selected foreign currencies (U.S. dollar, Euro, and Yen) with short-term original maturity separately identified. A subset table within Table A9-I aims at collecting off-balance sheet exposures to receive and pay foreign currency under financial derivatives contracts. Japan was the first economy that reported Table A9-I, in mid-2015 (see Table 2). To encourage broader reporting, the IMF is drawing attention to the reporting of Table A9-I in its outreach with G-20 economies.

⁴ These include the IMF Staff papers on Balance Sheet Analysis in Fund Surveillance and the Spillover Report. The most recent IMF document on Balance Sheet Analysis in Fund Surveillance can be found at: <http://www.imf.org/external/np/pp/eng/2015/061215.pdf>

⁵ There is growing policy interest in data on domestic derivative positions particularly with foreign currency exposures, and other hedging activities, such as natural hedges, to understand foreign currency risk exposure among domestic sectors. However, these are not covered by existing IMF report forms.

8. The IMF also is collecting data on foreign currency exposures through surveys of specific subcomponents of the IIP. Regarding the Coordinated Portfolio Investment Survey (CPIS), it collects on an encouraged basis, data *on the foreign currency composition* of portfolio investment (security) assets by the same three currencies (U.S. dollar, Euro, and Yen) identified in the IIP report form plus the British pound and the Swiss franc. Forty-six economies report these data, including 13 G-20 economies, in the latest 2015 submission that included data as of June 2014.

9. As for external debt, the currency composition of external debt (domestic/foreign) is an encouraged item under the IMF's Special Data Dissemination Standard (SDDS). This information is collected by the World Bank through Table 2: "Gross External Debt Position: Foreign Currency and Domestic Currency Denominated Debt," which is included in its Quarterly External Debt Statistics (QEDS) website. Thirty-one economies report these data to the World Bank, including nine G-20 economies.

10. On currency composition of reserve assets, since its origins, the SDDS Reserves Data Template (RDT) has included a breakdown of foreign currency reserves into SDR basket currencies and non-SDR basket currencies. Although the SDDS prescription is to report this currency breakdown at least once a year, the majority of economies report these data on a monthly basis. These data can be compared with data in the IIP presentation. Currently 79 economies including SDDS and non-SDDS subscribers, in addition to the European Central Bank (ECB) and the consolidated Eurosystem disseminate the RDT. Eighteen G-20 economies report the RDT.

11. As for monetary data, the Standardized Report Forms (SRFs) have an accounting structure, detailing the financial instrument, the currency of denomination of the instruments (domestic and foreign currency), and the counterpart sector for each instrument. Counterparty institutional units are split into resident and nonresident units. Among the G-20, 13 economies report data with currency breakdown in the central bank report form (1SR), 12 economies report data with currency breakdown in the other depository corporations report form (2SR), and eight economies report data with currency breakdown in the OFCs report form (4SR). The most recent reporter is the Eurosystem, which reports the currency breakdown in these three consolidated forms, including for the ECB.

12. In the fiscal domain, the new government finance statistics report forms based on the updated government finance statistics methodology (i.e., *2014 Government Finance Statistics Manual (GFSM 2014)*) provide a domestic currency/foreign currency breakdown by instrument for general government debt liabilities. In addition, for debt securities and loan liabilities the new report forms provide a domestic currency/foreign currency breakdown by original and remaining maturity. Brazil was the first G-20 economy to report this information in the new report forms that were introduced by STA in September 2014. As for the Public Sector Debt Statistics, 11 G-20 economies have reported items denominated in domestic and foreign currency.

13. In the context of enhancing the compilation and dissemination of sectoral accounts and balance sheets, the Inter-Agency Group on Economic and Financial Statistics (IAG) has developed templates for a minimum and an encouraged set of internationally comparable sectoral accounts and balance sheets. Through these templates domestic and foreign currency positions can be identified for the domestic sectors of the economy—including NFCs and subsectors of OFCs—and rest of the world for all debt instruments except insurance, pension and standardized guarantee schemes.⁶

14. Staff has further explored how these data sets fit together to provide a holistic view of the foreign currency positions of an economy (see Table 1). As reported in the paper submitted to the G-20 in 2014, existing reporting templates provide a basis for monitoring foreign currency risk across the economy. Thus, initial steps toward closing data gaps should be aimed at increasing the availability of data that are already being sought, which are not widely reported.

⁶ The standard template for sectoral accounts, which was developed under Recommendation 15 of the DGI, includes totals and “of which domestic currency” splits to allow the foreign currency component to be derived as a residual. The template is quarterly and includes both stocks and flows. Data will start to be collected by Eurostat, OECD, and the IMF, with countries reporting data as available. The templates are available at <http://www.imf.org/external/np/sta/templates/sectacct/index.htm>. Other DGI recommendations, for example BIS’s international banking statistics and data templates for Globally Systemically Important Banks (GSIBs) developed by the FSB through its working group, also cover improvements in data collection on foreign currency exposures, crossed with other relevant dimensions for the analysis (e.g. jurisdiction of the reporting and counterparty entity, maturity).

