FSB FINANCIAL STABILITY BOARD

Global Monitoring Report on Non-Bank Financial Intermediation

2023

18 December 2023

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Executive summary

This report assesses global trends in the non-bank financial intermediation (NBFI) sector for the year ending 31 December 2022. It presents the results of the 13th annual FSB global monitoring exercise, covering 29 jurisdictions that account for around 85% of global GDP. It describes broad trends in financial intermediation before narrowing its focus to the subset of NBFI activities that may be more likely to give rise to vulnerabilities (narrow measure). The report mainly covers developments in 2022, during which most economies experienced a rising interest rate environment in response to inflationary pressures. The report also includes a case study exploring the role of NBFI in private finance and providing examples in key selected jurisdictions.

The size of the NBFI sector decreased in 2022, which is the first notable decrease since 2009, and which can be largely attributed to the impact of higher interest rates. Total financial assets of the NBFI sector declined 5.5% compared to 2021, mainly reflecting valuation losses in mark-to-market asset portfolios, particularly in investment funds. Total financial assets held by banks increased 6.9% as bank portfolios, largely composed of loans, traditionally have a lower sensitivity to interest rate changes. As a result, the relative share of total global financial assets held by the NBFI sector decreased from 49.8% to 47.2%. In emerging market economies, however, this share marginally increased. Graph 0-1 provides the size of the main monitoring aggregates.

The financial assets of entities classified into the five economic functions of the narrow measure set out in the FSB monitoring approach decreased 2.9%, approximately half of the decrease observed in the NBFI sector. The narrow measure of NBFI declined to $63.1 trillion in 2022, representing 28.9% of total NBFI assets and 13.9% of total global financial assets**.** This decline can be almost entirely attributed to collective investment vehicles susceptible to runs (economic function 1), as the four other economic functions continued to grow. Table 0-1 provides an overview of the size and growth of each economic function.

Fixed income funds remained the largest entity type within economic function 1, while money market funds (MMFs) became the second largest entity type. Fixed income fund assets accounted for 24.5% of total economic function 1 assets, having declined 14.3% year on year. MMFs experienced different trends to other types of funds: inflows over the period Q2-Q4 2022 increased the assets under management (AUM) of non-government and longer-term MMFs, as these funds' yields were attractive to investors. On the other hand, outflows from short-term government MMFs led to a slight reduction in their AUM in the first part of 2022, but these outflows were reversed in Q4 2022. Similar to fixed income funds, mixed fund assets decreased and became the third largest entity in economic function 1. Credit hedge funds remained the fourth largest entity in economic function 1, though their AUM increased in 2022.

In contrast to economic function 1, assets of entities belonging to the four other economic functions increased in 2022. The main entity types for economic functions 2 to 5 were finance companies (81.5% of total economic function 2), broker-dealers (97.8%), insurance corporations and mortgage insurers (37.1% and 29.5%), and structured finance vehicles (95.1%), respectively. The increase in assets ranged from 1.4% to 8.6% across entities in these four economic functions, but their relatively smaller share compared to economic function 1 still led to an overall decline in the size of the narrow measure.

Interconnectedness between the banking and NBFI sectors decreased for the banking sector but increased for the NBFI sector, as measured as a proportion of the respective sector assets. Data enhancements in this year's report reduced unspecified linkages across all non-bank entity types and were most notable in the case of pension funds, where identified linkages increased 25–30 percentage points with regard to both claims and liabilities. Banks continued to be net recipients of funding from NBFI entities, although this funding has been gradually decreasing since 2013 when measured as a proportion of bank assets. In contrast, interconnectedness between other financial intermediaries (OFIs) – a subset of the overall NBFI sector that excludes insurance corporations, pension funds, and financial auxiliaries (see Graph 0-1) – and banks, when measured as a proportion of OFI assets, increased in 2022. OFIs' use of wholesale funding (in particular long-term funding) increased slightly in 2022, reversing the trend observed over the previous four years. MMFs, trust companies, other investment funds (OIFs) – defined as funds other than MMFs, hedge funds and real estate investment trusts and funds – and structured finance vehicles tended to be cash providers through reverse repo transactions. Meanwhile, hedge funds, finance companies, and broker-dealers reported an almost net zero repo position.

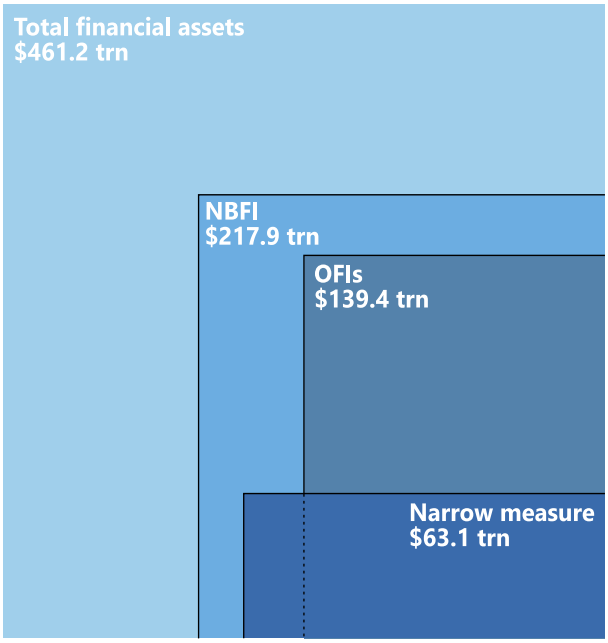
Most vulnerability metrics remained stable over the past year, with some entity types showing high degrees of liquidity and maturity transformation. For this report, jurisdictions were asked for the first time to provide percentile data for the metrics for credit intermediation and liquidity and maturity transformation for economic function 1 entities. The additional data showed that metrics for maturity transformation in fixed income funds were high overall, while those of mixed funds displayed dispersed levels. Metrics for liquidity transformation were also high across most funds. Economic function 1 entity types continued to report low balance sheet leverage both across and within jurisdictions. To complement the monitoring of these vulnerabilities, which is conducted on a pre-mitigant basis, jurisdictions also provided information on the availability of policy tools for economic function 1 entities (see Box 2-1). The vulnerability metrics for economic function 2 remained largely stable year on year. For economic function 3, metrics of maturity and liquidity transformation decreased in 2022, while credit intermediation and leverage increased. Vulnerability metrics for economic function 5 increased slightly. The importance of economic function 4 may be significantly understated because of the difficulty of adequately capturing off-balance sheet exposures and the lack of vulnerability metrics.

Market prices have generally rebounded since the analysis presented in this report for 2022. In particular, data on the first quarter of 2023 showed increased AUM for all fund types, which is mostly due to valuation effects for equity, fixed income, and mixed funds. The AUM of both short-term government and non-government MMFs increased due to inflows, especially following the banking sector turmoil in March 2023. These developments and potential implications for vulnerabilities in the NBFI sector will be assessed in next year's report.

Size of monitoring aggregates and composition of the narrow measure

At end-2022 **Graph 0-1**

Narrowing down to the narrow measure[1]



Monitoring aggregates

The following monitoring aggregates are referenced throughout this report:

(i) The **NBFI** sector is a broad measure of all non-bank financial entities, composed of all financial institutions that are not central banks, banks, or public financial institutions.

