FINANCIAL SECTOR CURRENCY EXPOSURES AND INTERNATIONAL SHOCK TRANSMISSION

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Abstract

The currency composition of external balance sheets is central to the international transmission of shocks. Yet, existing data do not systematically identify currency positions by sector and instrument. We address this gap by constructing a new dataset of external assets and liabilities for banks and NBFIs, disaggregated by currency and instrument. Using preliminary data for eight euro-area countries and the United States over the 2013Q4–2024Q4 period, we document a pronounced *sectoral divide*. NBFIs tend to have sizable on-balance-sheet net open positions (NOPs) in both domestic and foreign currencies. By contrast, banks tend to have a much greater alignment between the currency composition of their external assets and liabilities. NBFIs in core euro area countries are long in both, domestic and foreign currencies. Their foreign currency NOPs are primarily driven by portfolio equity, whereas their domestic currency NOPs are mainly due to portfolio debt. NBFIs in the US and in euro area international financial centres are short in their domestic currency and long in foreign currencies. Our novel dataset opens new avenues for investigating the changing nature of international financial intermediation, the transmission of global financial shocks, and international risk sharing. The new dataset will eventually cover a broad set of major jurisdictions, accounting for approximately 90% of global financial assets.

JEL codes: F31, F32, F36, G15, G23
Keywords: nonbank financial intermediation; international balance sheets; currency exposure; global dollar system; external adjustment.

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1 Introduction

Non-bank financial institutions (NBFIs) have taken a larger role in international finance in the past two decades (Bank for International Settlements, 2025). They behave differently from banks along a number dimensions, including their portfolio allocations, how they respond to and transmit shocks, and their currency exposures and hedging behaviors. Thus, as NBFIs have grown, so has their importance for a country's currency exposures, FX market activity and exchange rate dynamics. However, our understanding of the currency exposures of this sector in external balance sheets is incomplete. Existing research examines subsets of NBFIs or instruments (Du and Huber, 2026), or estimates currency exposures for the country as a whole (Lane and Shambaugh, 2010; Bénétrix et al., 2015, 2019; Allen and Juvenal, 2025).

The absence of a comprehensive dataset on external currency exposures by sector limits our ability to address fundamental questions relevant for international finance and financial stability. Do different sectors and instruments generate systematically different responses to global financial shocks? Can sectors have opposing currency exposures that cancel in national aggregates, but nevertheless generate substantial demands for liquidity, hedging or portfolio rebalancing? Has the growing international footprint of non-bank finance shifted net dollar positions from banks to NBFIs? Answering these questions requires a dataset with the currency composition of the external balance sheet of each sector.

This paper bridges the above gaps by constructing a database of currency-specific external asset and liability positions for NBFIs and banks in each country. It builds on the currency exposure framework of Lane and Shambaugh (2010) while introducing a sectoral split and a currency–instrument decomposition. In the present nine-country preliminary dataset, the distinction is large: in all eight euro-area countries NBFIs are net long dollars, whereas banks are much closer to balanced dollar positions. The United States provides a contrasting case, in which both (bank and NBFI) sectors are net short dollars, while NBFIs are long euro and other foreign currencies. This suggests that focusing solely on banks, as most the existing literature has done, is likely to miss a major part of the financial system's open currency exposures.

Portfolio equity positions drive much of the long dollar positions of the euro area countries. For most, they account for at least half of the long-dollar positions. For some, this ratio is closer to 90%. US NBFIs' long-euro positions are likewise driven by equities.

These preliminary findings have important implications for global financial stability. Specifically, the substantial NOPs of NBFIs, which are typically subject to less stringent regulations and oversight compared to banks, could generate a number of financial stability risks and vulnerabilities. Sudden exchange rate movements could result in substantial losses on their balance sheets, which could in turn trigger second-round

effects, especially if the respective NBFIs rely on high leverage or flighty short-term funding. Further, NBFIs' long foreign currency positions can generate demand for FX swaps to hedge the exchange rate risk of their foreign currency assets. While this would alleviate some of the exchange rate risks, it could expose those NBFIs to substantial rollover risks, given the short term nature of the FX market (Bank for International Settlements, 2025; Hernández de Cos, 2025).

The remainder of this paper is organized as follows: Section 2 reviews the existing literature, Section 3 explains our data construction, Section 4 describes the accounting framework used to calculate the external currency exposures for each sector, Section 5 describes key patterns in the data, Section 6 presents research questions that our forthcoming analysis will address, and Section 7 summarizes the expected contribution of the completed paper.

2 Contribution to the literature

Our contribution builds on two strands of international macro-finance research. Lane and Shambaugh (2010) establish the importance of currency composition for aggregate external balance sheets and international risk sharing, while Maggiori et al. (2020) document the central role of currency denomination in cross-border debt portfolios. These contributions show how currencies shape international financial positions, but do not identify how external currency exposures are distributed between NBFIs and banks across different instruments.

A growing literature examines specific investor groups, asset classes and FX hedging activities. Du and Huber (2026) document international institutional investors' dollar holdings and hedging practices, while Kubitza et al. (2025) show how FX hedging costs and rollover risk affect demand for dollar bonds. Related work investigates off-balance-sheet dollar obligations (Borio et al., 2022) and substitution between bank and nonbank lending following monetary tightening (Elliott et al., 2024). Together, these studies highlight the importance of institutional heterogeneity, portfolio composition and FX intermediation for the transmission of global shocks.

Our distinctive contribution is a harmonized, residence-based dataset that reconstructs *both external assets and liabilities* jointly by sector, currency and instrument, measuring NBFIs and banks on a comparable basis. This allows us to identify whether sectoral differences in net currency positions originate in asset holdings or liability denomination, distinguish debt from equity exposures, and assess their scale relative to domestic GDP. The instrument distinction is particularly relevant for currency hedging: dollar bonds are generally hedged more extensively than equities, so similar net dollar positions need not imply comparable hedging demand or rollover vulnerability. While our data do not observe derivatives, they provide the underlying balance-sheet positions

needed to investigate these mechanisms using complementary hedging information.

3 A new sector–currency–instrument dataset

We construct a cross-country data set for external assets and liabilities of NBFIs and banks denominated in US dollars, euros and other currencies across three different instrument groups: portfolio debt, portfolio equity and other instruments. NBFIs comprise investment funds, other financial intermediaries, insurers and pension funds while banks are deposit-taking corporations excluding central banks. The dataset is constructed following the residence principle and it is expected to cover the period from 2013q4 to 2025q4. We organize the data construction and sample expansion into two tiers.

Tier 1 comprises the nine countries examined in this preliminary paper version: eight euro-area countries (Belgium, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, and Spain) covered by the ECB's Securities Holdings Statistics by Sector (SHSS) and the United States, using Treasury International Capital (TIC) data. Sector-specific cross-border portfolio debt and equity assets are already available for these countries. These datasets provide detailed currency information directly for the securities holdings of these sectors. These countries are also BIS reporting countries, and so have the full completement of currency exposure positions from the bank side.

Tier 2 extends coverage to additional jurisdictions represented in the Financial Stability Board's global nonbank financial intermediation monitoring exercise. Inclusion depends on the availability of sectoral totals and the data needed to reconstruct portfolio-asset currency weights using the IMF's Portfolio Investment Positions by Counterpart Economy (PIP) and BIS statistics. The ongoing expansion targets the *widest feasible subset* of this monitoring universe comprising 29 jurisdictions.

The two groups of countries are thus distinguished in their data construction primarily by the portfolio-asset data sources; liability-side data and residual-instrument methods (described below) apply across both tiers.

Portfolio debt. For Tier 1 countries, we calculate NBFI asset currency weights from foreign debt-security holdings in SHSS and TIC, aggregating the relevant NBFI subsectors. For Tier 2, we subtract resident banks' cross-border debt-security holdings reported in LBS from the corresponding all-sector PIP holdings currency by currency. This residual serves as a proxy for NBFIs.[1] For NBFI liabilities in both tiers, we calculate currency weights from outstanding IDS issued by resident NBFIs and apply them to sectoral IIP portfolio debt liabilities.[2]

[1] We assess this proxy in SHSS countries by comparing estimated and directly observed NBFI currency weights. We investigate coverage mismatches and negative residuals before calculating weights.

[2] IDS can include securities held by residents and omit domestic-market securities held by nonresi-

Portfolio equity. Following the related literature on international currency exposures, we assign portfolio equity positions to the currency of the issuing jurisdiction (Lane and Shambaugh, 2010; Bénétrix et al., 2015, 2019; Allen and Juvenal, 2025).[3] For assets, we derive currency weights from SHSS and TIC holdings by resident sector and issuer location for Tier 1 countries, and from bilateral PIP holdings for Tier 2. Holdings of US issuers are assigned to dollars, euro-area issuers to euros, and all remaining issuers to the other currencies category. We use NBFI-specific holdings where available and explicitly identify estimates based on broader holder aggregates. On the liability side, we assign NBFIs' externally held portfolio equity to domestic currency, using sectoral IIP totals.[4] These allocations provide a consistent currency attribution for equity positions.