**Table 1. Intersectoral Asset and Liability Positions in Foreign Currency
(Balance Sheet Matrix)**

		Holder of the Asset (Creditor)						Total
		Central Bank	Deposit-taking Corporations except the Central Bank	Other Financial Corporations	General Government	Other non-financial	Rest of the World	
Issuer (Debtor)	Central Bank							
	<i>Total</i>						IIP 1/	
	<i>In domestic currency</i>		SRF 1SR 3/	SRF 1SR 3/	SRF 1SR 3/	SRF 1SR 3/	SRF 1SR 3/	SRF 1SR 3/
	<i>In foreign currency</i>							
	Deposit-taking Corporations except the Central Bank							
	<i>Total</i>						IIP 1/ 7/	
	<i>In domestic currency</i>	SRF 1SR 3/	SRF 2SR 4/	SRF 2SR 4/	SRF 2SR 4/	SRF 2SR 4/	SRF 2SR 4/	SRF 2SR 4/
	<i>In foreign currency</i>							
	Other Financial Corporations							
	<i>Total</i>						IIP 1/ 7/	
	<i>In domestic currency</i>	SRF 1SR 3/	SRF 2SR 4/	SRF 4SR 5/	SRF 4SR 5/	SRF 4SR 5/	SRF 4SR 5/	SRF 4SR 5/
	<i>In foreign currency</i>							
	Government							
	<i>Total</i>						IIP 1/	GFS 2/
	<i>In domestic currency</i>	SRF 1SR 3/	SRF 2SR 4/	SRF 4SR 5/				
	<i>In foreign currency</i>							
Other Non-financial								
<i>Total</i>							IAG /8	
<i>In domestic currency</i>	SRF 1SR 3/	SRF 2SR 4/	SRF 4SR 5/			IIP 1/ 6/	IIP 1/ 6/	
<i>In foreign currency</i>								
Rest of the World								
<i>Total</i>								
<i>In domestic currency</i>	IIP 1/	IIP 1/ 7/	IIP 1/ 7/					
<i>In foreign currency</i>	SRF 1SR 3/	SRF 2SR 4/	SRF 4SR 5/	IIP 1/	IIP 1/ 6/		IIP 1/	
Total								
<i>Total</i>								
<i>In domestic currency</i>						IAG /8		
<i>In foreign currency</i>	IIP 1/	IIP 1/	IIP 1/	IIP 1/	IIP 1/ 6/	IIP 1/		

Notes

- 1/ Short and long term, and a domestic/foreign currency breakdown, for debt claims and liabilities. Except for reserves, a foreign currency breakdown for these claims and liabilities is provided for US dollars, euro, yen and other currencies.
- 2/ For loans and debt securities a further breakdown by maturity (short and long both original and remaining maturity) is provided.
- 3/ Standardized Report Form (SRF) 1SR reported for the central bank provides data with domestic/foreign currency breakdown with no maturity breakdown.
- 4/ Standardized Report Form (SRF) 2SR reported for deposit-taking corporations provides data with domestic/foreign currency breakdown with no maturity breakdown.
- 5/ Standardized Report Form (SRF) 4SR reported for other financial corporations provides data with domestic/foreign currency breakdown with no maturity breakdown.
- 6/ Includes intercompany lending.
- 7/ The IIP and SRF data can only be compared at the total financial sector level as IIP includes money market funds in OFC, while SRF include them in depository corporations and not in OFC.
- 8/ Data may be available through the IAG templates on Sectoral Accounts.

IV. RECENT OUTREACH

A. G-20 DGI Consultations and Feedback Received

15. During the outreach activities as part of the G-20 DGI,⁷ IMF staff discussed with data compilers and users from the G-20 economies, international organizations and, as appropriate, with the private sector representatives, the importance of foreign currency exposures from data reporting and policy perspectives. The consultations revealed that the need for data on foreign currency exposures has become increasingly important, given the growth and complexity of cross-border financial linkages.

16. During the consultations, Table A9-I (in *BPM6*) was seen to be a significant improvement, as previously foreign currency data were not covered in the IMF's *Balance of Payments Manual*. Indeed, the table was considered a first step towards meeting the objective of capturing foreign currency exposures, and so could form a basis for an analysis of such exposures. But further information is needed. In particular, some interest was expressed for more information on hedging activities, particularly for countries where the shares of foreign-currency denominated external assets and liabilities are significant.

17. While Table A9-I covers derivatives positions, hedges can also arise from future receipt/payments of foreign currency through, say, merchandise transactions, while "natural hedges" may exist within multinational corporations. Designing datasets for monitoring such hedges is a major challenge and collection through ad-hoc national surveys was suggested. This work would likely only be achieved in the longer term.

18. Some countries underlined that further breakdowns of "other sectors" in Table A9-I would contribute to an analysis of the shadow banking sector while one country saw a need for information on the regional distribution of currency positions to better understand cross-border exposures.

19. The discussions with G-20 economies indicate that some countries could partially or less frequently disseminate the data in Table A9-I while others will consider reporting it as part of their implementation of the *BPM6* methodology. Other countries, while appreciating the usefulness, underlined the challenges (i.e., lack of data sources) and emphasized that the reporting of foreign currency data is a longer term goal.