(ii) **Other financial intermediaries (OFIs)** are a subset of the NBFI sector, composed of all financial institutions that are not central banks, banks, public financial institutions, insurance corporations (ICs), pension funds (PFs), or financial auxiliaries. OFIs include money market funds (MMFs), hedge funds (HFs), other investment funds (OIFs), captive financial institutions and money lenders, central counterparties (CCPs), broker-dealers (BDs), finance companies (FinCos), trust companies (TCs), and structured finance vehicles (SFVs).

(iii) The **narrow measure of NBFI** is composed of NBFI entities that authorities have assessed as being involved in credit intermediation activities that may pose bank-like financial stability risks (i.e. credit intermediation that involves maturity/liquidity transformation, leverage or imperfect credit risk transfer) and/or regulatory arbitrage, according to the methodology and classification guidance used in the FSB's annual NBFI monitoring exercise.

[1] Total financial assets, NBFI and OFIs include participating jurisdictions and all of the euro area countries, whereas the narrow measure includes only participating jurisdictions. The semi-dashed area in the LHS graph showing the narrow measure represents assets that were not from OFIs and that correspond to ICs included in EF4 and to other financial auxiliaries unallocated to the five economic functions. This graph does not include data for Russia.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Composition of the narrow measure

At end-2022 **Table 0-1**

Economic Functions	Typical entity types[1]	Size[2] (USD trn)	Share (%)	Change in 2022 (%)
EF1 (collective investment vehicles with features that make them susceptible to runs)	MMFs, fixed income funds, mixed funds, credit hedge funds[3], real estate funds	46.9	74.3	-5.2
EF2 (lending dependent on short-term funding)	Finance companies, leasing/factoring companies, consumer credit companies	5.0	7.9	9.7
EF3 (market intermediation dependent on short-term funding)	Broker-dealers, custodial accounts, securities finance companies	4.5	7.1	4.6
EF4 (facilitation of credit intermediation)	Credit insurance companies, financial guarantors, monoline insurers	0.1	0.2	7.2
EF5 (securitisation-based credit intermediation)	Securitisation vehicles, structured finance vehicles, asset-backed securities	5.0	7.8	2.0
Unallocated	Other financial auxiliaries	1.6	2.6	-3.5
Total		**63.1**	**100**	**-2.9**

[1] The FSB's *Policy Framework* acknowledges that the narrow measure may take different forms across jurisdictions because of different legal and regulatory settings, as well as the constant innovation and dynamic nature of the non-bank financial sector. It also enables authorities to capture new structures or innovations that may introduce vulnerability, by examining underlying economic functions. Thus, the entity types listed should be taken as typical examples. [2] Net of prudential consolidation into banking groups. [3] Credit hedge funds are hedge funds that invest primarily in credit assets (e.g. bonds, loans). This table does not include data for Russia.

Introduction

The comprehensive monitoring of global trends, risks, and innovations of the NBFI sector is a key part of the FSB's ongoing efforts to enhance financial system resilience.[1] The FSB's annual global monitoring exercise uses sectoral balance sheet data from national financial accounts statistics ("flow of funds"), complemented with supervisory and other publicly available data.[2] This year's edition mostly uses data as of end-2022 and primarily discusses developments related to the NBFI sector up until that date.

The monitoring exercise adopts a two-step approach.[3] The first step takes a comprehensive look at the NBFI sector to ensure that the collected data covers all areas where vulnerabilities might arise within the financial system, including from recent NBFI related innovations (see Box 1-2). The second step of the monitoring approach focuses on vulnerabilities associated with the NBFI sector that resemble those in the banking system or where regulatory arbitrage could undermine the goals of regulatory reforms enacted after the global financial crisis. To arrive at the narrow measure of the NBFI sector, the participating jurisdictions classify a subset of NBFI entities on the basis of their economic functions (or activities) that may give rise to vulnerabilities because they involve liquidity/maturity transformation, imperfect credit risk transfer, or use of leverage (see Section 2).[4] To enhance consistency across jurisdictions, this classification is done on a conservative and inclusive basis, reflecting the assumption that policy measures and/or risk management tools have not been exercised (i.e. on a pre-mitigant basis). Consequently, the narrow measure may overestimate the degree to which NBFI currently gives rise to post-mitigant financial stability risks, given that existing policy measures, risk management tools, or structural features may have significantly reduced or addressed financial stability risks.

Each year, the FSB aims to enhance the annual monitoring exercise by learning from the experiences of previous exercises. This year's monitoring exercise includes enhancements in (i) the interconnectedness data; (ii) data on sources of funding to allow an assessment of leverage trends per entity type; and (iii) the vulnerability metrics data to assess the distribution of the metric values per jurisdiction. This report also provides information on the availability of policy tools for collective investment vehicles with features making them susceptible to runs, economic function (EF) 1 entities, and includes a case study on private finance and NBFI, with a box providing an overview of private finance in key selected jurisdictions.

To maximise both the scope and granularity of available data, the monitoring results are presented for two different samples of jurisdictions, which differ in terms of the treatment

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1 The monitoring exercise is conducted by the FSB's Non-bank Monitoring Experts Group, which was established in 2016 under the Standing Committee on Assessment of Vulnerabilities (SCAV). The Experts Group includes experts from 29 participating jurisdictions (see Table 0-2), as well as the Bank for International Settlements, European Commission, European Securities and Markets Authority, European Systemic Risk Board, International Association of Insurance Supervisors, International Monetary Fund, International Organization of Securities Commissions and the Organisation for Economic Co-operation and Development.

2 The FSB's NBFI monitoring exercise uses sectoral balance sheet statistics, as these are widely available and provide generally consistent financial sector data for mapping the global size and trends of NBFI. Some jurisdictions that currently lack sectoral balance sheet statistics have used other data sources that may not be fully consistent with the data from other participating jurisdictions.

3 The two-step approach in this report is based on the monitoring framework to assess bank-like financial stability risks from NBFI as set out in FSB (2011), *Shadow Banking: Strengthening Oversight and Regulation*, October.

4 The focus on economic functions is based on an approach that was introduced in FSB (2013), *Policy Framework for Strengthening Oversight and Regulation of Shadow Banking Entities*, August (the "FSB Policy Framework").

of euro area (EA) jurisdictions (Table 0-2). The first sample, denoted as *29-Group*, comprises 29 individual jurisdictions and includes more granular information for non-bank financial sectors. The second sample, denoted as *21+EA-Group*, is a more comprehensive sample in terms of jurisdictional coverage because it not only comprises 21 individual non-euro area jurisdictions, but also includes the 19-member euro area as a whole, as opposed to only eight individual euro area jurisdictions in the *29-Group* sample.[5] The *21+EA-Group* sample is used in parts of Section 1, where it provides wider jurisdictional coverage, though it is not as comprehensive in its coverage of financial sectors. The *29-Group* is used in Section 2 because of better coverage of NBFI sub-sectors.[6]

Table 0-2: Data sample composition

Belgium (BE)*	Argentina (AR)**	Hong Kong (HK)*	Saudi Arabia (SA)**	Euro area (EA)*
France (FR)*	Australia (AU)*	India (IN)**	Singapore (SG)*	
Germany (DE)*	Brazil (BR)**	Indonesia (ID)**	South Africa (ZA)**	
Ireland (IE)*	Canada (CA)*	Japan (JP)*	Switzerland (CH)*	
Italy (IT)*	Cayman Islands (KY)*	Korea (KR)*	Türkiye (TR)**	
Luxembourg (LU)*	Chile (CL)**	Mexico (MX)**	United Kingdom (UK)*	
Netherlands (NL)*	China (CN)**	Russia (RU)**[1]	United States (US)*	
Spain (ES)*				

= 29-Group *= 21+EA-Group* **= Advanced economy* ***= Emerging market economy (EME)*

[1] This report does not include data for Russia for 2021 and 2022, though data for previous years (based on the 2021 submission) are included in the analysis where appropriate. Where growth rates are calculated in this report, or comparison with previous years is made, Russian data are not included in order to keep a consistent data sample. Graph footnotes in the report specify if and how data on Russia were used.