Other instruments. The remaining components come from the other investment category in the IIP data. We allocate these positions by currency using the currency composition of NBFIs' cross-border deposits in BIS reporting banks (as NBFI assets) and cross-border loans to NBFIs by BIS reporting banks (as NBFI liabilities). The BIS LBS data identify these loans and deposits through reporting banks' cross-border positions vis-a-vis NBFIs in specific counterparty countries. We aggregate these positions across reporting bank locations for NBFIs in a given counterparty country to obtain the currency shares for this category.

Foreign direct investment. Foreign direct investment (FDI) does not have any sectoral or currency breakdown available in any dataset. We generally exclude FDI from our analysis. However, the next iteration of our data construction will use FDI positions in relation to offshore bond issuance (Aldasoro et al., 2026).

Consider for example a Brazilian non-financial corporate firm issuing dollar bonds from its SPV in the Cayman Islands, the proceeds of which are sent back to headquarters. In this case, the Cayman Islands would record a dollar liability position for NBFI portfolio debt and an FDI debt asset position (no currency or sector), while Brazil would record an FDI debt liability position (no currency or sector). This would overstate the net dollar exposure of NBFIs in the Cayman islands (missing the dollar outflow via FDI) and understate the net dollar exposure of non-financial corporates in Brazil (missing the dollar inflow via FDI).

We will use the BIS IDS to correct for this. This data allows us to see simultaneously the residence and sector of the bond issuer, the nationality and sector of the ultimate parent, and the currency of the bond. With this detail, we can show how net currency

dents. Their currency composition therefore serves as a proxy for that of external portfolio debt liabilities.

[3] While equity securities do not have a currency obligation to repay as a borrower, as an asset they implicitly pay out (ie dividends are paid, contracts are settled) in a specific currency, typically the domestic currency of the firm or the listing exchange. Using the SHSS data, we confirm that geography is an excellent proxy for the currency denomination of equity securities.

[4] We will examine investment-fund shares separately in sensitivity analysis because their denomination can differ from the currency composition of their underlying portfolios.

positions by different sectors would look different if we assume the full amount of the bond is transferred back to headquarters. Our accounting will remain residence based, but information about the nationality of the issuer allows us to capture currency positions that would otherwise be obscured by the FDI category.

Banks. Banks follow the same IIP-based framework as we used for NBFIs, but their computation is more straightforward since we can obtain most of the needed data directly from the BIS LBS data. Currency shares for cross-border debt securities and loans and deposits, both for assets and liabilities, are taken directly from the BIS LBS for BIS reporting countries. We use SHSS holdings and IDS issuance to provide checks on the currency composition of bank debt securities positions. Equity assets and liabilities follow the issuer's domestic-currency convention. Bank equity assets are assigned to the domestic currency of the foreign issuer, while equity liabilities are assigned to the bank's domestic currency. Sources are aligned by residence, sector, instrument, date and valuation. Each allocation records whether its shares are directly observed or estimated from residuals, geography, mirror positions or issuance. Reconciliation with IIP benchmarks and validation against Tier 1 holdings provide a common basis for comparing NBFI and bank currency positions.

4 Accounting framework

Our accounting framework separates a sector's overall net external position from its currency composition. Banks and NBFIs may hold net assets in one currency and net liabilities in another, so an aggregate position close to zero can conceal substantial offsetting currency positions. We express each component relative to the sector's gross external balance sheet, allowing currency and instrument contributions to be compared on a common scale and summed to recover the overall position.

Suppressing i and t for readability, define $A_{s,c} = \sum_k A_{skc}$, $L_{s,c} = \sum_k L_{skc}$, $A_s = \sum_c A_{s,c}$ and $L_s = \sum_c L_{s,c}$, where A are cross-border assets, L liabilities and s, k and c the sector, instrument and currency, respectively. Let $B_s = A_s + L_s$ be the gross external balance sheet. Following the normalisation of Lane and Shambaugh (2010), a sector's net external position in currency c is

$$FX_{s,c} = \frac{A_{s,c} - L_{s,c}}{B_s} = \omega^A_{s,c}\frac{A_s}{B_s} - \omega^L_{s,c}\frac{L_s}{B_s}, \tag{1}$$

where $\omega^A_{s,c} = A_{s,c}/A_s$ and $\omega^L_{s,c} = L_{s,c}/L_s$ denote the currency weights of sector s for assets and liabilities, respectively. Positive values indicate net external assets in that

currency. Our three headline currency positions satisfy

$$\sum_{c\in\{USD,EUR,OTH\}} FX_{s,c} = nfa_s, \qquad nfa_s \equiv \frac{A_s - L_s}{B_s}. \tag{2}$$

The exact instrument contribution is $fx_{s,k,c} = (A_{skc} - L_{skc})/B_s$, so that $FX_{s,c} = \sum_k fx_{s,k,c}$. Defining the instrument-specific contribution to the sector's overall net external position as $nfa_{s,k} = \sum_c fx_{s,k,c}$, Table 1 illustrates how these measures fit together.

Table 1: Decomposition of net external positions

Instrument	USD	EUR	OTH	Total
PD	$fx_{s,PD,USD}$	$fx_{s,PD,EUR}$	$fx_{s,PD,OTH}$	$nfa_{s,PD}$
PEQ	$fx_{s,PEQ,USD}$	$fx_{s,PEQ,EUR}$	$fx_{s,PEQ,OTH}$	$nfa_{s,PEQ}$
OD	$fx_{s,OD,USD}$	$fx_{s,OD,EUR}$	$fx_{s,OD,OTH}$	$nfa_{s,OD}$
Total	$FX_{s,USD}$	$FX_{s,EUR}$	$FX_{s,OTH}$	nfa_s

Notes: Each cell is the net external position of resident sector s in instrument k and currency c, divided by the sector's total gross external position $B_s = A_s + L_s$. PD denotes portfolio debt, PEQ portfolio equity, and OD other instruments; OTH groups currencies other than USD and EUR. Summing down a currency column yields $FX_{s,c}$; summing across an instrument row yields $nfa_{s,k}$. Both the last row and the last column sum to the sector's normalised net external asset position nfa_s.

The common denominator B_s ensures that instrument contributions are additive: each currency column sums to the sector's net exposure in that currency, while each instrument row sums to the same instrument's contribution to overall net foreign assets. The lower-right entry therefore reconciles the two decompositions. In addition, for any focal currency c,

$$FX_{s,c} = nfa_s + \sum_k \sum_{d\neq c} \frac{L_{skd} - A_{skd}}{B_s}. \tag{3}$$

Equation (3) separates the overall external debtor/creditor position from offsetting positions in other currencies. For the USD it can distinguish, for instance, a long-dollar/short-euro configuration from a large aggregate net foreign asset position. Finally, the economic scale of the net position is

$$NETFX_{s,c} = \frac{A_{s,c} - L_{s,c}}{GDP} = FX_{s,c} \times IFI_s, \qquad IFI_s \equiv \frac{B_s}{GDP}. \tag{4}$$

These alternative normalisations answer different questions: FX measures the currency orientation of a sector's external balance sheet; $NETFX$ measures its potential scale relative to the host economy.

5 Key facts and patterns

We now apply the accounting framework to examine how external currency positions differ between banks and NBFIs, across currencies and financial instruments. We focus on our Tier 1 sample, comprising the two major reserve currency-issuing jurisdictions: the United States and eight euro-area countries.[5]

For the purposes of the following discussion, it is convenient to think of the above sample of countries as being comprised of three main groups - (i) core euro area ("EA core") countries, including Germany, France, Italy, Spain, Belgium; (ii) euro area international financial centers ("EA IFC"), including the Netherlands, Luxembourg and Ireland; and (iii) the United States, which merits its own category because of the unique role of the US dollar in the global financial system.

There are stark differences between banks and NBFIs in terms of the currency composition of their balance sheets. NBFIs tend to have sizable on-balance-sheet net open positions (NOPs) in both domestic and foreign currencies (ie there is a gap between their assets and liabilities in a given currency). By contrast, banks tend to have a much greater alignment between the currency composition of their external assets and liabilities, resulting in considerably smaller NOPs than NBFIs. This is a reflection of the fact that banks in many jurisdictions are encouraged by regulators and supervisors not to have any sizable currency mismatches (Basel Committee on Banking Supervision, 2013, 2019).

The currency composition of NBFIs' balance sheets should be interpreted against the backdrop of the larger international financial intermediation role that they perform in each economy. In most countries (with the exception of EA IFCs), NBFIs are net capital exporters. Most of their obligations are to domestic residents. By contrast, a large fraction of their assets are invested abroad, usually as a part of a broader diversification strategy. As a consequence, NBFIs can be expected to have sizable positive net foreign asset (NFA) positions. Our findings not only provide evince that is in line with this, but also shed light on the distribution of these NFA positions across capital flow instruments (portfolio equity, portfolio debt and other investment).