⁷ The Regional Conferences were held in Ottawa/Canada (February 2015), Ankara/Turkey (March 2015), London/UK (April 2015) and Tokyo/Japan (June 2015) and hosted by the authorities of the respective countries. The Global Conference was held in Washington, D.C. in June 2015 hosted by the IMF and FSB.

B. Technical Assistance and Training

20. IMF staff has also been addressing gaps in relevant data and promoting data collection through TA missions to non-G-20 economies on external sector statistics drawing attention to Table A9-I. In addition, IMF staff has been publicizing the usefulness of these data, especially as part of the IMF's efforts to strengthen surveillance, including work on risks and spillovers, at workshops and other meetings, and has maintained a record of foreign currency external sector data disseminated by G-20 economies.

21. On training in external sector statistics, the IMF has included in the past within IIP presentations important references to Table A9-I. Starting in 2015, Balance of Payments and IIP courses included presentations on cross-border positions and foreign currency exposures. Moreover, STA is preparing a full two-week course on Cross Border Position Statistics to encourage compilation of these data. The first course will be delivered in the autumn of 2015.

22. Further, STA will promote the need for foreign currency data during its outreach on sectoral accounts and will continue to promote the use of SRFs for monetary statistics.⁸

V. PROPOSED WAY FORWARD

23. An important component of the work forward by the IMF will be carried out as part of the G-20 DGI. In the Phase II of the DGI⁹ it is proposed to make a more explicit reference to data on foreign currency exposures, particularly in three recommendations.

- The DGI Phase II recommendation on the “international investment position” includes a specific reference to the reporting of currency composition data consistent with *BPM6*. However, it is recognized that this work may have a long time horizon.¹⁰
- The DGI Phase II recommendation on the “cross border exposures of non-bank corporations” spells out the need for work to improve the consistency and dissemination of data on non-bank corporations' cross-border exposures, including foreign currency mismatches to better analyze the risks and vulnerabilities arising from such exposures. The relevance of this recommendation is reinforced by the

⁸ The domestic/foreign currency split is an integral part of the SRFs.

⁹ In 2015, the G-20 FMCBG asked the Staff of the IMF and FSB Secretariat to make a proposal for Phase II of the DGI.

¹⁰ As a result of consultations with G-20 economies and international organizations on the DGI Phase II proposals for the IIP, implementation challenges for reporting the currency composition of assets and liabilities, as well as the feasibility of separately identifying NFCs and reporting remaining maturity of debt instruments are to be discussed at the next meeting of the IMF's Committee on Balance of Payments Statistics in October, 2015.

recent increase in corporate foreign currency bond issuance through subsidiaries in offshore centers.

- The DGI Phase II recommendation on “securities statistics” proposes that the G-20 economies provide to the BIS data on debt securities issuance consistent with the *Handbook on Securities Statistics*, including a currency breakdown.

If proposals for DGI Phase II are endorsed by the G-20 FMCBG, the next step would include discussions with the national authorities in the first half of 2016 on an action plan for implementing the proposed recommendations. This would include potential timelines for delivery of information.

24. The IMF will continue to work with the G-20 economies in cooperation with the international organizations, to encourage countries to close the gaps in the reporting of foreign currency information within existing data initiatives.

Table 2. IMF Statistics Department Data Collection Forms**G-20 Reporters**

Data Collection Form	Economies Currently Reporting Foreign Currency Breakdown
External Sector	
–International Investment Position Statistics (IIP)- Table A9-I Currency Composition of Assets and Liabilities	Japan (1economy)
–Coordinated Portfolio Investment Survey (CPIS)- Table 2. Currency Breakdown of Portfolio Investment Assets	Brazil, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, South Africa, Turkey, and U.S. (13 economies)
–Quarterly External Debt Statistics (QEDS)-Table 2. Gross External Debt Position. Foreign Currency and Domestic Debt	Argentina, Germany, India, Korea, Mexico, Russia, South Africa, Turkey, and U.S. (9 economies)
–Reserves Data Template (RDT) ^{1/}	Argentina, Australia, Brazil, Canada, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, U.K. and U.S. (18 economies)
– Composition of Foreign Exchange Reserves Survey (COFER)	Data and list of reporters are confidential
Financial Sector ^{2/3/}	
–Standardized Report Forms (SRF)- Central Bank (1SR)	Australia, Brazil, Canada, France, Germany, Indonesia, Italy, Japan, Korea, Mexico, South Africa, Turkey, and U.S. (13 economies)
–Standardized Report Forms (SRF)- Other Depository Corporations (2SR)	Australia, Brazil, France, Germany, Indonesia, Italy, Japan, Korea, Mexico, South Africa, Turkey, and US. (12 economies)
–Standardized Report Forms (SRF)- Other Financial Corporations (4SR)	Australia, Brazil, Indonesia, Japan, Mexico, South Africa, Turkey, and U.S. (8 economies)
Government Finance Sector	
–Public Sector Debt Statistics (PSDS). Items in the report form: (a) Domestic currency denominated; (b) Foreign currency denominated ^{4/}	Australia, Brazil, France, Indonesia, Italy, Mexico, Russia, South Africa, Turkey, U.K. and U.S. (11 economies)
–Updated Government Finance Statistics (GFSY)- Table 6A	Brazil (1 economy)

^{1/} The Eurosystem reports a consolidated RDT that includes the ECB. The ECB also reports separately.