Measures of growth and results throughout this report are mainly based on either annual historical data covering end-2002 to end-2022 or cross-sectional data as of end-2022. Some exchange rate effects have been corrected when presenting growth rates by applying a constant end-2022 exchange rate across all past years to convert each jurisdiction's local currency data into U.S. dollars. Growth rates have not been otherwise adjusted (e.g. for the appreciation or depreciation of asset prices). The results in this report are not strictly comparable to those presented in previous reports because of jurisdictions' revisions to historical data, improvements in national statistics and more granular reporting. When material, these revisions are noted in footnotes throughout this report.

5 The European Central Bank (ECB) provided the euro area aggregated data. The euro area data in this report covers the following 19 jurisdictions: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

6 Throughout the report, 29-Group and 21+EA-Group refer to the sample of jurisdictions used for analysis, although for some analyses, data corresponding to a subset of jurisdictions are available.

1. Financial intermediation in the global financial system

Section 1.1 provides an overview of the growth and size of the global financial system, with comparisons to the NBFI sector, which includes insurance corporations, pension funds, OFIs and financial auxiliaries. Section 1.2 focuses on trends and the main drivers of growth in the NBFI sector. Credit intermediation and wholesale funding trends of OFIs are analysed in Section 1.3. Section 1.4 discusses the direct domestic balance sheet interconnectedness between banks, insurance corporations, pension funds and OFIs, as well as cross-border linkages.

1.1. Developments in 2022

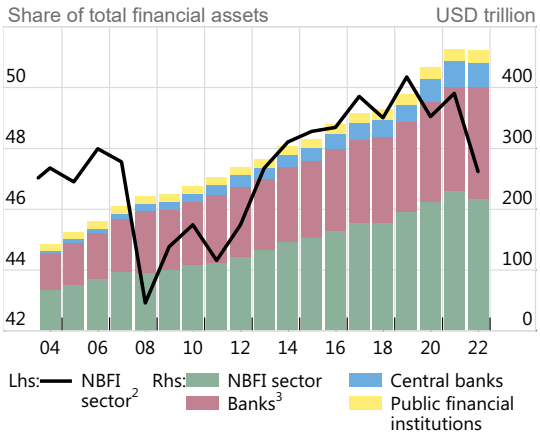
1.1.1. Macro developments

The value of total global financial assets declined for the first time recorded in this monitoring exercise against the backdrop of higher interest rates in response to inflationary pressures (Graph 1-1, RHS). Since early 2022, heightened geopolitical and economic uncertainty, as well as the rising interest rate environment in response to high inflationary pressures, contributed to tighter financial conditions in most jurisdictions. The combination of these factors contributed to lower asset prices, while market liquidity deteriorated across key asset classes. Amid lower asset valuations, total global financial assets decreased 0.4% in 2022, following years of continued and rapid growth. Central bank balance sheets decreased, amid lower asset valuations and quantitative tightening. Total financial assets of the NBFI sector decreased 5.5% compared to 2021, mainly reflecting valuation losses in mark-to-market asset portfolios. On the other hand, financial assets held by banks increased 6.9%, supported by the fact that their asset portfolios, largely composed of loans, traditionally have a lower sensitivity to interest rate changes. Consequently, the relative share of total global financial assets held by the NBFI sector decreased to 47.2%.

NBFI as a share of total global financial assets decreased in 2022

21+EA-Group **Graph 1-1**

Total global financial assets[1]



Composition of the global financial system[4]

	Total global financial assets	Central banks	Banks[3]	PFIs[5]	NBFI sector
Size at end-2022 (USD trillion)	461.2	39.0	183.2	21.0	217.9
Share of total global financial assets (%)	100.0	8.5	39.7	4.6	47.2
Growth in 2022 (year-over-year, %)	-0.4	-6.0	6.9	8.0	-5.5
Growth 2017–21 (annualised growth, %)	6.5	11.0	5.3	4.6	6.9

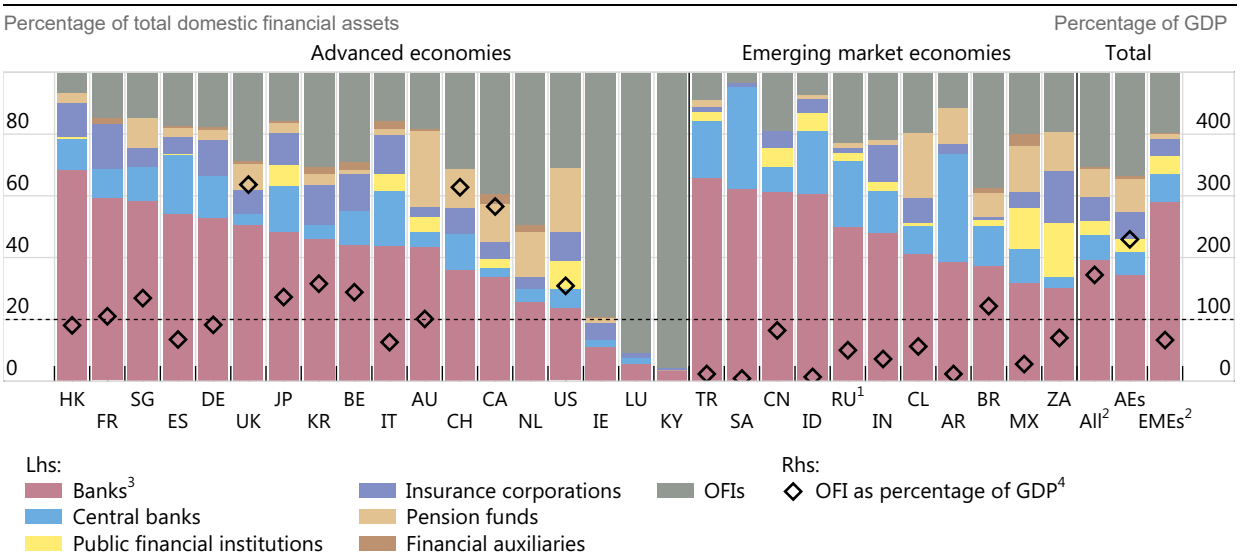
[1] Includes data for Russia up until 2020. [2] NBFI includes ICs, PFs, OFIs and financial auxiliaries. [3] All deposit-taking corporations. [4] Does not include data for Russia. [5] Public financial institutions.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

With the NBFI sector's share of total global financial assets decreasing in many jurisdictions, banks continued to be the largest financial entity type (Graph 1-2). This was particularly the case in emerging market economies, where banks represented 57.9% of total financial assets, while they represented 34.5% in advanced economies. The OFI sector was the largest sector in the Cayman Islands, Luxembourg, Ireland, the Netherlands, Canada, and the United States. While pension funds' size varied across jurisdictions, they constituted at least 10% of total financial assets in Australia, Chile, the United States, Mexico, the Netherlands, South Africa, Switzerland, Canada, and Argentina.