NBFIs' positive NFA positions naturally result in sizable long NOPs in foreign currencies. As mentioned above, in most countries (with the exception of IFCs) the large majority of NBFIs' obligations are to domestic residents, and are denominated primarily in their respective domestic currency. Consequently, the share of NBFIs' obligations that are denominated in foreign currencies is very small. Conversely, their cross-border assets, which tend to account for large shares of their overall assets, are denominated primarily in foreign currencies. The combination of these facts results in EA core NBFIs

[5] Appendix A reports the corresponding time-series summary statistics by country, currency and instrument for NBFIs and banks (Tables A1 and A2, respectively). These include means, medians and the 10th and 90th percentiles, documenting both the typical size of positions and their variation over time.

being net long in the US dollar and other currencies (Graph 1, green and yellow bars, respectively) and US NBFIs being net long in the euro and other currencies (Graph 1, blue and yellow bars, respectively).

There is more heterogeneity among the three main country groups in our sample when it comes to NBFI's domestic currency NOPs. Core EA NBFIs have large positive NOPs in euro. This reflect the fact that they have the opportunity to invest a large fraction of their euro-denominated obligations to domestic residents in other euro area countries, i.e. to make intra-euro area cross-border investments, which are also denominated in euro. They thus have large euro-denominated cross-border assets and relatively small euro-denominated cross-border liabilities, resulting in considerable long euro NOPs (Graph 1.A-1.E, blue bars). Conversely, NBFIs in EA IFCs gather euro-denominated funds (primarily from the rest of the euro area) and invest a large fraction of those funds in other currencies. As a consequence, they have large short euro NOPs (Graph 1.F-1.H, blue bars) which are used to fund their long NOPs in the US dollar and other currencies (Graph 1.F-1.H, green and yellow bars). Similarly, NBFIs in the US have large short dollar NOPs (Graph 1.I, green bar) which are used to fund their long NOPs in the euro and other currencies (Graph 1.I, blue and yellow bars).

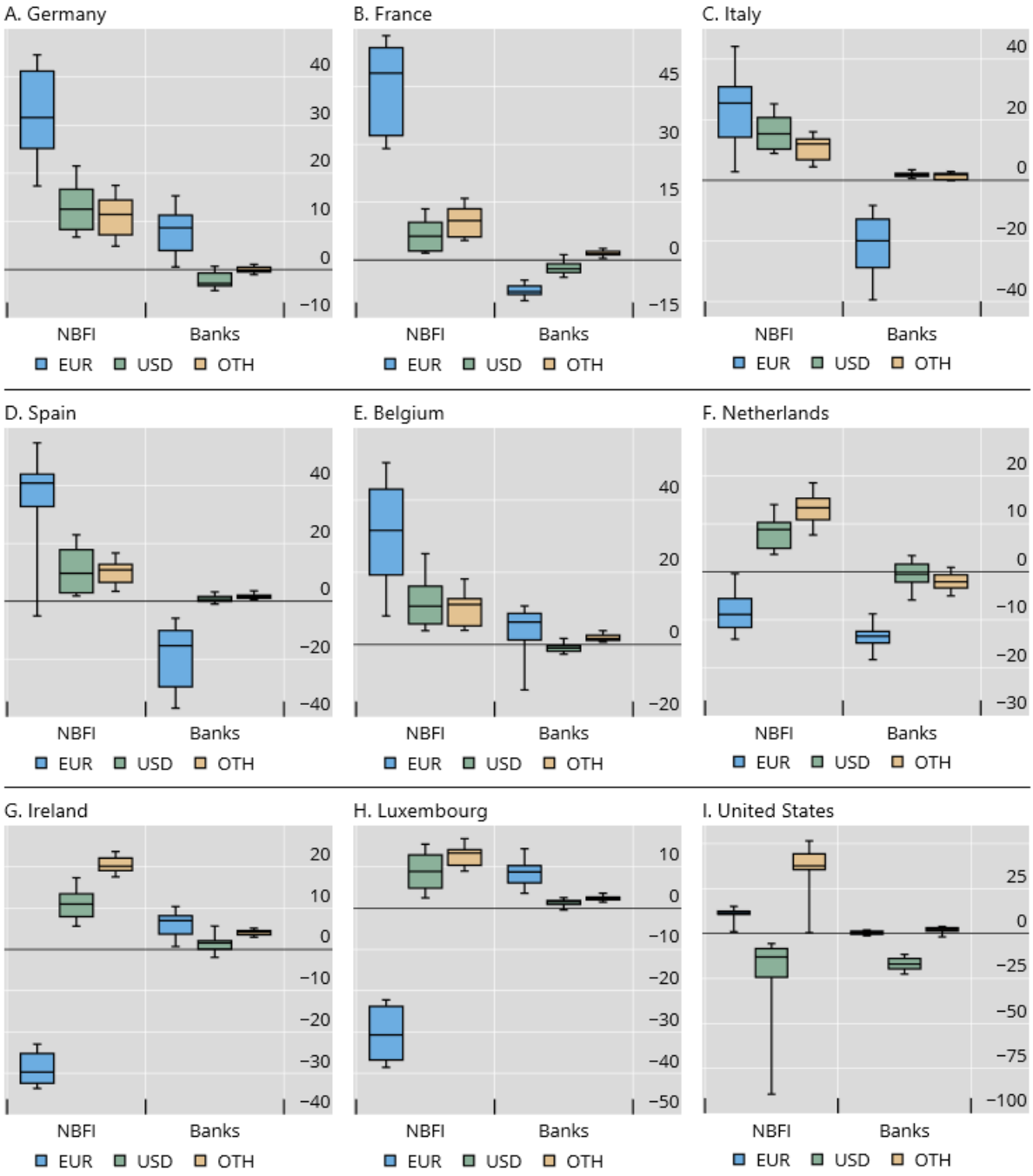
NBFIs' overall NOPs in each currency conceal considerable heterogeneity across instruments. Foreign currency NOPs tend to be driven primarily by portfolio equity (Graph 2, blue bars). Portfolio equity is also the main driver of domestic currency NOPs in EA IFCs and the US (Graph 2.F-2.I, blue bars) . By contrast, domestic currency NOPs of EA core NBFIs are primarily driven by portfolio debt (Graph 2.A-2.E, red bars). Table A1 provides the detailed instrument contributions underlying these currency positions.

The above pattern is also illustrated in the first two panels of Graph 3. Portfolio debt positions (blue dots) feature much more prominently than portfolio equity positions (orange dots) in the case of domestic currency NOPs (Graph 3.A). Conversely, portfolio equity positions (orange dots) play a considerably more important role than portfolio debt positions (blue dots) in the case of foreign currency NOPs (Graph 3.B).

Intuitively, NBFIs are more likely to take on the foreign currency exposures in portfolio equity investments, which tend to be riskier. Conversely, they are less willing to take on additional foreign currency risk in portfolio debt investments, which tend to be safer. EA core NBFIs have the opportunity to build substantial domestic currency NOPs through intra-euro area cross-border portfolio debt positions, e.g. NBFIs in France buying (euro-denominated) German government bonds.

