

Online statistical annex: combining IBS and CLS data

This annex describes how data from CLS (CLSMarketData) and the BIS international banking statistics (IBS) are combined and used in “Bank positions in FX swaps: insights from CLS” in the September 2023 BIS *Quarterly Review*.

Estimating banks’ on-balance sheet net currency positions (IBS data)

The IBS yields estimates of banks’ net on-balance sheet position in specific currencies, ie “currency gaps” (liabilities minus assets). The IBS comprises the locational banking statistics (LBS) and the consolidated banking statistics (CBS). These can be used in combination to reconstruct the aggregated balance sheet of the internationally active banks from a particular parent country in a specific location (eg US banks in the United Kingdom). In principle, banks’ globally consolidated net position in a specific currency can be measured directly as the difference between total assets and liabilities denominated in that currency reported by all offices worldwide. In practice, because of data limitations, such direct measurement can be inaccurate.

Data limitations include the following. First, not all LBS reporting countries provide full data for banks’ cross-border *and* local positions in a particular currency.¹ Second, there is inconsistent reporting of liabilities instruments across CBS reporting countries. Finally, banks have offices in countries that do not report the LBS.

Given these limitations, we estimate the “gap” for currency X, where X is US dollar, euro or Japanese yen, for each consolidated banking system (ie US, euro area and Japanese banks) as the sum of:

(a) Net position in currency X reported by banks’ offices located outside the country/region that issues currency X (but in an LBS reporting country). Examples are banks’ euro positions booked in offices in the United Kingdom or in Japan, and banks’ dollar positions booked in offices in the euro area or in Japan.

(b) Minus one times the net position in *non-X* currencies booked by offices located inside the currency X-issuing country/region. This measure is *indirect* for data quality reasons.² As an example, banks’ net euro position in offices in the euro area are measured as the net position in *non-euro* currencies (multiplied by minus one). Banks’ net dollar positions booked in offices in the United States are measured analogously.³

(c) Minus one times net local claims in local currencies (as reported in the CBS) in countries that do not report the LBS. This is included only in the estimate of banks’ net position in their home currency (eg US banks’ US dollar position)

¹ For example, China, India, Japan, Panama, Turkey, Singapore and the United States do not report in full banks’ local positions vis-à-vis residents for all parent bank nationalities.

² Reporting of banks’ book equity and non-deposit liabilities is inconsistent across reporting countries. This creates gaps in the observable overall balance sheet position for banks of a specific nationality in a specific location (eg euro area banks in the United States). The missing liabilities tend to be denominated in the domestic currency of the country where the reporting bank is located.

³ Banks’ local non-US dollar positions vis-à-vis residents of the United States are not measured and are assumed to be negligible.

Combining CLS and IBS data

Graph OA1 depicts how the IBS and CLS data fit together. The red lines depict banks' estimated on-balance sheet currency gaps (from the IBS). Banks' overall net position in CLS FX swaps in a specific currency (solid blue line) can be split into *interbank CLS FX swaps* (dotted blue lines) and CLS FX swaps with non-banks (dash/dot blue lines). Using the assumption that banks do not have "large" unhedged currency positions, the shaded areas show the implied net position in other FX derivatives that is consistent with an overall (ie on- and off-balance sheet) balanced currency position (red line minus the solid blue line).

In a number of cases, banks' estimated on-balance sheet currency gap roughly matches (components of) net CLS FX swaps (Graph A2). US banks' estimated dollar gap (Graph A2.A, red line) is similar in magnitude to net CLS FX swaps with non-banks prior to 2016 (dash-dot blue line), and to overall net CLS FX swaps (solid blue line) after 2016. Similarly, euro area banks' euro gap (Graph A2.E) roughly tracks either net CLS interbank FX swaps or overall net CLS FX swaps. Finally, euro area banks' dollar gap (Graph A2.D), and US and euro area banks' yen gaps (Graph A2.C and A2.F) roughly track overall net CLS FX swaps involving those currencies.

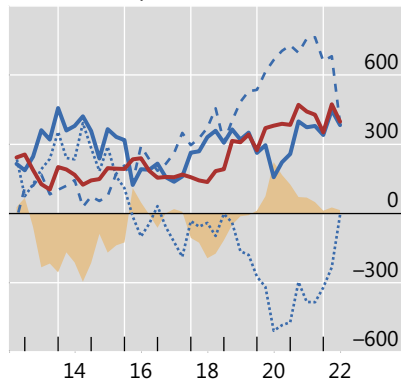
Banks' on- and off-balance sheet net positions in selected currencies¹

In billions of US dollars; positive value indicates net off-balance sheet *lending* of the currency