The structure of the financial system differed across jurisdictions, with banks comprising the single largest entity type in most jurisdictions

29-Group at end-2022 **Graph 1-2**



[1] Data for Russia as of 2020. [2] Russia not included in aggregates. [3] All deposit-taking corporations. [4] Jurisdictions with OFI assets greater (lower) than their GDP will be above (below) the horizontal dashed line. The ratio of OFI assets to GDP for the Cayman Islands (264,800), Luxembourg (19,349), Ireland (1,239) and the Netherlands (598) are not shown since they are particularly high compared to the rest of the jurisdictions.

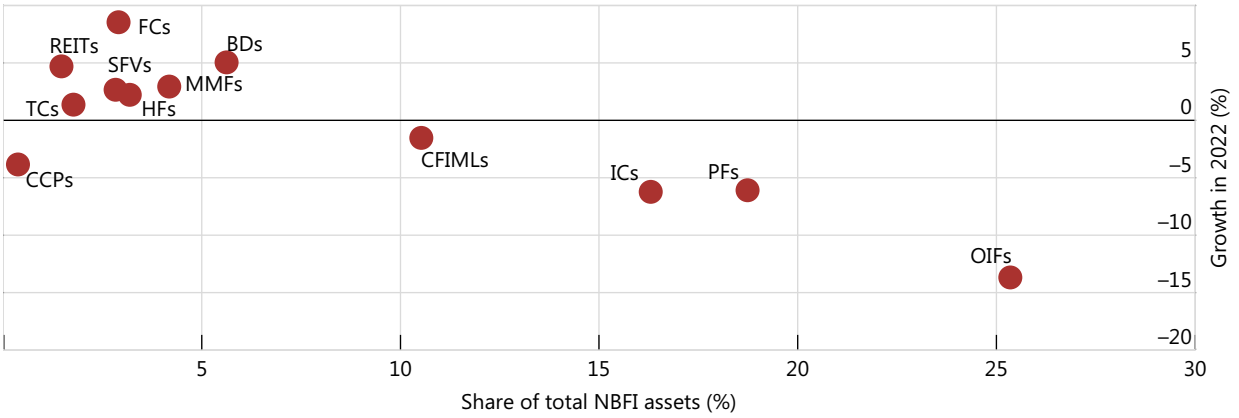
Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

1.1.2. NBFI sector developments

Since 2017 investment funds have driven changes in NBFI asset levels, and this continued to be the case in 2022, as investment funds led the decline in NBFI assets. Box 1-1 shows changes in the net asset value of investment funds and highlights that valuation effects explain most of the decrease in funds' assets. More broadly, as discussed in Section 1.1, there was a negative contribution to asset levels from sectors with large mark-to-market portfolios (Graph 1-3). The decrease in the assets of OIFs accounted for approximately two-thirds of the overall decline in NBFI sector assets in 2022, while insurance corporations and pension funds collectively accounted for almost all of the rest of the decline (Graph 1-5, LHS). This reflects the large investment portfolios that these entities have, which are sensitive to valuation effects.

Size vs. growth in 2022 of major NBFI subsectors

Graph 1-3



Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

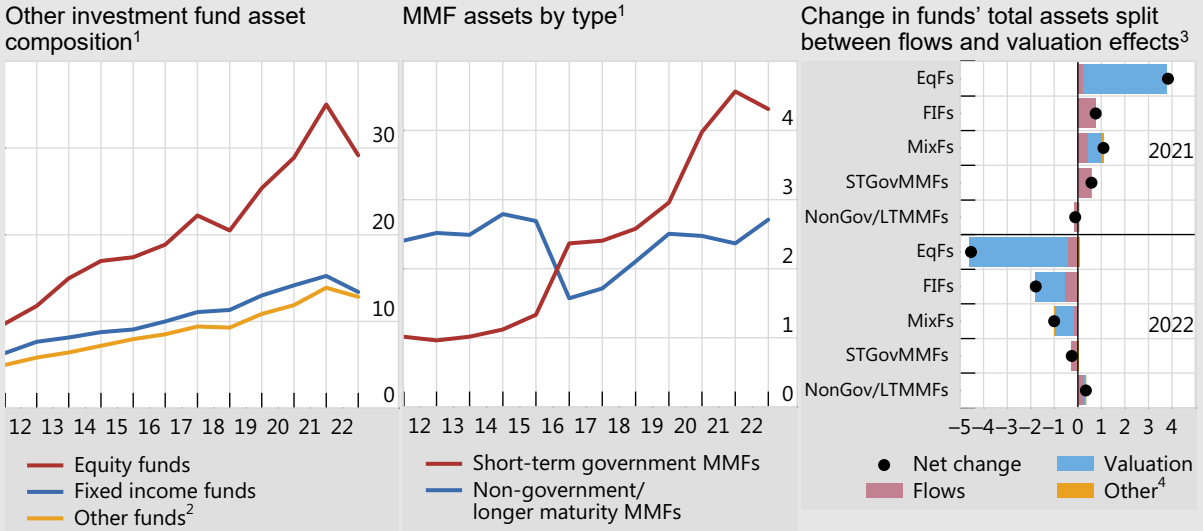
Box 1-1: Flow against valuation effects in investment funds

In 2022, central banks rapidly raised their policy rates from historically low levels, leading to significant valuation losses in most regions for both fixed income and equity markets. Eighteen jurisdictions reported data on the split between valuation and flows, though not for all fund types. Data from these jurisdictions for these fund types represented 84% of total reported assets of equity funds, 89% of fixed income funds, 72% of mixed funds and 82% of MMFs (Graph B1, LHS and middle panel).[7]

AUM declined in 2022 for most types of investment fund

In USD trillion

Graph B1



7 Out of the 20 jurisdictions that reported quarterly AUM as part of the annual monitoring exercise, 18 were able to supply the quarterly information about investor flows to separately identify flow and valuation effects.

EqFs = equity funds; FIFs = fixed income funds; MixFs= mixed funds; MMFs = Total MMFs, STGovMMFs = Short-term government MMFs, NonGov/LTMMFs = non-government/ longer-term maturity MMFs. Annual data (end of period) provided by 28 reporting jurisdictions.

[1] In 2022 the breakdown of changes of total assets into flow and valuation effects of equity funds, fixed income funds and other funds, was available for 84%, 89% and 72% of their total reported assets, respectively. For short-term government MMFs and non-government/ longer-term maturity MMFs, the breakdown was available for 100% and 98% of their total reported assets, respectively. [2] Other funds such as mixed funds, referenced investment funds, external debt investment funds, currency funds, asset allocation funds, etc. The numerator includes only mixed funds. [3] Estimated based on the data reported by a sub-sample of jurisdictions. [4] "Other" represents changes attributable to factors other than fund flows and valuation (e.g. changes in leverage and sample adjustments).

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Lower valuations in equity, mixed, and fixed income funds led to a contraction in AUM in 2022. Only MMFs' AUM increased, differentiating them from other types of funds. Inflows during the last three quarters of 2022 increased AUM of non-government and longer-term MMFs (Graph B1, RHS), while outflows from short-term government MMFs slightly reduced their AUM. These outflows were then reversed in Q4 2022 and turned into large inflows in early 2023, following the banking sector turmoil in March of that year. Graph A6-1 provides times series for changes in AUM decomposed between valuation and flows per entity type.