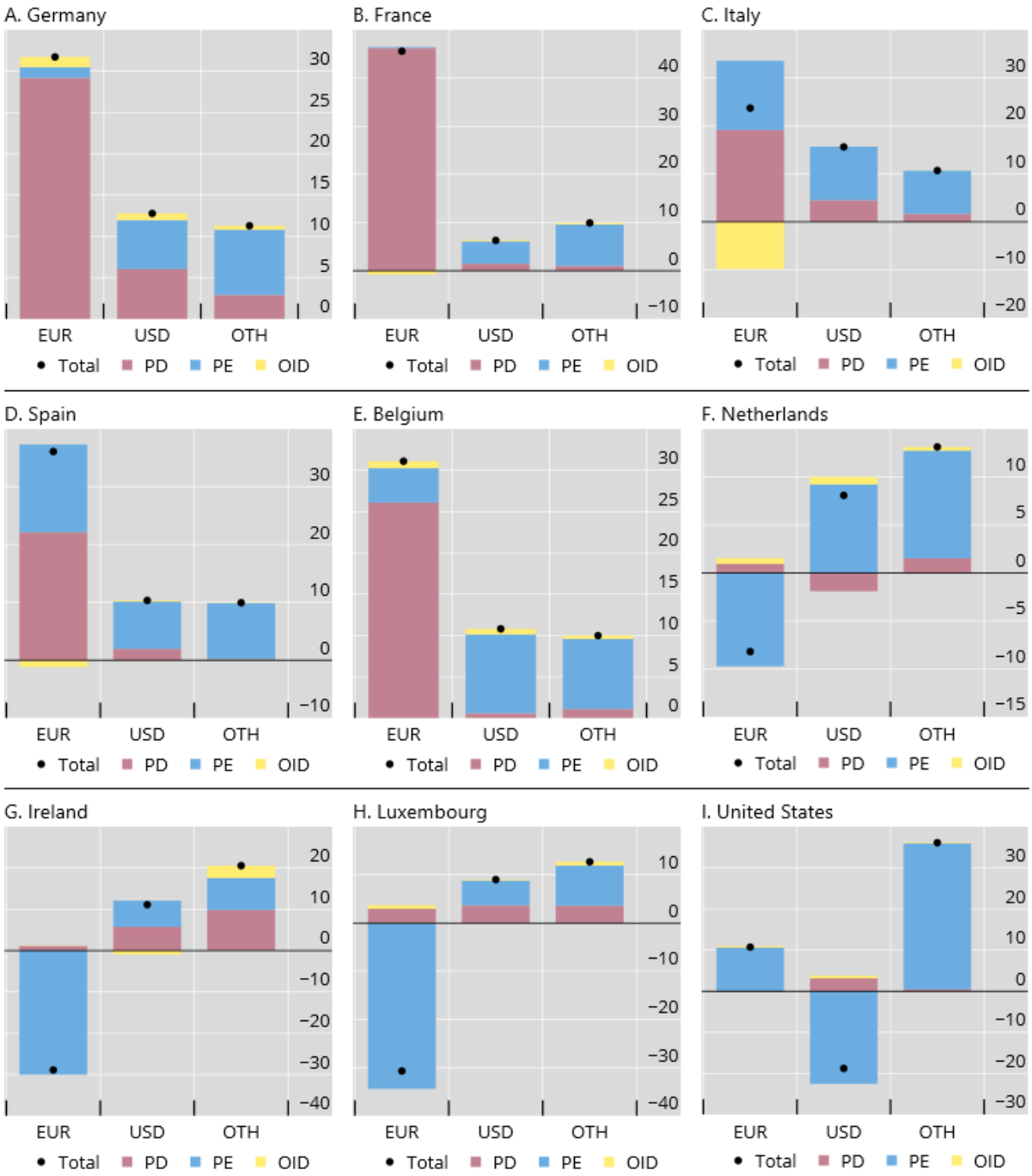
As mentioned above, banks' external NOPs in all currencies tend to be much more balanced than those of NBFIs. This is especially notable in the case of foreign currencies (Graph 1, right-hand half of each panel). That said, banks in EA core countries tend to have non-negligible NOPs in domestic currencies (Graph 1.A-1.E, blue bars on the

Graph 1: Net positions of NBFIs and banks, by currency



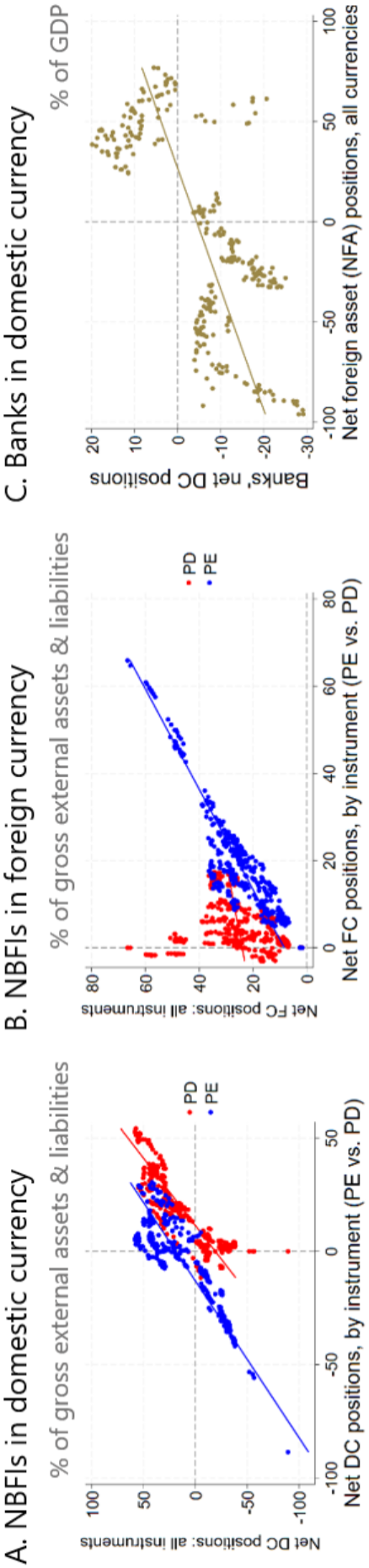
Note: Distribution over 2013-2024. Net positions equal to assets less liabilities divided by the sum of assets and liabilities. OTH = Other currencies.

Graph 2: Net positions of NBFIs, by currency: contributions of each instrument



Note: Net positions equal to assets less liabilities divided by the sum of assets and liabilities. OTH = Other currencies; PD = portfolio debt; PE = portfolio equity; OID = other investment.

Graph 3: Net positions of NBFIs and banks



Note: Quarterly data over 2013-2024. DC = Domestic Currency; FC = foreign currency; PD = portfolio debt; PE = portfolio equity.

right-hand half of each panel). The domestic currency NOPs of those banks reflect the NFAs of the respective economies. That is, banks facilitate the export (import) of capital from (to) economies with positive (negative) NFAs (Graph 3.C).

Taken together, the above facts and patterns highlight the importance of looking beyond aggregate external positions to properly understand the currency composition of international financial intermediation. By jointly identifying the sectoral, currency and instrument composition of external balance sheets, our dataset reveals systematic differences not only across economies, but also between sectors (banks and NBFIs) and across instruments (portfolio debt, portfolio equity and other investment). These patterns would remain largely obscured in conventional aggregate statistics.

6 What does the new dataset make it possible to test?

The preceding evidence shows that external currency positions differ systematically across sectors, instruments and economies. These patterns have important implications for many key questions of critical importance for global financial stability. One set of key questions is related how the composition of currency positions affects the impact of various global financial shocks. Another important set of questions has to do with the degree to which the allocation of external currency positions across different types of financial institutions affects the degree of insurance they provide against domestic shocks.

6.1 How do sectoral currency exposures shape the transmission of global shocks?

The predominance of portfolio equity in NBFIs' foreign-currency positions suggests a specific hypothesis: the response to global dollar shocks depends on the interaction between currency valuation effects and underlying asset returns. For euro-area investors, dollar appreciation raises the euro value of unhedged dollar assets, holding asset prices constant. However, the dollar appreciation could be accompanied by equity-price declines, which may (fully or partially) offset the exchange rate-driven gains. Debt portfolios may respond differently through interest-rate changes, credit risk and hedging costs. Consequently, similar net dollar positions are likely to generate very different valuation effects and portfolio adjustments depending on their underlying instrument composition.

The proposed analysis would interact predetermined sector–currency–instrument positions with identified US monetary policy shocks, assessing their explanatory contribution beyond aggregate currency exposures. Combining our novel dataset with security returns and sectoral transaction data would distinguish exchange-rate valua-

tion effects, asset-price changes and active portfolio adjustment. The central test would be whether equity-heavy NBFI portfolios exhibit different responses (to various shocks) from debt-heavy portfolios and banks' more closely balanced external currency positions. The euro-area sample provides a useful setting for comparing heterogeneous portfolios exposed to a common euro–dollar exchange-rate movement.

FX hedging provides a complementary transmission mechanism. Investors hedging foreign-currency assets through short-term forwards or swaps can incur payment and rollover obligations that are absent from conventional debt statistics (Borio et al., 2022). Building on Du and Huber (2026) and Kubitza et al. (2025), we would investigate whether portfolio adjustment following increases in dollar hedging costs varies with the instrument composition open currency positions and with hedging intensity. This analysis would also rely on supplementary FX hedging information: large external net open positions alone establish neither substantial retained currency risk nor large derivatives-related liquidity needs. Banks may also transmit these shocks through their provision of hedging services, despite having relatively balanced external currency positions.

6.2 Do currency positions provide international insurance?

The second set of questions that our novel dataset would allow us to tackle is related to whether the institutional distribution of currency positions affects their capacity to cushion domestic shocks. Following Lane and Shambaugh (2010), foreign-currency assets can provide potential insurance when the domestic currency depreciates during periods of weak domestic activity. From a complementary financial-stability perspective, Bénétrix et al. (2024) examine how the co-movement between net external positions and their currency composition can dampen or amplify exchange-rate-induced valuation effects. Our sectoral breakdowns of open currency positions allow us to investigate where these effects arise and how their distribution across various financial institutions influences domestic adjustment.

Holding aggregate open currency positions fixed, reallocating them across sectors does not change the mechanical exchange-rate valuation effect. However, it does change which institutions initially receive the gains or bear the losses, potentially affecting their subsequent asset allocation and funding decisions.