^{2/} Argentina, and Saudi Arabia provide partial currency breakdowns for some financial instruments using non- SRF report forms.

^{3/} The Eurosystem reports consolidated forms 1SR, 2SR, and 4SR that include the ECB.

^{4/} Canada reports the breakdown for Central Government and not for General Government.

Appendix. Table A9-I in *BPM6*

Assets (Market Value)

	Central Bank	General Government	Deposit-Taking Corporations, except the Central Bank	Other Sectors OFC/Other/Total ^{2/}	Intercompany Lending	Total
Total ^{3/}						
Domestic Currency						
Foreign Currency						
U.S. dollar						
Euro						
Yen						
Other currencies						
Unallocated ^{4/}						
Of which one year or less ^{5/}						
Domestic Currency						
Foreign Currency						
U.S. dollar						
Euro						
Yen						
Other currencies						
Unallocated ^{4/}						
Reserve Assets ^{6/}						
In SDR basket						
Not in SDR basket						

Financial Derivative Positions—To Receive Foreign Currency (Notional Value)

	Central Bank	General Government	Deposit Taking Corporations	Other sectors OFC/Other/Total ^{2/}	Intercompany Lending	Total
Receive Foreign Currency					n.a.	
U.S. dollar					n.a.	
Euro					n.a.	
Yen					n.a.	
Other currencies					n.a.	

Notes:

1/ Table A9-I is a memorandum item of the IIP statistical framework.

2/ OFC=other financial corporations. Other=nonfinancial corporations (except intercompany lending), households and NPISHs.

3/ Excluding reserve assets.

4/ Paragraph 5.107 in *BPM6* explains when currency data is shown as unallocated.

5/ Original maturity.

6/ Total reserve assets.

Appendix. Table A9-I in *BPM6* (concluded) ^{1/}**Liabilities (Market Value)**

	Central Bank	General Government	Deposit-Taking Corporations, except the Central Bank	Other Sectors OFC/Other/Total ^{2/}	Intercompany Lending	Total
Total ^{3/}						
Domestic Currency						
Foreign Currency						
U.S. dollar						
Euro						
Yen						
Other currencies						
Unallocated ^{4/}						
Of which one year or less ^{5/}						
Domestic Currency						
Foreign Currency						
U.S. dollar						
Euro						
Yen						
Other currencies						
Unallocated ^{4/}						

Financial Derivative Positions—To Pay Foreign Currency (Notional Value)

	Central Bank	General Government	Deposit Taking Corporations	Other Sectors OFC/Other/Total ^{2/}	Intercompany Lending	Total
Pay foreign currency					n.a.	
U.S. dollar					n.a.	
Euro					n.a.	
Yen					n.a.	
Other currencies					n.a.	

Notes:

1/ Table A9-I is a memorandum item of the IIP statistical framework.

2/ OFC=other financial corporations. Other=nonfinancial corporations (except intercompany lending), households and NPISHs.

3/ Excluding reserve assets.

4/ Paragraph 5.107 in *BPM6* explains when currency data is shown as unallocated.

5/ Original maturity.



BIS data as a tool to better understand FX exposures and currency mismatches

Basel, 25 August 2015

- The BIS datasets shed light on banks' FX exposures at the country level, though less so for corporates.
- Recent enhancement to the International Banking Statistics (IBS) focus on five areas: (i) domestic positions, (ii) funding, (iii) counterparties, (iv) more details along the nationality dimension and (v) an expanded currency breakdown. Despite these enhancements, some gaps necessarily remain, as off-balance sheet positions are still beyond the scope of the BIS datasets.
- The BIS statistics have provided useful insights to researchers studying banking and credit exposures in the global financial system.

1. The existing BIS statistics and data initiatives

The BIS maintains several datasets on international banking and debt issuance that provide information about foreign currency positions and mismatches at the aggregate country level. Foreign currency *positions* refers to banks' holdings of assets and liabilities in a particular currency. These datasets, as compiled by the BIS and described in this section, can only provide a partial picture of FX *exposures*, which would require, in addition, information about off balance sheet positions. Even after the recent enhancements to the BIS data, the picture of currency exposures remains incomplete, since the hedging of FX exposures through real activity or other financial instruments cannot be captured.

The Locational Banking Statistics (LBS) feature a detailed breakdown of reporting banks' international positions¹ into five major currencies (USD, EUR, JPY, GBP and CHF). Banks' positions are aggregated at the country level, according to the *location* of the reporting banking offices (banks record their positions on an unconsolidated basis). Using this currency breakdown, the BIS compiles exchange-rate adjusted changes in stocks to estimate quarterly bank capital flows.

In the Consolidated Banking Statistics (CBS), banks consolidate their inter-office positions and report only their exposures to unrelated borrowers. These exposures are classified according to the *nationality* of banks (ie according to the location of the reporting banks' headquarters). The data capture financial claims and risk transfers reported by domestically owned banks and their foreign affiliates. For claims reported on an *immediate counterparty basis*, the CBS allocate the exposure to the country of *residence*, and the sector, of the immediate counterparty. For claims reported on an *ultimate risk basis*, the CBS assign exposures according to the country and sector of the ultimate guarantor. Importantly, the CBS break out banks' foreign affiliates' locally-extended claims and local liabilities denominated in the

¹ International positions in the LBS refer to cross-border claims and liabilities as well as foreign currency claims and liabilities vis-à-vis residents of that country.

local currency of the host country, and thus provide additional (though still incomplete) information about their overall FX positions.