OIFs decreased in 23 jurisdictions (Graph 1-4, LHS and middle panel). Given the large size of their respective OIF sectors, the United States and the euro area accounted for the largest part of the decrease. The United States experienced a decrease in OIFs of 19.0% which was primarily driven by equity funds, which fell $4.2 trillion – or 20.2% – accounting for 74.1% of the year-on-year contraction in OIFs. Fixed income funds in the United States also decreased significantly, by 16.1% to $5.9 trillion. The decline in aggregate euro area OIF assets in 2022 equalled 12.4% and was evenly spread across major regional fund domiciles (Luxembourg -13.3%, Ireland -12.2% and Germany -13.4%). Whilst not significantly contributing to the euro area's decrease in OIF assets given the relatively small size of its fund sector, the Netherlands experienced the largest percentage decline of any jurisdiction globally,[8] with OIFs' assets declining 30.1% in 2022.[9]

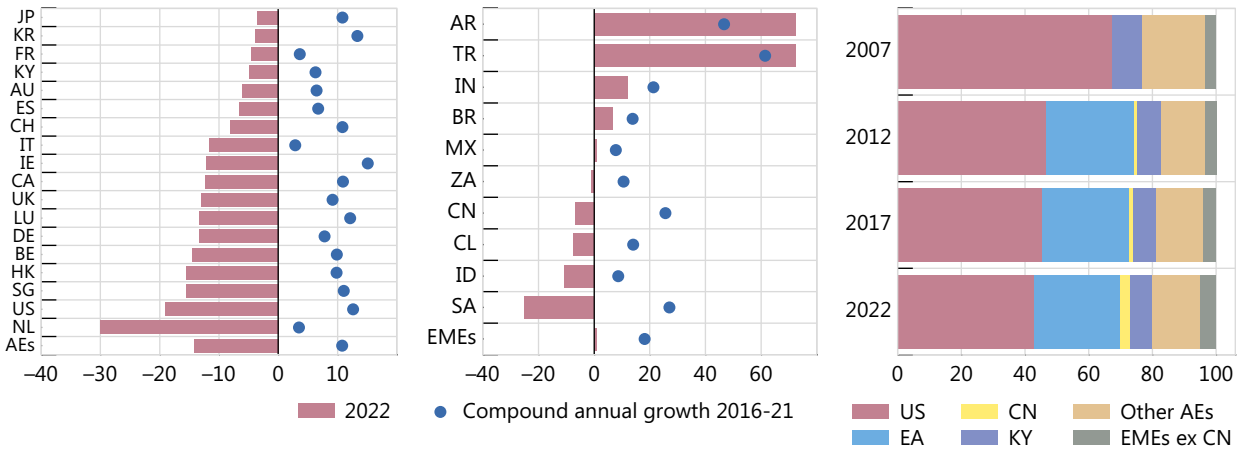
8 In many cases, such as here for OIFs, year-on-year changes in Argentina and Türkiye are the largest; however, this is because of their inflation rates and, therefore, this report does not comment specifically on those jurisdictions.

9 This decline was largely attributed to pension funds withdrawing from affiliated equity and fixed income funds, in order to invest directly themselves.

OIFs' size and growth by jurisdiction[1]

In per cent

Graph 1-4



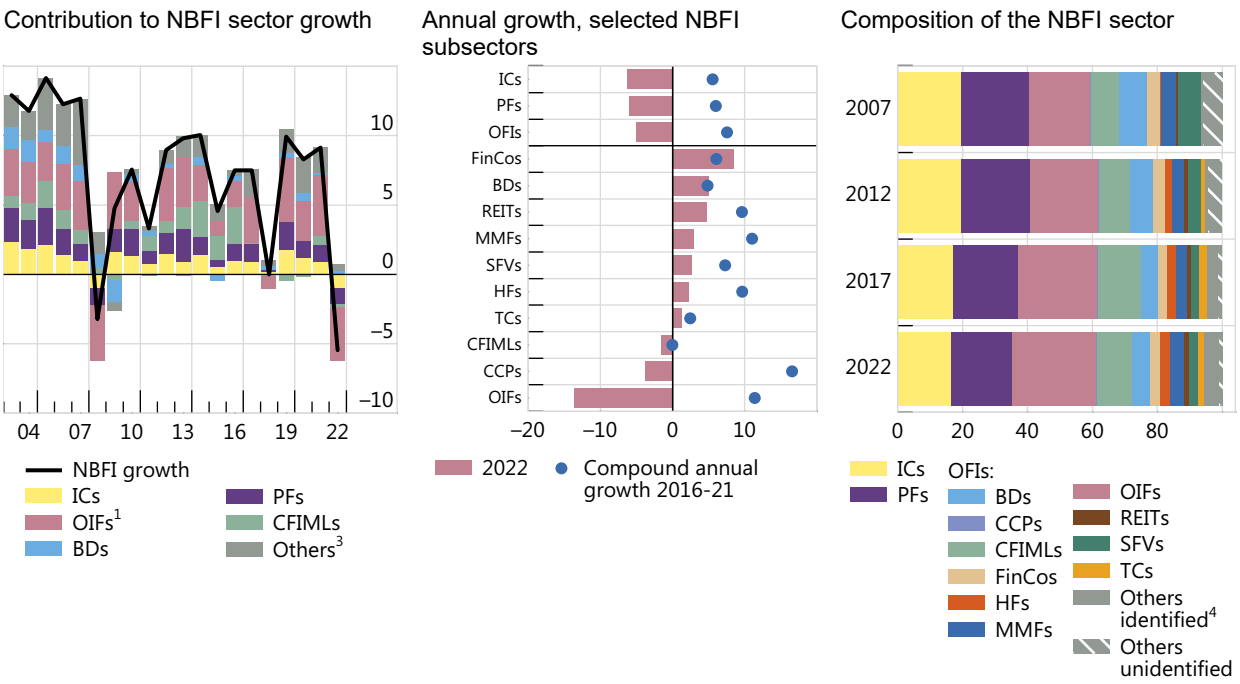
[1] Does not include data for Russia. [2] Growth rates in Argentina and Türkiye reflected high rates of inflation. [3] OIF assets by jurisdiction, 21+EA-Group.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

The composition of the NBFI sector remained broadly unchanged in 2022 compared with 2017, though the share of some sectors declined (Graph 1-5, RHS). Assets held by insurance corporations contracted 6.2% in 2022, while for pension funds and OFIs they contracted 6.1% and 5.0%, respectively (Graph 1-5, middle panel). For insurance corporations, 17 jurisdictions reported declines and total assets were $35.6 trillion at end-2022. For pension funds, 16 jurisdictions reported declines, with total assets falling to $40.9 trillion at end 2022.

OIFs[1] were the largest contributor to the decline of NBFI assets in 2022[2]

In per cent, 29-Group **Graph 1-5**



BDs = broker-dealers; CCPs = central counterparties; CFIMLs = captive financial institutions and money lenders; FinCos = finance companies; HFs = hedge funds; MMFs = money market funds; OIFs = investment funds other than MMFs and hedge funds; REITs = real estate investment trusts and real estate funds; SFVs = structured finance vehicles; TCs = trust companies, PFs = pension funds.