The contrast between EA core countries and EA IFCs (highlighted in the previous section) is particularly relevant for this set of issues. Large euro-denominated cross-border debt positions in EA core countries provide international diversification without directly generating exchange-rate valuation gains in euros. Foreign-currency positions can generate such gains, but their domestic insurance value depends on ownership and hedging. In particular, gains recorded by intermediaries resident in financial centers may accrue to investors abroad. The country in which the financial intermediaries

are located, therefore, need not coincide with the country whose resident receive the ultimate insurance benefits (Coppola et al., 2021).

We would first combine lagged sectoral currency positions with exchange-rate movements to quantify potential valuation gains and losses and assess their covariance with domestic shocks (i.e. with unexpected changes in domestic activity). Instrument-level decomposition would examine how these currency effects interact with underlying asset price movements. Combined with transaction and funding data, the analysis would then examine whether sectors benefiting from valuation gains maintain external investment or instead retrench under funding, redemption or hedging pressures. Additional ownership information would help establish the extent to which these gains accrue to domestic residents.

We plan to expand the dataset toward the widest feasible coverage of the jurisdictions included in the annual Global Monitoring Report on Non-bank Financial Intermediation produced by the Financial Stability Board (FSB). Extending coverage beyond the initial US and euro-area sample would introduce greater variation in exchange-rate behaviour, domestic business cycles and financial structures, strengthening our analysis and broadening its scope. The objective is to distinguish potential valuation insurance from the mechanisms through which it supports or fails to support domestic adjustment. Our novel dataset will provide the sectoral balance-sheet foundations for this distinction. The empirical analysis of realised risk sharing will require complementary data on FX hedging and ultimate investors.

7 Expected contribution

This paper develops a common framework for measuring external currency positions across financial sectors and instruments. The preliminary evidence that we have compiled so far reveals systematic differences between banks and NBFIs, highlights the importance of equity instruments in foreign-currency positions, and distinguishes among jurisdictions based on the nature and scope of the international financial intermediation that is performed by the banks and NBFIs that reside in them. These findings demonstrate the value of jointly observing sectors, currencies and instruments: aggregate positions alone reveal neither where currency valuation gains and losses arise within the resident financial system, nor the portfolio structures through which adjustment may occur.

Our priorities ahead of the 2027 International Seminar on Macroeconomics (ISoM) are to extend the dataset toward the widest feasible coverage of jurisdictions included in the annual Global Monitoring Report on Non-bank Financial Intermediation produced by the Financial Stability Board (FSB) and generate empirical results on international shock transmission based on this expanded version of our novel dataset. A

first application will test whether predetermined sector–currency–instrument positions help explain valuation effects and portfolio adjustment following identified US monetary policy shocks, beyond the information contained in aggregate currency exposures. This analysis will provide a concrete test of the dataset's broader promise: explaining why similar aggregate currency positions may have different consequences for external adjustment, depending on their institutional allocation and instrument composition.

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A Full distributions of currency exposures by institutional sector

This appendix reports the country–sector–currency distributions underlying Section 5. Tables A1 and A2 report net positions for NBFIs and banks, respectively. The sample comprises eight euro-area countries and the United States, and three currency categories: USD, EUR and other (OTH). All measures are reported as time-series mean, median, 10th percentile (P10) and 90th percentile (P90), rather than single-quarter observations.

For the net tables, $FX_{s,c} = (A_{s,c} - L_{s,c})/B_s$, and $fx_{s,k,c} = (A_{skc} - L_{skc})/B_s$; nfa_s and its instrument components use the same gross-balance-sheet denominator $B_s = A_s + L_s$. The FX, fx and nfa entries are percentages of B_s. $NETFX_{s,c} = (A_{s,c} - L_{s,c})/GDP$ is reported as a *multiple of GDP*, not as a percentage. The older IFI and $NETFXval$ columns are not included.

For the gross tables, $FX^A_{s,c} = A_{s,c}/B_s$ and $FX^L_{s,c} = L_{s,c}/B_s$; $fx^{A,k}_{s,c} = A_{skc}/B_s$ and $fx^{L,k}_{s,c} = L_{skc}/B_s$ for $k \in \{PD, PEQ, OD\}$. The balance-sheet shares $sh^A = A_s/B_s$ and $sh^L = L_s/B_s$ and the instrument totals $a^k = A_{sk}/B_s$ and $l^k = L_{sk}/B_s$ are likewise expressed as percentages of B_s. Thus the gross tables use a common denominator on both sides of the balance sheet. Here l denotes liabilities, not a negative value.

Colour legend. Net positions use medium positive and large positive (green), or medium negative and large negative (red). For percentage-valued variables, medium corresponds to an absolute value of at least 5 and less than 15 percentage points; large corresponds to at least 15 percentage points. For $NETFX$ the medium and large thresholds are 0.10 and 0.50 times GDP, respectively. In *gross* tables, the same 5/15 thresholds apply, but green identifies *assets* and red identifies *liabilities*; gross liabilities are positive amounts. Smaller values remain unshaded. Colours indicate magnitude, not significance or derivative-adjusted exchange-rate risk.

Interpretation of summaries. Reported means and quantiles are calculated separately for each underlying series. Accounting identities need not hold across separately computed quantiles. In Ireland and the United States, some components and aggregates are based on different sets of observations and means may not reconcile. Values are reproduced as supplied without imputations.

Table A1: NBFIs: net positions by currency and instrument

Country	Cur.	Stat.	FX	fx^{PD}	fx^{PEQ}	fx^{OD}	nfa	nfa^{PD}	nfa^{PEQ}	nfa^{OD}	$NETFX$
Belgium	EUR	Mean	31.1%	26.1%	4.2%	0.8%	51.9%	27.7%	22.2%	1.9%	0.32
		Median	31.6%	26.8%	2.0%	0.2%	52.2%	29.1%	21.5%	1.5%	0.31
		P10	10.2%	15.9%	-5.8%	-0.8%	45.2%	16.9%	19.0%	-0.3%	0.11
		P90	49.3%	37.0%	13.6%	4.4%	58.6%	39.0%	27.4%	6.4%	0.52
	OTH	Mean	10.0%	1.1%	8.5%	0.4%	51.9%	27.7%	22.2%	1.9%	0.12
		Median	11.1%	1.1%	10.0%	0.4%	52.2%	29.1%	21.5%	1.5%	0.13
		P10	4.3%	0.5%	2.7%	0.1%	45.2%	16.9%	19.0%	-0.3%	0.05
		P90	14.9%	1.7%	13.9%	0.6%	58.6%	39.0%	27.4%	6.4%	0.17
	USD	Mean	10.8%	0.6%	9.6%	0.7%	51.9%	27.7%	22.2%	1.9%	0.13
		Median	10.6%	0.5%	9.5%	0.5%	52.2%	29.1%	21.5%	1.5%	0.14
		P10	4.5%	0.3%	3.0%	0.1%	45.2%	16.9%	19.0%	-0.3%	0.05
		P90	17.8%	0.9%	16.3%	1.6%	58.6%	39.0%	27.4%	6.4%	0.21
Germany	EUR	Mean	31.7%	29.2%	1.3%	1.2%	55.8%	38.1%	15.1%	2.5%	0.25
		Median	31.6%	32.4%	1.2%	1.4%	55.8%	40.9%	14.0%	2.3%	0.27
		P10	19.1%	20.1%	-3.1%	-1.5%	52.7%	29.7%	8.1%	0.7%	0.16
		P90	42.8%	35.0%	6.6%	4.2%	58.8%	42.8%	22.3%	5.1%	0.33
	OTH	Mean	11.3%	2.9%	7.9%	0.5%	55.8%	38.1%	15.1%	2.5%	0.09
		Median	11.4%	3.0%	8.8%	0.5%	55.8%	40.9%	14.0%	2.3%	0.09
		P10	5.4%	1.9%	3.3%	0.2%	52.7%	29.7%	8.1%	0.7%	0.04
		P90	16.1%	3.5%	12.7%	0.7%	58.8%	42.8%	22.3%	5.1%	0.14
	USD	Mean	12.8%	6.0%	5.9%	0.8%	55.8%	38.1%	15.1%	2.5%	0.11
		Median	12.6%	6.2%	5.6%	0.6%	55.8%	40.9%	14.0%	2.3%	0.10
		P10	7.7%	4.9%	2.3%	0.1%	52.7%	29.7%	8.1%	0.7%	0.06
		P90	18.6%	7.1%	10.8%	1.7%	58.8%	42.8%	22.3%	5.1%	0.16
Spain	EUR	Mean	36.1%	22.1%	15.2%	-1.2%	56.4%	24.3%	33.1%	-1.0%	0.14
		Median	40.9%	28.1%	15.0%	-1.2%	65.4%	31.3%	34.8%	-0.9%	0.16
		P10	6.8%	-0.3%	3.7%	-2.0%	20.4%	-1.2%	22.6%	-1.8%	0.02
		P90	49.9%	36.2%	25.5%	-0.4%	75.1%	39.6%	40.7%	-0.1%	0.19
	OTH	Mean	9.9%	0.2%	9.7%	0.0%	56.4%	24.3%	33.1%	-1.0%	0.04