The BIS International Debt Securities Statistics (IDS) provide a breakdown both by the nationality and residence of the issuer along further dimensions including the type of instrument (bonds and notes versus money market instruments), the issuer's sector (financial versus non-financial corporations), the issue's currency and maturity. Nationality in this context refers to the ultimate obligor and it is linked to the consolidation of assets and liabilities for related entities. The BIS defines an international issue according to the residence of the borrower and the location of the primary market, ie the market where securities are issued for the first time. A security is hence considered *international* if it is issued by a non-resident in any market. This brings the data more in line with balance-of-payments statistics.

All three sets of statistics (LBS, CBS and IDS) are used in compiling the BIS Global Liquidity Indicators (GLIs) that track the ease of financing in global financial markets.² Graph 1 focuses on dollar-, euro- and yen-denominated credit, and distinguishes between credit to residents and non-residents of the country or region that issued each currency. Credit to non-residents, in turn, is broken down into bank loans or bonds (see Chapter V of BIS, 2015). At end-2014, about 80% of global non-financial dollar debt was incurred by US residents (Graph 1, upper left-hand panel). The remainder (\$9.5 trillion) accrued to borrowers outside the United States. This potentially introduces currency mismatches on these borrowers' balance sheets, unless this debt is hedged through real activity (such as US dollar earnings) or other financial instruments. Data on these hedging positions, however, are beyond the scope of the BIS datasets. As shown by year-on-year growth rates (Graph 1, right-hand panels), credit to non-residents exhibits much more volatile and pro-cyclical patterns than the domestic component of total dollar credit.

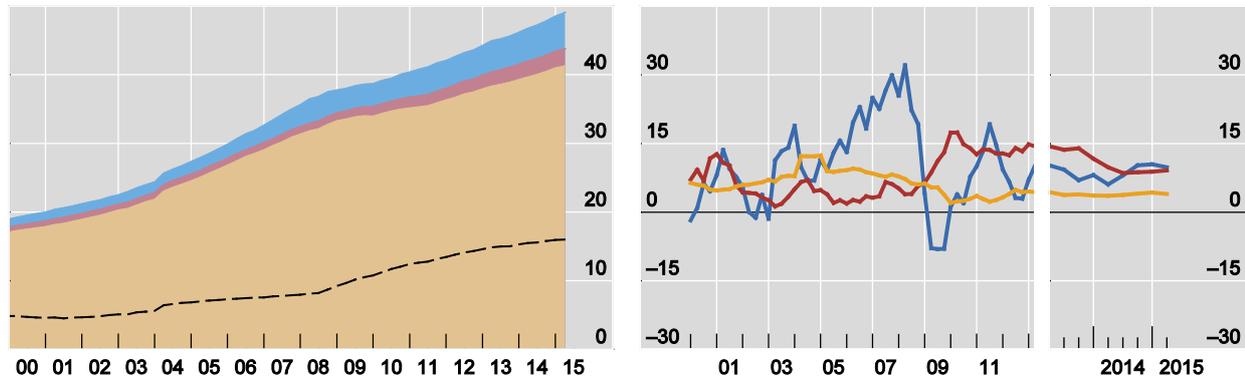
The BIS Triennial Central Bank Survey is the most comprehensive source of information on the size and structure of global foreign exchange and OTC derivatives markets. It complements the datasets discussed above. In the latest 2013 survey, central banks and other authorities from 53 jurisdictions collected data from about 1,300 banks and other dealers in their respective jurisdiction. Based on these national reports, the BIS calculated global aggregates. The next Triennial Survey of turnover in foreign exchange spot markets, as well as foreign exchange and interest rate OTC derivatives markets, will be conducted in April 2016. Data on the outstanding notional amounts and gross market values of foreign exchange, interest rate, equity, commodity, credit and other OTC derivatives contracts will be collected at end-June 2016 for markets worldwide.

² The BIS provides semi-annual updates on the GLIs. This data initiative constitutes part of the Bank's support for G20 activities and follows up on earlier work by the BIS and the Committee on the Global Financial System (CGFS). For more details see CGFS (2011) and Domanski et al (2011).