[1] Investment funds other than hedge funds, real estate investments trusts and real estate funds (REITs), and MMFs. Other investment funds include equity funds, fixed income funds and other funds such as mixed funds, referenced investment funds, external debt investment funds, currency funds, asset allocation funds, etc. [2] Does not include data for Russia. [3] Others include MMFs, HFs, SFVs, TCs, REITs, and CCPs. [4] Others identified comprise a variety of jurisdiction-specific entities that do not fit any of the explicit categories included in the monitoring exercise.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations

Within OFIs, declines were observed in OIFs, CCPs and captive financial institutions, and money lenders (Graph 1-5, middle panel). These decreases outweighed the increases seen in finance companies, broker dealers, REITs, structured finance vehicles, MMFs, hedge funds, and trust companies. In terms of jurisdictions, Saudi Arabia experienced the largest decline in OFIs' assets, of 34.8% (Graph 1-6, middle panel) because of valuation effects on investment funds; the United States, Hong Kong, and Germany experienced declines of 12.6% for the former, and close to 10% for the latter two jurisdictions (Graph 1-6, LHS).[10] In contrast, India and Brazil experienced increases in OFI assets of 12.3% and 7.2%, respectively (Graph 1-6, LHS and middle panel).[11] Taken together, the composition of the OFI sector across jurisdictions in 2022 was only slightly changed from 2017, the most notable differences being the increase in the Cayman Islands' proportion of OFI assets and the decrease in the euro area's share (Graph 1-6, RHS).

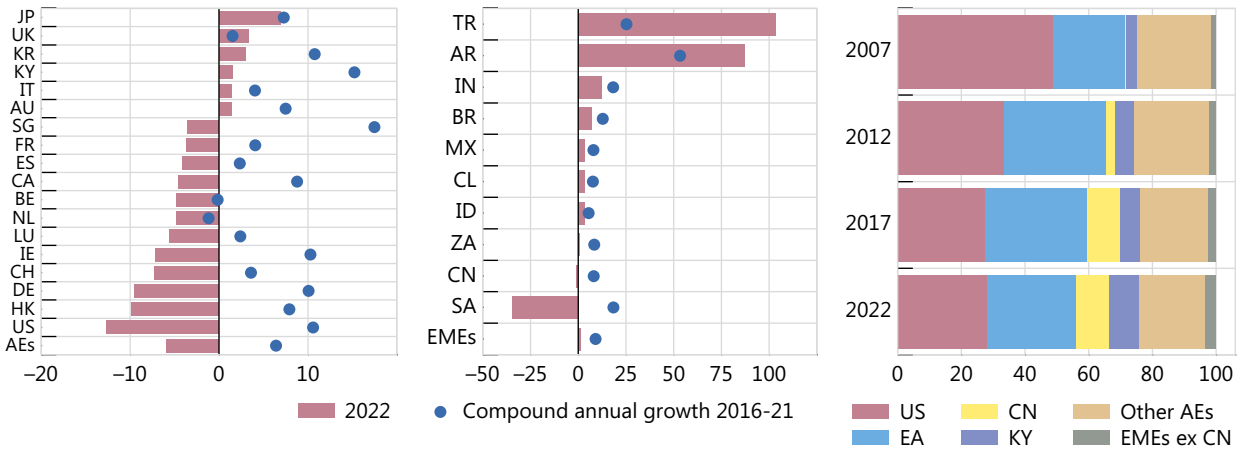
[10] These declines were driven by the OIF sector; see above.

[11] In Brazil, the increase was mainly driven by fixed income funds.

OFIs' size and growth by jurisdiction[1]

In per cent

Graph 1-6



[1] Does not include data for Russia. [2] Growth rates in Argentina and Türkiye reflected high rates of inflation. [3] OFI assets by jurisdiction, 21+EA-Group.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Annex 3 provides an overview of the main developments in major NBFI sub-sectors, and Box 1-2 includes an overview of the financial innovations in the NBFI sector.

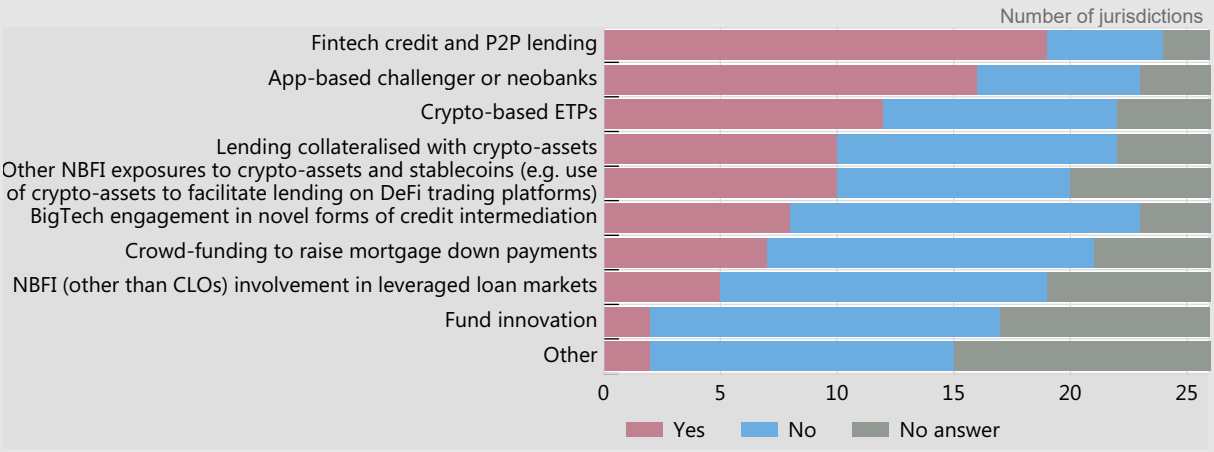
Box 1-2: Financial innovations in NBFI

Participating jurisdictions responded to a survey in which they were asked to report whether certain financial innovations, as well as innovative services and products, were present in their jurisdictions. A total of 24 jurisdictions responded, and Graph B2 provides an overview of their responses.

Fintech credit and peer-to-peer lending were the most commonly reported financial innovation

At end-2022, 24 jurisdictions

Graph B2



Responding jurisdictions were: Argentina, Australia, Belgium, Brazil, Canada, Switzerland, Spain, France, Hong Kong, Indonesia, India, Italy, Japan, Korea, the Cayman Islands, Luxembourg, Mexico, the Netherlands, Saudi Arabia, Singapore, Türkiye, the United Kingdom, the United States, and South Africa.

Source: Jurisdictions' 2023 submissions; FSB calculations.

Fintech credit, including peer-to-peer lending, was the most commonly reported innovation. While overall this activity appears small in relation to the size of credit markets, some jurisdictions noted a growing trend. In many cases, fintech credit is provided via electronic platforms that connect lenders to borrowers – in which case the platform takes the role of a financial auxiliary. In some cases, however, loans are taken on the balance sheet of these platforms (even if it is for a short period of time), in which case the platforms are akin to new types of financial intermediaries. As part of the third phase of the G20 Data Gaps Initiative, FSB jurisdictions plan to start reporting data on fintech credit in 2024 on a best effort basis.[12]

After fintech credit, app-based challenger or neobanks[13] have been identified in many jurisdictions as an innovation. These entities are typically fintech firms that offer applications, software, and other technologies to streamline mobile and online banking. In many jurisdictions, these digital firms have a banking license and are therefore subject to the same prudential requirements as incumbent banks.

Innovations linked to crypto-assets were reported by 12 jurisdictions. These innovations cover crypto-based exchange-traded products, collateralised lending with crypto-assets usually done by fintech firms, and other exposures to crypto-assets, including stablecoins. While this report does not cover financial stability risks linked to the use of crypto-assets, the FSB and the IMF have published policy recommendations covering a wide range of risks related to crypto-asset markets and activities and global stablecoins.[14]

1.1.3. Developments in emerging market economies

While the share of global NBFI sector assets held by emerging market economies (EMEs) has increased over time, it remained small relative to global NBFI financial assets. The share of global NBFI assets held by EMEs amounted to 12.0%, up from 10.9% in 2021, and this included an 8.6% share held by China.