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Table A1: NBFIs: net positions by currency and instrument (continued)

Country	Cur.	Stat.	FX	fx^{PD}	fx^{PEQ}	fx^{OD}	nfa	nfa^{PD}	nfa^{PEQ}	nfa^{OD}	$NETFX$
		Median	10.9%	0.3%	10.8%	0.0%	65.4%	31.3%	34.8%	-0.9%	0.04
		P10	4.4%	-0.4%	4.1%	0.0%	20.4%	-1.2%	22.6%	-1.8%	0.01
		P90	14.3%	0.5%	13.8%	0.1%	75.1%	39.6%	40.7%	-0.1%	0.06
	USD	Mean	10.3%	1.9%	8.2%	0.2%	56.4%	24.3%	33.1%	-1.0%	0.04
		Median	9.7%	2.4%	6.9%	0.1%	65.4%	31.3%	34.8%	-0.9%	0.04
		P10	2.4%	-0.5%	1.8%	0.0%	20.4%	-1.2%	22.6%	-1.8%	0.01
		P90	20.6%	3.9%	17.1%	0.5%	75.1%	39.6%	40.7%	-0.1%	0.08
France	EUR	Mean	45.6%	46.2%	0.2%	-0.8%	61.8%	48.6%	13.5%	-0.3%	0.41
		Median	48.5%	48.6%	0.3%	-0.8%	62.7%	50.4%	13.4%	-0.3%	0.43
		P10	30.5%	38.1%	-6.3%	-1.8%	56.0%	41.9%	11.5%	-1.5%	0.28
		P90	57.6%	52.4%	6.8%	0.1%	66.8%	53.9%	15.8%	0.4%	0.51
	OTH	Mean	9.9%	1.0%	8.6%	0.3%	61.8%	48.6%	13.5%	-0.3%	0.09
		Median	10.2%	1.1%	8.7%	0.2%	62.7%	50.4%	13.4%	-0.3%	0.09
		P10	5.4%	0.3%	4.7%	0.2%	56.0%	41.9%	11.5%	-1.5%	0.05
		P90	15.2%	1.5%	13.3%	0.4%	66.8%	53.9%	15.8%	0.4%	0.14
	USD	Mean	6.3%	1.4%	4.6%	0.2%	61.8%	48.6%	13.5%	-0.3%	0.06
		Median	6.2%	1.4%	4.2%	0.1%	62.7%	50.4%	13.4%	-0.3%	0.05
		P10	2.0%	0.6%	1.3%	-0.1%	56.0%	41.9%	11.5%	-1.5%	0.02
		P90	11.2%	2.4%	8.2%	0.8%	66.8%	53.9%	15.8%	0.4%	0.10
Ireland	EUR	Mean	-28.9%	1.1%	-30.1%	0.1%	2.8%	16.7%	-16.0%	2.2%	-6.15
		Median	-29.7%	1.0%	-30.7%	-0.1%	2.6%	16.8%	-16.0%	2.1%	-6.20
		P10	-33.1%	0.2%	-34.0%	-0.6%	1.7%	15.0%	-17.0%	0.6%	-7.32
		P90	-24.2%	2.0%	-25.6%	0.9%	3.9%	18.1%	-15.1%	3.5%	-5.05
	OTH	Mean	20.6%	9.8%	7.7%	3.0%	2.8%	16.7%	-16.0%	2.2%	4.38
		Median	20.2%	10.2%	8.1%	3.1%	2.6%	16.8%	-16.0%	2.1%	4.27
		P10	18.2%	7.9%	5.3%	2.3%	1.7%	15.0%	-17.0%	0.6%	3.81
		P90	23.0%	11.3%	9.6%	3.6%	3.9%	18.1%	-15.1%	3.5%	5.15
	USD	Mean	11.1%	5.7%	6.4%	-1.0%	2.8%	16.7%	-16.0%	2.2%	2.37
		Median	11.0%	5.4%	6.1%	-1.0%	2.6%	16.8%	-16.0%	2.1%	2.33
		P10	7.2%	5.0%	4.0%	-2.4%	1.7%	15.0%	-17.0%	0.6%	1.52

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Table A1: NBFIs: net positions by currency and instrument (continued)

Country	Cur.	Stat.	FX	fx^{PD}	fx^{PEQ}	fx^{OD}	nfa	nfa^{PD}	nfa^{PEQ}	nfa^{OD}	$NETFX$
		P90	15.9%	6.8%	9.1%	0.4%	3.9%	18.1%	-15.1%	3.5%	3.40
Italy	EUR	Mean	23.7%	19.1%	14.4%	-9.8%	50.0%	25.3%	34.5%	-9.8%	0.12
		Median	25.5%	20.2%	13.1%	-9.6%	52.0%	26.2%	35.1%	-9.6%	0.13
		P10	7.1%	14.6%	0.8%	-14.0%	36.1%	19.8%	29.5%	-14.1%	0.04
		P90	40.2%	21.8%	27.7%	-6.4%	60.4%	28.5%	38.3%	-6.4%	0.19
	OTH	Mean	10.7%	1.7%	9.0%	0.0%	50.0%	25.3%	34.5%	-9.8%	0.05
		Median	12.0%	1.7%	10.2%	0.0%	52.0%	26.2%	35.1%	-9.6%	0.05
		P10	5.4%	1.4%	3.4%	0.0%	36.1%	19.8%	29.5%	-14.1%	0.02
		P90	14.3%	2.0%	12.8%	0.0%	60.4%	28.5%	38.3%	-6.4%	0.08
	USD	Mean	15.6%	4.5%	11.1%	0.0%	50.0%	25.3%	34.5%	-9.8%	0.08
		Median	15.4%	4.5%	11.4%	0.0%	52.0%	26.2%	35.1%	-9.6%	0.08
		P10	9.5%	4.1%	4.9%	-0.1%	36.1%	19.8%	29.5%	-14.1%	0.04
		P90	22.8%	5.1%	18.4%	0.0%	60.4%	28.5%	38.3%	-6.4%	0.12
Luxembourg	EUR	Mean	-30.7%	3.0%	-34.4%	0.7%	-9.0%	10.3%	-20.9%	1.7%	-49.90
		Median	-30.7%	2.8%	-35.2%	1.1%	-8.8%	10.1%	-20.7%	2.2%	-52.51
		P10	-38.0%	1.9%	-41.0%	-0.3%	-10.3%	7.8%	-22.2%	0.5%	-63.11
		P90	-23.4%	4.1%	-27.6%	1.8%	-7.8%	12.8%	-19.8%	2.8%	-36.65
	OTH	Mean	12.7%	3.6%	8.4%	0.8%	-9.0%	10.3%	-20.9%	1.7%	20.62
		Median	13.4%	3.6%	9.1%	0.8%	-8.8%	10.1%	-20.7%	2.2%	21.20
		P10	9.5%	3.2%	5.2%	0.5%	-10.3%	7.8%	-22.2%	0.5%	15.08
		P90	15.3%	4.1%	10.6%	1.1%	-7.8%	12.8%	-19.8%	2.8%	26.09
	USD	Mean	9.0%	3.7%	5.1%	0.2%	-9.0%	10.3%	-20.9%	1.7%	14.77
		Median	8.9%	4.1%	5.1%	0.3%	-8.8%	10.1%	-20.7%	2.2%	14.54
		P10	3.5%	0.2%	2.6%	-0.3%	-10.3%	7.8%	-22.2%	0.5%	5.56
		P90	14.2%	5.9%	8.0%	0.5%	-7.8%	12.8%	-19.8%	2.8%	23.20
Netherlands	EUR	Mean	-8.2%	0.9%	-9.7%	0.6%	13.0%	0.6%	10.7%	1.8%	-0.33
		Median	-8.9%	1.9%	-9.5%	0.1%	12.1%	0.6%	9.5%	1.4%	-0.32
		P10	-12.3%	-3.4%	-12.8%	-1.3%	9.4%	-2.1%	7.2%	0.1%	-0.50
		P90	-2.4%	3.8%	-5.5%	3.3%	16.9%	2.6%	14.8%	4.3%	-0.10

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Table A1: NBFIs: net positions by currency and instrument (continued)