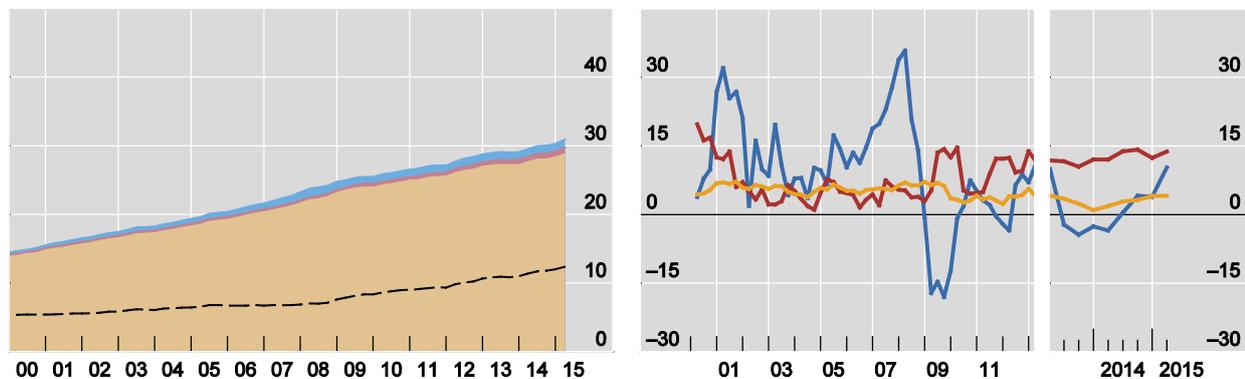
Stocks, in trillions of US dollars

Year-on-year growth, in per cent

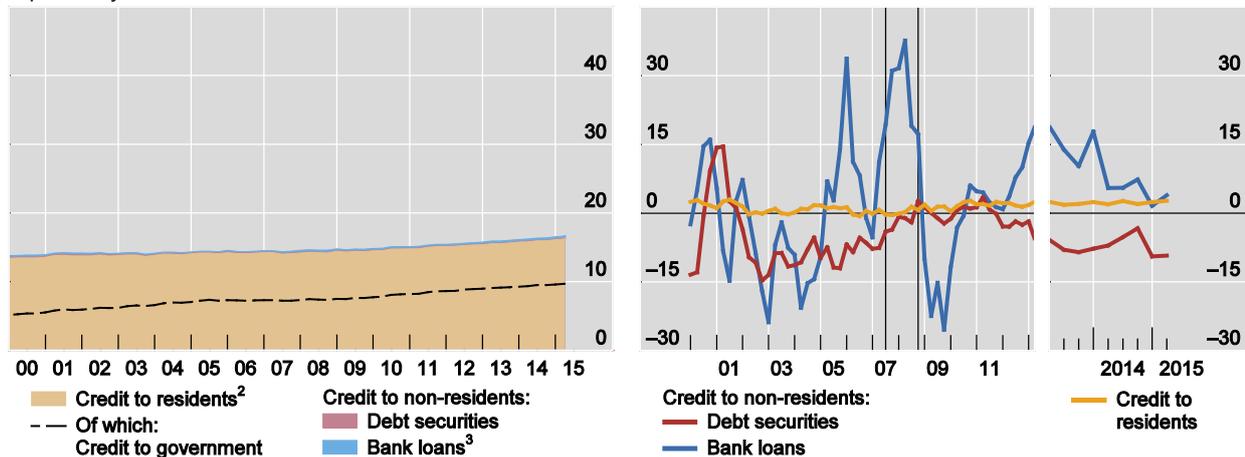
US dollar credit



Euro credit



Japanese yen credit¹



¹ At constant end-Q1 2015 exchange rates. ² Credit to the non-financial sector in the United States/euro area from financial accounts, excluding identified credit to borrowers in non-domestic currencies (ie cross-border and locally extended loans and outstanding international bonds in non-domestic currencies). ³ Cross-border and locally extended loans to non-banks outside the United States/euro area. For China and Hong Kong SAR, locally extended loans are derived from national data on total local lending in foreign currencies on the assumption that 80% are denominated in US dollars. For other non-BIS reporting countries, local US dollar/euro loans to non-banks are proxied by all BIS reporting banks' gross cross-border US dollar/euro loans to banks in the country, on the assumption that these funds are then extended to non-banks.

Sources: IMF, *International Financial Statistics*; Datastream; BIS international debt statistics and locational banking statistics by residence.

2. Enhancements to the BIS international banking statistics³

Identifying the gaps

The global financial crisis revealed some of the limitations in the BIS International Banking Statistics (IBS, comprising the LBS and CBS). To track currency mismatches on banking systems' balance sheets, data about their asset and liability positions broken down by currency, instrument and maturity would be ideal. While the IBS fall short of this ideal, they did shed some light on the sources and uses of particular currencies on banks' balance sheets ahead of the crisis, in particular the US dollar positions of European banks. For instance, McGuire and von Peter (2009) as well as Baba et al (2009) used the IBS to estimate the size of funding mismatches when short-term USD funding sources dried up in 2008 (also see Borio, 2013). Nevertheless, the granularity available in the IBS were insufficient to support a more comprehensive analysis.

Specifically, the global financial crisis highlighted the following data gaps. First, as illustrated by Table 1⁴, the CBS lacked information about the *currency* and *instrument* of banks' positions, which is essential for assessing vulnerabilities at the consolidated entity level. Second, the *counterparty sector* breakdown (bank, official sector and non-bank private sector) was too coarse to permit a more sophisticated analysis of banks' exposures to particular parts of the non-bank private sector. In particular, a distinction between lending to non-bank financials and households could have been insightful as the mortgage business of foreign banks in many countries prospered during the 2000s. Similarly, over this period, banks' exposures to non-bank financial entities like special purpose vehicles, securities brokers, hedge funds and other non-bank financials ballooned. Finally, the data did not include banks' *domestic positions*, generally a substantial part of their balance sheets.

