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

2. Enhancements to the BIS international banking statistics[3]

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 1[4], 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 BIS[9] (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 red[1] 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).