Country	Cur.	Stat.	FX	fx^{PD}	fx^{PEQ}	fx^{OD}	nfa	nfa^{PD}	nfa^{PEQ}	nfa^{OD}	$NETFX$
	OTH	Mean	13.1%	1.5%	11.2%	0.4%	13.0%	0.6%	10.7%	1.8%	0.53
		Median	13.3%	1.7%	11.8%	0.4%	12.1%	0.6%	9.5%	1.4%	0.52
		P10	9.4%	-0.1%	7.8%	0.3%	9.4%	-2.1%	7.2%	0.1%	0.41
		P90	17.5%	2.7%	14.5%	0.5%	16.9%	2.6%	14.8%	4.3%	0.67
	USD	Mean	8.1%	-1.9%	9.2%	0.8%	13.0%	0.6%	10.7%	1.8%	0.32
		Median	8.8%	-1.7%	9.4%	0.8%	12.1%	0.6%	9.5%	1.4%	0.33
		P10	4.3%	-3.0%	6.3%	0.5%	9.4%	-2.1%	7.2%	0.1%	0.18
		P90	11.9%	-1.0%	12.3%	1.0%	16.9%	2.6%	14.8%	4.3%	0.47
United States	EUR	Mean	10.7%	-0.2%	10.6%	0.3%	28.1%	3.3%	23.6%	1.2%	0.07
		Median	11.3%	0.0%	11.1%	0.3%	35.1%	6.8%	30.3%	1.2%	0.08
		P10	9.7%	-1.0%	9.5%	0.1%	29.0%	-8.9%	19.7%	0.6%	0.06
		P90	13.3%	0.3%	13.9%	0.6%	43.1%	9.8%	41.8%	1.9%	0.10
	OTH	Mean	36.1%	0.5%	35.5%	0.2%	28.1%	3.3%	23.6%	1.2%	0.25
		Median	37.6%	0.0%	36.5%	0.2%	35.1%	6.8%	30.3%	1.2%	0.27
		P10	34.4%	-0.7%	33.1%	0.0%	29.0%	-8.9%	19.7%	0.6%	0.24
		P90	45.7%	1.8%	46.0%	0.4%	43.1%	9.8%	41.8%	1.9%	0.33
	USD	Mean	-18.8%	3.1%	-22.5%	0.6%	28.1%	3.3%	23.6%	1.2%	-0.10
		Median	-13.0%	6.0%	-18.8%	0.8%	35.1%	6.8%	30.3%	1.2%	-0.10
		P10	-26.0%	-7.2%	-26.0%	-0.5%	29.0%	-8.9%	19.7%	0.6%	-0.14
		P90	-7.2%	8.8%	-16.1%	1.4%	43.1%	9.8%	41.8%	1.9%	-0.05

Table A2: Banks: net positions by currency and instrument

Country	Cur.	Stat.	FX	fx^{PD}	fx^{PEQ}	fx^{OD}	nfa	nfa^{PD}	nfa^{PEQ}	nfa^{OD}	$NETFX$
Belgium	EUR	Mean	3.2%	2.0%	0.1%	1.2%	4.0%	3.1%	0.1%	0.7%	0.06
		Median	6.2%	1.6%	0.1%	3.1%	6.0%	2.5%	0.1%	3.5%	0.09
		P10	-10.5%	-1.3%	0.0%	-8.7%	-10.0%	0.2%	0.1%	-9.6%	-0.17
		P90	9.5%	6.5%	0.3%	6.4%	11.5%	6.4%	0.3%	5.9%	0.18
	OTH	Mean	1.9%	0.6%	0.0%	1.2%	4.0%	3.1%	0.1%	0.7%	0.03
		Median	1.7%	0.7%	0.0%	1.2%	6.0%	2.5%	0.1%	3.5%	0.03
		P10	0.8%	0.1%	0.0%	0.2%	-10.0%	0.2%	0.1%	-9.6%	0.01
		P90	3.5%	1.2%	0.1%	2.4%	11.5%	6.4%	0.3%	5.9%	0.05
	USD	Mean	-1.0%	0.5%	0.0%	-1.7%	4.0%	3.1%	0.1%	0.7%	-0.01
		Median	-1.0%	0.8%	0.0%	-1.9%	6.0%	2.5%	0.1%	3.5%	-0.01
		P10	-2.4%	-0.2%	0.0%	-3.4%	-10.0%	0.2%	0.1%	-9.6%	-0.04
		P90	0.3%	1.4%	0.0%	0.1%	11.5%	6.4%	0.3%	5.9%	0.00
Germany	EUR	Mean	7.8%	5.8%	-0.2%	2.2%	5.6%	-3.0%	0.2%	8.4%	0.08
		Median	8.7%	6.2%	-0.2%	1.8%	5.6%	-3.0%	0.2%	8.6%	0.09
		P10	2.2%	2.4%	-0.8%	-0.6%	0.4%	-4.1%	0.0%	3.0%	0.02
		P90	12.7%	8.7%	0.2%	5.6%	10.7%	-2.2%	0.4%	12.9%	0.14
	OTH	Mean	0.0%	-2.2%	0.3%	1.8%	5.6%	-3.0%	0.2%	8.4%	0.00
		Median	-0.1%	-2.4%	0.3%	1.9%	5.6%	-3.0%	0.2%	8.6%	0.00
		P10	-0.7%	-2.8%	0.1%	1.3%	0.4%	-4.1%	0.0%	3.0%	-0.01
		P90	0.9%	-1.5%	0.8%	2.4%	10.7%	-2.2%	0.4%	12.9%	0.01
	USD	Mean	-2.2%	-6.6%	0.1%	4.3%	5.6%	-3.0%	0.2%	8.4%	-0.02
		Median	-2.9%	-7.0%	0.0%	4.6%	5.6%	-3.0%	0.2%	8.6%	-0.03
		P10	-3.8%	-8.9%	0.0%	2.5%	0.4%	-4.1%	0.0%	3.0%	-0.04
		P90	-0.2%	-3.6%	0.3%	6.0%	10.7%	-2.2%	0.4%	12.9%	0.00
Spain	EUR	Mean	-19.7%	-7.8%	-7.3%	-4.6%	-17.2%	-9.3%	-6.8%	-1.1%	-0.15
		Median	-15.4%	-8.2%	-6.3%	-2.2%	-12.6%	-8.8%	-6.1%	1.7%	-0.12
		P10	-34.8%	-9.8%	-11.1%	-15.4%	-32.8%	-11.3%	-10.8%	-14.7%	-0.28
		P90	-7.6%	-5.1%	-4.2%	4.1%	-3.4%	-7.3%	-3.7%	10.1%	-0.06
	OTH	Mean	1.7%	0.0%	0.4%	1.3%	-17.2%	-9.3%	-6.8%	-1.1%	0.01

Continued on next page

Table A2: Banks: net positions by currency and instrument (continued)

Country	Cur.	Stat.	FX	fx^{PD}	fx^{PEQ}	fx^{OD}	nfa	nfa^{PD}	nfa^{PEQ}	nfa^{OD}	$NETFX$
		Median	1.6%	-0.1%	0.4%	1.5%	-12.6%	-8.8%	-6.1%	1.7%	0.01
		P10	0.8%	-0.6%	0.0%	0.5%	-32.8%	-11.3%	-10.8%	-14.7%	0.01
		P90	2.9%	0.8%	0.8%	2.1%	-3.4%	-7.3%	-3.7%	10.1%	0.02
	USD	Mean	0.9%	-1.4%	0.1%	2.2%	-17.2%	-9.3%	-6.8%	-1.1%	0.01
		Median	0.8%	-1.6%	0.0%	1.8%	-12.6%	-8.8%	-6.1%	1.7%	0.01
		P10	-0.4%	-2.4%	0.0%	0.4%	-32.8%	-11.3%	-10.8%	-14.7%	0.00
		P90	2.5%	-0.1%	0.2%	4.6%	-3.4%	-7.3%	-3.7%	10.1%	0.02
France	EUR	Mean	-8.0%	-3.8%	-0.7%	-3.4%	-8.3%	-6.8%	1.0%	-2.5%	-0.18
		Median	-8.2%	-3.9%	-0.7%	-3.9%	-9.0%	-6.8%	0.8%	-2.7%	-0.19
		P10	-9.5%	-5.0%	-1.2%	-5.5%	-10.8%	-7.9%	0.5%	-5.2%	-0.23
		P90	-6.2%	-2.5%	-0.4%	-0.4%	-4.4%	-5.7%	1.6%	1.4%	-0.12
	OTH	Mean	1.7%	-1.1%	1.1%	1.7%	-8.3%	-6.8%	1.0%	-2.5%	0.04
		Median	1.6%	-1.2%	1.1%	1.6%	-9.0%	-6.8%	0.8%	-2.7%	0.03
		P10	1.1%	-1.4%	0.8%	1.2%	-10.8%	-7.9%	0.5%	-5.2%	0.02
		P90	2.7%	-0.8%	1.7%	2.5%	-4.4%	-5.7%	1.6%	1.4%	0.07
	USD	Mean	-2.0%	-1.8%	0.6%	-0.8%	-8.3%	-6.8%	1.0%	-2.5%	-0.05
		Median	-2.3%	-1.8%	0.5%	-0.9%	-9.0%	-6.8%	0.8%	-2.7%	-0.05
		P10	-4.0%	-3.2%	0.3%	-1.9%	-10.8%	-7.9%	0.5%	-5.2%	-0.09
		P90	0.6%	-0.7%	0.9%	0.5%	-4.4%	-5.7%	1.6%	1.4%	0.01
Ireland	EUR	Mean	6.0%	4.8%	-0.5%	2.3%	12.5%	5.3%	-0.3%	7.5%	0.09
		Median	7.0%	5.2%	-0.2%	2.3%	12.4%	4.2%	-0.1%	8.5%	0.09
		P10	1.2%	1.5%	-1.1%	-4.6%	7.4%	1.6%	-0.9%	-3.8%	0.04
		P90	8.8%	8.0%	0.1%	7.8%	17.6%	11.2%	0.4%	15.4%	0.14
	OTH	Mean	4.1%	0.8%	0.1%	3.1%	12.5%	5.3%	-0.3%	7.5%	0.07
		Median	4.2%	0.4%	0.1%	3.5%	12.4%	4.2%	-0.1%	8.5%	0.06
		P10	3.1%	-0.2%	0.0%	0.9%	7.4%	1.6%	-0.9%	-3.8%	0.05
		P90	4.7%	2.1%	0.3%	4.4%	17.6%	11.2%	0.4%	15.4%	0.11
	USD	Mean	1.6%	-0.3%	0.2%	2.1%	12.5%	5.3%	-0.3%	7.5%	0.03
		Median	1.6%	0.0%	0.1%	2.3%	12.4%	4.2%	-0.1%	8.5%	0.03
		P10	-0.9%	-1.6%	0.0%	0.1%	7.4%	1.6%	-0.9%	-3.8%	-0.01