The relative importance of NBFI in EMEs has decreased over the last five years. As a percentage of EME financial assets, the share of financial assets held by the NBFI sector decreased 0.9% in EMEs between 2017 and 2022, albeit less so than in advanced economies (AEs) (Graph 1-7, LHS). The narrow measure of NBFI as a share of financial assets has also decreased in EMEs. However, when excluding China, these shares actually increased (Graph 1-7, LHS).

This fall in the relative importance of the NBFI sector was observed in half of EMEs. There were large decreases between 2017 and 2022 in the share of total financial assets held by the NBFI sector seen in Chile (-8.6pp), Indonesia (-3.5pp), South Africa (-2.0pp), China (-1.6pp), and Argentina (-1.3pp). In most of these cases, the reduction in the relative size of the NBFI sector was mainly due to an expansion in banks' and central banks' balance sheets since 2017 and the policy responses to the COVID-19 pandemic. In contrast, India (4.1pp), Brazil (3.3pp), Türkiye (1.4pp), Mexico (1.3pp), and Saudi Arabia (0.3pp) showed an increase in the relative importance of NBFI in the same period.

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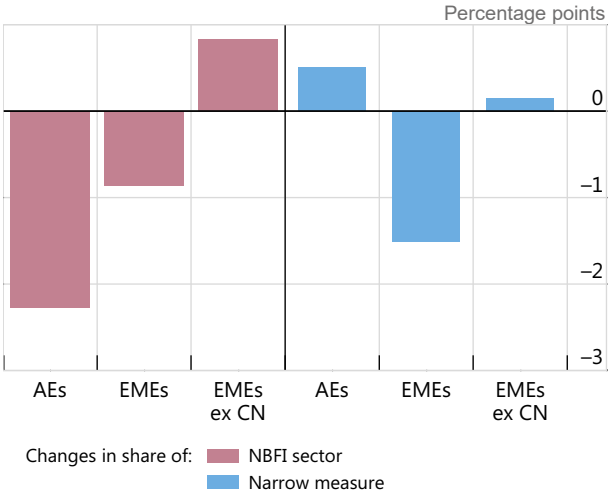
12 See Data Gaps Initiative 3 website.

13 These entities are FinTech firms that offer apps, software, and other technologies to streamline mobile and online banking.

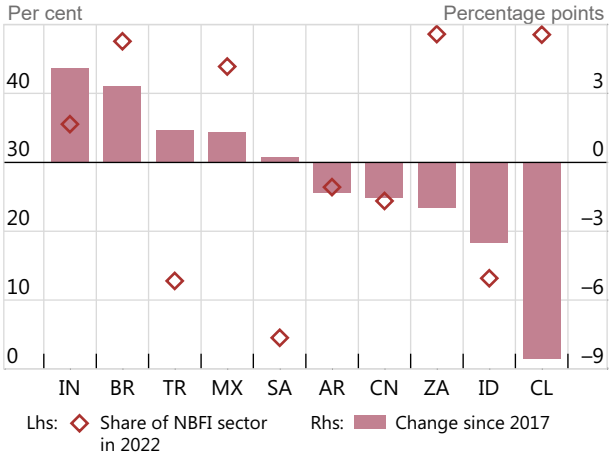
14 See FSB (2023), *IMF-FSB Synthesis Paper: Policies for Crypto-Assets*, September.

The relative importance of NBFI has decreased in EMEs **Graph 1-7**

Changes in the share[1] of NBFI sector and narrow measure as a percentage of total financial assets for AEs and EMEs over the last five years



Change in the share[2] of NBFI assets in each EME over the last five years



[1] Shares of the NBFI sector and narrow measure are calculated as aggregated financial assets of the NBFI sector and narrow measure of each region divided by aggregated total financial assets of the region. [2] Shares of the NBFI sector for each jurisdiction are calculated as financial assets of the NBFI sector of a jurisdiction divided by total financial assets of the jurisdiction.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

1.2. Credit assets, wholesale funding, and financial leverage

1.2.1. Credit and loan assets

The credit activities of NBFI entities are of particular importance to financial stability, because maturity/liquidity transformation, leverage**,** and imperfect credit transfer can give rise to vulnerabilities that may amplify or transmit shocks. Moreover, in jurisdictions where the NBFI sector plays a more significant role in credit intermediation, NBFI entities that are not sufficiently resilient to shocks could slow the flow of credit to the wider economy, especially during downturns. Credit assets of financial intermediaries include loans,[15] debt securities,[16] and cash on deposit, or "deposit assets". Table 1-2 provides an overview of the credit assets in 2022 per sector. A discussion of the deposit assets of financial intermediaries is included in Section 1.3.2.

[15] These are also referred to as "loan assets," which include overdrafts, instalment loans, hire-purchase credits, and loans to finance trade credit.

[16] Examples of debt securities include bills, bonds, and commercial paper.

Table 1-2: Credit asset composition and growth in 2022, 21+EA-Group

	Total	Banks[1]	ICs	PFs	OFIs
Credit assets (USD trillion at end-2022)	228.8	149.9	17.3	10.1	51.5
Growth (% in 2022)	2.1	5.4	-11.5	-4.4	-0.6
Of which Loan assets (USD trillion at end-2022)	117.5	99.5	2.4	0.3	15.4
Growth (% in 2022)	6.6	7.3	-0.6	6.4	2.8
Of which Deposit assets (USD trillion at end-2022)	22.5	16.3	1.1	0.7	4.5
Growth (% in 2022)	0.4	-1.3	0.5	6.1	6.4

[1] All deposit-taking corporations.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

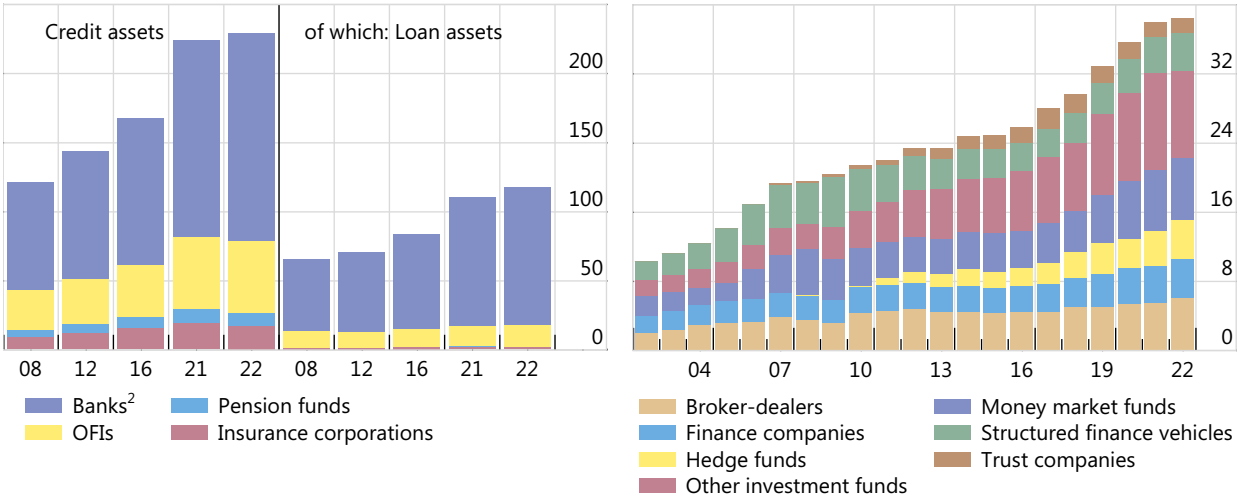
In 2022, credit assets held by banks[17] increased, while those of NBFI entities decreased for the first time in several years. In 2022, banks' credit assets grew 5.4% and within that loan assets grew by 7.3%, lower than the pace observed in the previous two years. However, the total amount of loan assets in the financial system continued to grow in 2022, largely due to the growth in bank credit assets (Graph 1-8, LHS). Banks remained the single largest source of loans, accounting for 84.7% of global loan assets at end-2022 (and the largest source of credit assets overall with 65.5%). Credit assets held by insurance corporations, pension funds, and OFIs fell from 2021 to 2022 by 11.5%, 4.4% and 0.6%, respectively (Table 1-2). These were, in fact, the first falls in credit assets recorded for insurance corporations and pension funds.