Table 1 shows that, while the *LBS by residence* featured crossings of the currency denomination, instrument and the residence of the borrower, these were not crossed with the nationality of the reporting bank. By contrast, the *LBS by nationality* did cross the currency with the nationality of the lending bank, but did not have crossings with the residence of the borrower or the instrument. While the data yielded estimates of banks' funding needs in key currencies, they could not provide a comprehensive picture of their maturity mismatch in specific currencies, or of their use of foreign exchange swaps or other currency derivatives.

³ This section draws on a more detailed description of the IBS Enhancements presented in Avdjiev et al (2015) and Avdjiev et al (forthcoming).

⁴ This table is taken from Avdjiev et al (forthcoming).

Breakdowns simultaneously reported in the BIS International Banking Statistics

Table 1

	Residence of reporting bank	Nationality of reporting bank	Residence of counterparty	Currency of denomination	Instrument
Consolidated banking statistics	No	Yes	Yes	No ¹	No
Locational banking statistics					
Data by residence	Yes	No	Yes	Yes	Yes
Historical data by nationality ²	Yes	Yes	No	Yes	No
Enhanced data by nationality ³	Yes	Yes	Yes	Yes	No

¹ Except local positions of foreign affiliates denominated in local currencies. ² Reported prior to end-June 2012. ³ Reported since end-June 2012.

Reducing the gaps

To address some of shortcomings of these data, in 2011–12 the Committee on the Global Financial System (CGFS) approved a set of enhancements to the IBS, in five areas (see CGFS 2012). Appendix A summarises these recent enhancements.

First, the enhancements broaden the scope of the statistics to banks' *domestic* positions, not just their international activities. This gives a more complete picture of their balance sheets. In the LBS, banks are now asked to report their local positions – positions against residents of the country where they are located – in local currency, to complement the existing data on local positions in foreign currencies. In the CBS, since end-2013 banks have reported their worldwide consolidated claims on residents of their home country – the country where the bank's controlling parent is headquartered.

Second, in the CBS, data for the *liability side* of banks' consolidated balance sheet were introduced. Previously very little liability information was collected in the CBS: only the locally-extended liabilities of banks' foreign affiliates, and only those denominated in local currency. Since end-2013, banks have reported their total liabilities on a consolidated basis, with a breakdown by instrument.⁵ They also report their total equity, selected capital measures, and total assets (comprising financial and non-financial assets).

Third, in both the LBS and the CBS, the sectoral breakdown of *counterparties* was expanded. The main improvement was to distinguish between non-bank financial counterparties and non-financial counterparties; previously the two sectors were reported as non-bank entities.⁶ Banks are also asked to distinguish between different non-financial counterparties: non-financial corporations, households and governments. However, the reporting of this latter breakdown is encouraged, not required, and thus remains incomplete. In the LBS, the breakdown of counterparties classified as banks was also improved. Since end-2013, banks have reported

⁵ Liabilities in the CBS are not reported with a breakdown by country of the counterparty, but such a breakdown is reported for liabilities in the LBS on an unconsolidated basis.

⁶ In the CBS, non-bank financial counterparties were previously reported together with non-financial corporations and households in the non-bank private sector. The government sector has always been reported separately in the CBS, as part of the official sector together with the central bank.

different types of bank counterparties – related banking offices (or intragroup affiliates), unrelated banks and central banks – by residence of the counterparty.⁷

Fourth, the LBS were refined to provide more granular information along the *nationality* of the reporting bank. In particular, since end-June 2012, four dimensions of data have been jointly reported: the residence and nationality of the reporting bank, the residence of the counterparty, and the currency in which positions are denominated. Previously, no more than three of the four dimensions were jointly reported in either the CBS or LBS (Table 1).

Finally, as part of the enhancements of the LBS, reporting banks are now encouraged to provide an *expanded currency breakdown*.⁸

Some gaps necessarily remain. Off-balance sheet positions are still beyond the scope of the enhanced BIS statistics. As noted above, hedging positions through real activity or other financial instruments cannot be captured.

The enhancements as shown in Annex A have been implemented in two stages. The first stage focused on the LBS and involved the BIS gathering data already collected by many central banks from their reporting institutions. These data were first reported to the BIS for the end-June 2012 reference period, although some central banks started later. The second stage applied to the CBS and LBS and involved the collection of additional data from reporting institutions. These data were first reported to the BIS for the end-December 2013 reference period, although in this case as well some central banks started later.

Dissemination of the enhanced IBS follows a phased approach. The BIS first releases data to reporting central banks and later – data quality, completeness and confidentiality permitting – to the general public. As part of the second stage of the enhancements, reporting central banks were asked to review their confidentiality classifications with a view to making data more widely available. On the basis of this review, enhanced data involving both stages will start to be disseminated to the general public in September 2015.

3. Research that makes use of BIS data to analyse currency positions

Alongside BIS economists, researchers from academia, central banks and other policy institutions have made extensive use of the BIS data. The following offers a small selection that relates to the currency dimension offered by the BIS datasets.

- McCauley and Chan (2014) show that the US dollar's share in global FX reserves tracks the share of the dollar zone in global output. They also

⁷ Previously different types of bank counterparties were reported in the LBS by nationality, without information about the residence of the counterparty.