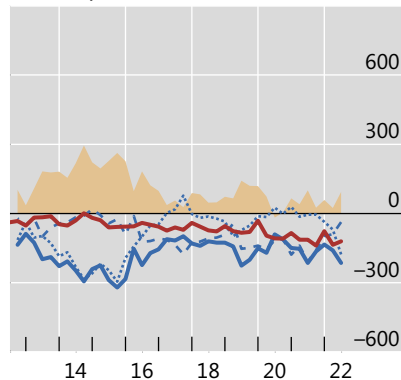
Graph OA.1

US banks

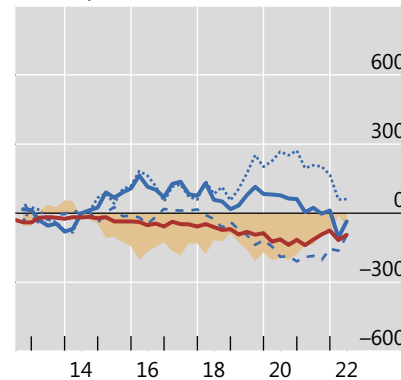
A. US dollar positions



B. Euro positions

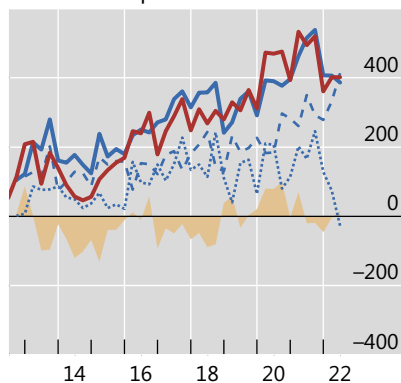


C. Yen positions

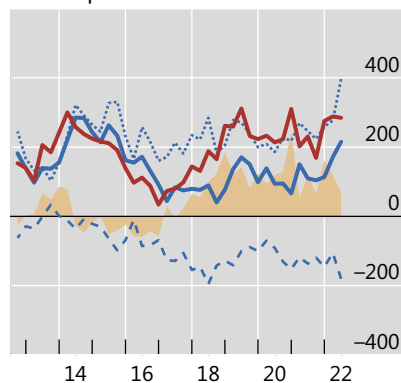


Euro area banks

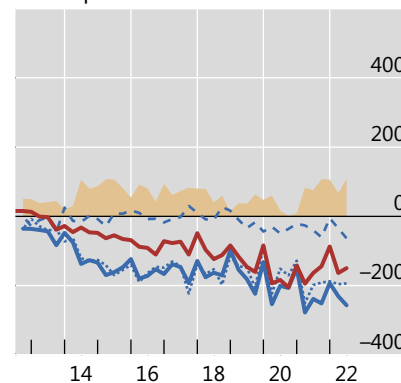
D. US dollar positions



E. Euro positions

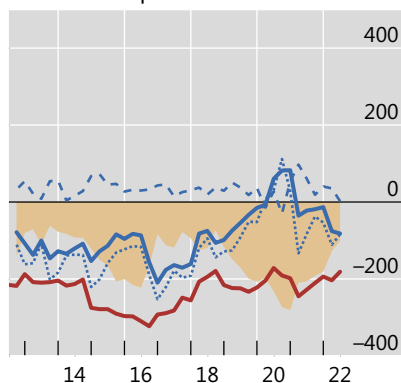


F. Yen positions

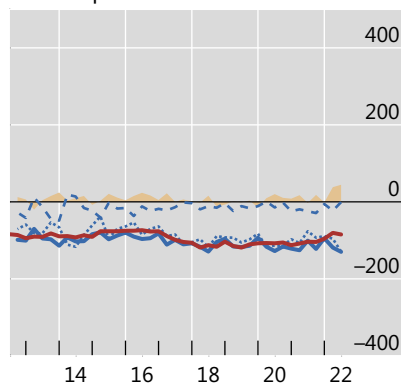


Japanese banks

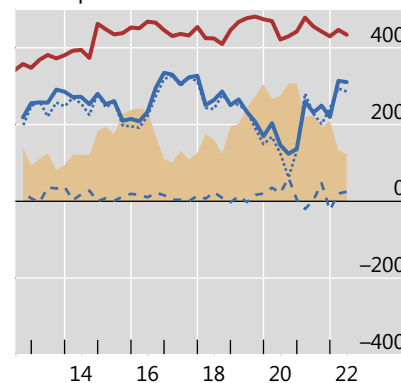
G. US dollar positions



H. Euro positions



I. Yen positions



CLS-settled FX swaps:¹

— Total Interbank - - - Non-banks

— Net on-balance sheet position²

■ Implied non-CLS position³

¹ Banks' net positions in FX swaps with the currency in the column title on one side that are settled via CLS. ² Banks' estimated on-balance sheet net position (liabilities minus assets). ³ The implied net position in FX derivatives that is consistent with an overall balanced position

Sources: CLS; BIS international banking statistics; authors' calculations.