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Table A2: Banks: net positions by currency and instrument (continued)

Country	Cur.	Stat.	FX	fx^{PD}	fx^{PEQ}	fx^{OD}	nfa	nfa^{PD}	nfa^{PEQ}	nfa^{OD}	$NETFX$
		P90	4.9%	0.8%	0.5%	4.1%	17.6%	11.2%	0.4%	15.4%	0.07
Italy	EUR	Mean	-21.7%	-3.3%	-7.1%	-11.3%	-18.4%	-1.9%	-6.7%	-9.8%	-0.11
		Median	-20.0%	-2.7%	-7.2%	-11.5%	-17.0%	-0.7%	-6.7%	-10.7%	-0.10
		P10	-35.1%	-12.6%	-9.5%	-16.1%	-33.9%	-12.8%	-9.0%	-14.3%	-0.17
		P90	-10.4%	3.8%	-4.9%	-6.3%	-5.9%	6.9%	-4.5%	-4.7%	-0.05
	OTH	Mean	1.4%	0.6%	0.3%	0.6%	-18.4%	-1.9%	-6.7%	-9.8%	0.01
		Median	1.8%	0.5%	0.3%	0.7%	-17.0%	-0.7%	-6.7%	-10.7%	0.01
		P10	0.1%	-0.1%	0.1%	0.0%	-33.9%	-12.8%	-9.0%	-14.3%	0.00
		P90	2.7%	1.5%	0.5%	1.0%	-5.9%	6.9%	-4.5%	-4.7%	0.01
	USD	Mean	1.8%	0.8%	0.1%	0.9%	-18.4%	-1.9%	-6.7%	-9.8%	0.01
		Median	1.8%	0.8%	0.0%	0.9%	-17.0%	-0.7%	-6.7%	-10.7%	0.01
		P10	0.9%	-0.4%	0.0%	-0.2%	-33.9%	-12.8%	-9.0%	-14.3%	0.00
		P90	2.7%	2.0%	0.3%	1.9%	-5.9%	6.9%	-4.5%	-4.7%	0.01
Luxembourg	EUR	Mean	8.4%	7.4%	0.1%	0.8%	12.1%	6.9%	0.3%	4.8%	1.39
		Median	8.8%	7.1%	0.0%	1.2%	12.4%	6.2%	0.3%	4.8%	1.34
		P10	5.2%	5.5%	0.0%	-2.0%	7.6%	5.2%	0.2%	1.8%	0.79
		P90	12.5%	9.8%	0.3%	2.8%	16.9%	9.6%	0.5%	7.8%	2.31
	OTH	Mean	2.4%	-0.2%	0.2%	2.4%	12.1%	6.9%	0.3%	4.8%	0.39
		Median	2.4%	-0.2%	0.2%	2.5%	12.4%	6.2%	0.3%	4.8%	0.39
		P10	1.7%	-0.4%	0.0%	1.8%	7.6%	5.2%	0.2%	1.8%	0.23
		P90	3.1%	0.0%	0.5%	3.0%	16.9%	9.6%	0.5%	7.8%	0.57
	USD	Mean	1.3%	-0.3%	0.0%	1.6%	12.1%	6.9%	0.3%	4.8%	0.22
		Median	1.5%	-0.3%	0.0%	1.8%	12.4%	6.2%	0.3%	4.8%	0.24
		P10	0.1%	-1.0%	0.0%	0.2%	7.6%	5.2%	0.2%	1.8%	0.01
		P90	2.1%	0.2%	0.0%	2.7%	16.9%	9.6%	0.5%	7.8%	0.36
Netherlands	EUR	Mean	-13.3%	-10.1%	-1.5%	-1.9%	-15.9%	-17.6%	-1.4%	3.1%	-0.31
		Median	-13.4%	-10.0%	-1.5%	-1.5%	-16.3%	-19.0%	-1.3%	4.1%	-0.32
		P10	-15.5%	-11.5%	-3.4%	-5.4%	-21.2%	-21.4%	-3.3%	-1.3%	-0.40
		P90	-10.4%	-8.6%	-0.1%	1.4%	-8.5%	-12.5%	0.1%	6.8%	-0.20

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Table A2: Banks: net positions by currency and instrument (continued)

Country	Cur.	Stat.	FX	fx^{PD}	fx^{PEQ}	fx^{OD}	nfa	nfa^{PD}	nfa^{PEQ}	nfa^{OD}	$NETFX$
	OTH	Mean	-2.1%	-3.2%	0.1%	1.1%	-15.9%	-17.6%	-1.4%	3.1%	-0.05
		Median	-2.1%	-3.4%	0.1%	0.8%	-16.3%	-19.0%	-1.3%	4.1%	-0.05
		P10	-4.0%	-4.8%	0.1%	0.1%	-21.2%	-21.4%	-3.3%	-1.3%	-0.11
		P90	0.0%	-1.9%	0.1%	2.6%	-8.5%	-12.5%	0.1%	6.8%	0.00
	USD	Mean	-0.6%	-4.3%	0.0%	3.9%	-15.9%	-17.6%	-1.4%	3.1%	-0.02
		Median	-0.5%	-4.6%	0.0%	4.1%	-16.3%	-19.0%	-1.3%	4.1%	-0.01
		P10	-5.2%	-6.2%	0.0%	2.0%	-21.2%	-21.4%	-3.3%	-1.3%	-0.13
		P90	2.7%	-2.0%	0.0%	5.6%	-8.5%	-12.5%	0.1%	6.8%	0.06
United States	EUR	Mean	0.4%	-0.5%	0.5%	0.3%	-14.3%	-3.3%	-1.7%	-9.3%	0.00
		Median	0.5%	0.0%	0.5%	0.5%	-12.7%	-1.5%	-1.1%	-8.4%	0.00
		P10	-0.7%	-1.4%	0.4%	0.2%	-21.5%	-8.8%	-3.5%	-13.5%	0.00
		P90	1.6%	0.3%	0.7%	0.8%	-8.4%	0.8%	-0.1%	-5.0%	0.01
	OTH	Mean	2.1%	0.0%	1.2%	0.9%	-14.3%	-3.3%	-1.7%	-9.3%	0.01
		Median	2.2%	0.0%	1.3%	1.1%	-12.7%	-1.5%	-1.1%	-8.4%	0.01
		P10	1.1%	-0.8%	1.1%	0.6%	-21.5%	-8.8%	-3.5%	-13.5%	0.00
		P90	3.7%	0.8%	1.6%	1.5%	-8.4%	0.8%	-0.1%	-5.0%	0.01
	USD	Mean	-16.7%	-2.7%	-3.4%	-10.5%	-14.3%	-3.3%	-1.7%	-9.3%	-0.06
		Median	-17.0%	-2.3%	-3.3%	-10.0%	-12.7%	-1.5%	-1.1%	-8.4%	-0.06
		P10	-20.7%	-6.8%	-5.0%	-14.5%	-21.5%	-8.8%	-3.5%	-13.5%	-0.08
		P90	-12.5%	0.0%	-2.1%	-6.9%	-8.4%	0.8%	-0.1%	-5.0%	-0.04