⁸ The other changes relate to the type of bank affiliate, quality improvements, and methodology. To complement the LBS by nationality of reporting bank, data by type of bank – branch or subsidiary – are also reported, although without a detailed counterparty country breakdown of cross-border positions. In addition, the quality of the data was improved through closer alignment of reporting practices with the guidelines. For example, authorities in some reporting countries refined sectoral or other classifications. Such methodological changes sometimes led to significant changes in reported outstanding positions. Finally, the enhancements prompted the BIS to revisit the way in which some aggregates were calculated or presented, resulting in changes to previously published data.

find a strong link between this dollar zone share and the dollar share of cross-border bank loans to domestic residents (based on the LBS) on the one hand, and the dollar share of outstanding issues of international debt securities by residents (based on IDS) on the other.

- Against the background of low interest rates and compressed term premia, Chui et al (2014) point out that EME corporate balance sheets have become more susceptible to shocks given their increased levels of leverage and overseas borrowing (based on IDS and CBS). In response to exchange rate and interest rate shocks, the authors show that stress on the corporate balance sheet might impose losses on corporate debt holdings of global asset managers, banks and other financial institutions while triggering powerful detrimental feedback loops (based on CBS).
- McCauley et al (2015) examine how US monetary policy, leverage and bond fund inflows affect dollar credit that is extended to non-US borrowers. Their empirical analysis combines data from the LBS and IDS to approximate overall credit to non-banks outside the United States. Related to the pre-crisis period, they find that low funding rates and low-cost leverage drove bank credit to non-US borrowers denominated in US dollar. After 2008, however the balance of dollar credit transmission has shifted from global banks to global bond investors in response to compressed long-term rates.
- Using a panel of 46 countries from the BIS locational banking statistics, Bruno and Shin (2015) find empirical support for a particular type of "risk-taking channel" that links a local currency appreciation to the build-up of leverage in the banking sector.
- Avdjiev and Takats (2015) exploit the first stage of enhancements to the Locational Banking Statistics to describe a currency network in cross-border bank lending. This mapping of Avdjiev and Takats (2015) suggests that the borrower country as the destination of cross-border bank lending is more likely to determine the currency composition of capital flows relative to the lender country. Their analysis of the taper tantrum shock reveals that a higher US dollar share in outstanding claims could stabilize lending in advanced economies, whereas emerging market economies experience sharper drops in cross-border lending to them when being more exposed to dollar funding.

The **IBS** have also informed the empirical analyses of top-level academic research outside the BIS⁹ (eg Aviat and Coeurdacier, 2007; Buch et al, 2010; Cetorelli and Goldberg 2011; Houston et al, 2011; Lane and Shambaugh 2010; Ongena et al, 2013), as well as by policymakers (eg Bernanke et al, 2011; Haldane, 2009) and market participants (eg Deutsche Bank, 2010).

⁹ Especially Buch et al (2010), Lane and Shambaugh (2010) and Bernanke et al (2011) focus on the FX exposures and mismatches.

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Appendix A

Enhancements to the BIS International Banking Statistics

New data are indicated in red¹

Table 1

Locational Banking Statistics		Consolidated Banking Statistics	
		Immediate counterparty basis	Ultimate risk basis
Reporting countries ²	44	31	25
Business reported	Financial assets (claims) and liabilities	Financial assets (claims), total assets, and liabilities, capital , risk transfers	Financial assets, other potential exposures
Currency breakdown	Local, USD, EUR, JPY, GBP, CHF, others (optional)	For local positions in local currency: >160	not reported
Maturity categories	For liabilities: debt securities (of which: ≤1 year)	For international claims: ≤1 year, 1–2 years, >2 years For liabilities: ≤1 year, >1 year	not reported
Instrument breakdown	For all bank nationalities combined: Loans and deposits, debt securities, other instruments	For assets: claims, total assets, risk-weighted assets For liabilities ³ : deposits, debt securities, derivatives, other liabilities For capital: total equity, Tier 1 capital	For other potential exposures: derivatives, credit commitments, guarantees extended
Counterparty countries	For all bank nationalities combined: >200 (incl reporting country) For individual bank nationalities: ≥76 (incl reporting country)	>200 (incl reporting country)	
Counterparty sectors	Banks ⁴ (of which: intragroup, central banks), non-banks ⁵ , non-bank financial institutions, non-financial sector (general government, non-financial corporations, households)	Official sector (incl central banks), banks (excl central banks), non-bank private sector, non-bank financial institutions, non-financial private sector (non-financial corporations, households)	

¹ Implementation of the enhancements was phased in over several years, starting from end-June 2012 for the LBS and end-2013 for the CBS, and at a different pace by each reporting authority. Consequently, the new data are incomplete in the initial periods and improving over time. ² For a list of reporting countries and the date when their data were first included in the IBS, see the BIS website (www.bis.org/statistics/rep_countries.htm). ³ The instrument breakdown applies to total (ie domestic plus international) liabilities. ⁴ Prior to end-2013, reported for LBS by nationality only. ⁵ Prior to end-2013, reported for LBS by residence only.

Sources: BIS (2013).