[17] The term "banks", as used in the text, includes all deposit-taking corporations.

OFIs' share of credit assets stalled in 2022[1]

In USD trillions, 21+EA-Group **Graph 1-8**

Composition and evolution of credit assets since 2008[1] | Credit assets held by selected OFIs



[1] Includes data for Russia up until 2020. [2] All deposit-taking corporations.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

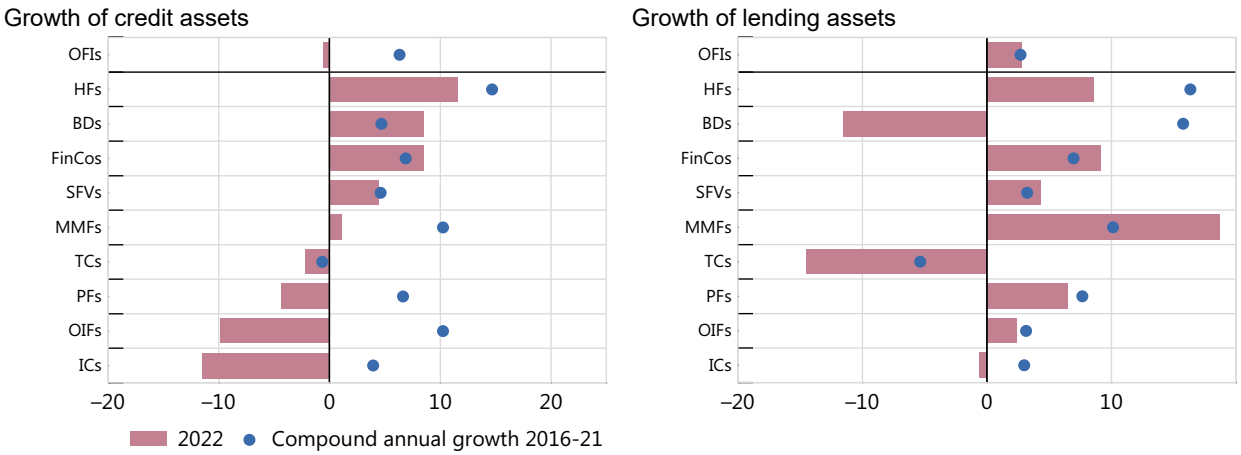
Among OFIs, credit assets of insurance corporations and other investment funds decreased by the largest amount from 2021 (-11.5% and -9.9% respectively, Graph 1-8, RHS and 1-9, LHS). Other investment funds continued to represent the largest share among the OFIs (26.3%), followed by MMFs (18.8%) and broker-dealers (15.7%), (Graph 1-8, RHS).[18] The Netherlands experienced the greatest fall in OIF credit assets (-24.1%, see above), followed by Ireland (-16.0%), Germany (-15.0%), and the United States (-14.9%). The United States accounted for 57.4% of the OIF credit assets decline, given its size.[19]

[18] These shares refer to selected OFIs as shown in Graph 1-8, RHS

[19] This contribution has been calculated with respect to the 29-Group sample for better data coverage.

Credit and lending assets of selected NBFI subsectors

In per cent; 21+EA-Group **Graph 1-9**



OFIs = other financial intermediaries; PFs = pension funds; ICs = insurance corporations; BDs = broker-dealers; FinCos = finance companies; HFs = hedge funds; MMFs = money market funds; OIFs = investment funds other than MMFs and hedge funds; SFVs = structured finance vehicles; TCs = trust companies.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

1.2.2. Wholesale funding and repos

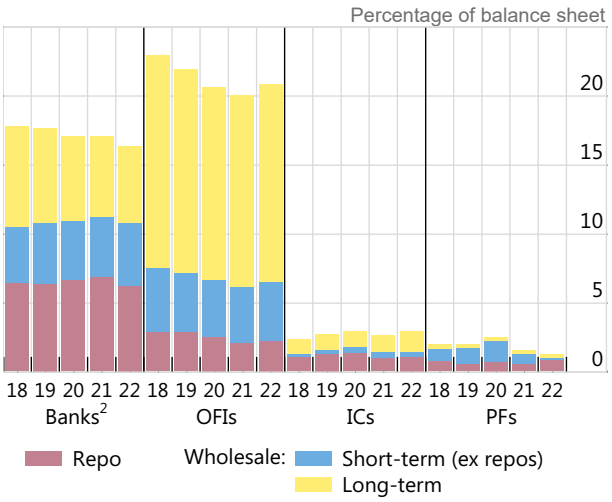
Wholesale funding instruments – including repurchase agreements (or repos) – can be used by NBFI entities to create short-term, money-like liabilities and increase leverage. This facilitates credit growth and maturity/liquidity transformation outside the banking system. Wholesale funding increases interconnectedness among financial institutions. Although increasing interconnectedness may support efficient risk sharing in the financial system, in periods of stress it may also spread shocks and contribute to procyclicality.

OFIs' use of wholesale funding, in particular long-term funding, increased slightly in 2022 (Graph 1-10, LHS). OFIs continued to rely more on long-term wholesale funding (14.3% of total OFI assets) than on short-term wholesale funding (4.3% of total OFI assets) and repo (2.2% of total OFI assets). This has led to a slight reversal of the decline in OFIs' overall use of wholesale and repo funding observed over the previous four consecutive years.

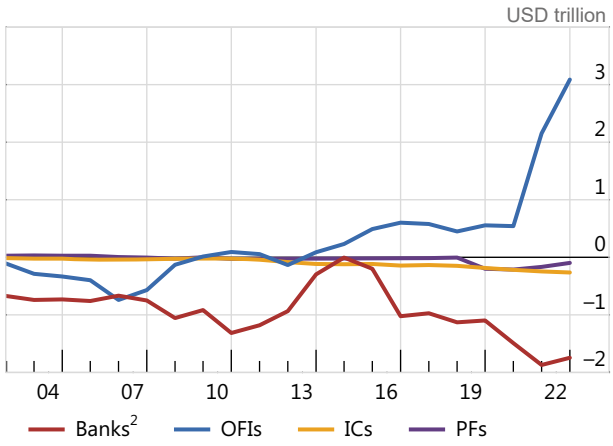
OFIs' net level of repo assets continued to increase in 2022

21+EA-Group **Graph 1-10**

Funding of entities by source[1]



Net repo position[3]



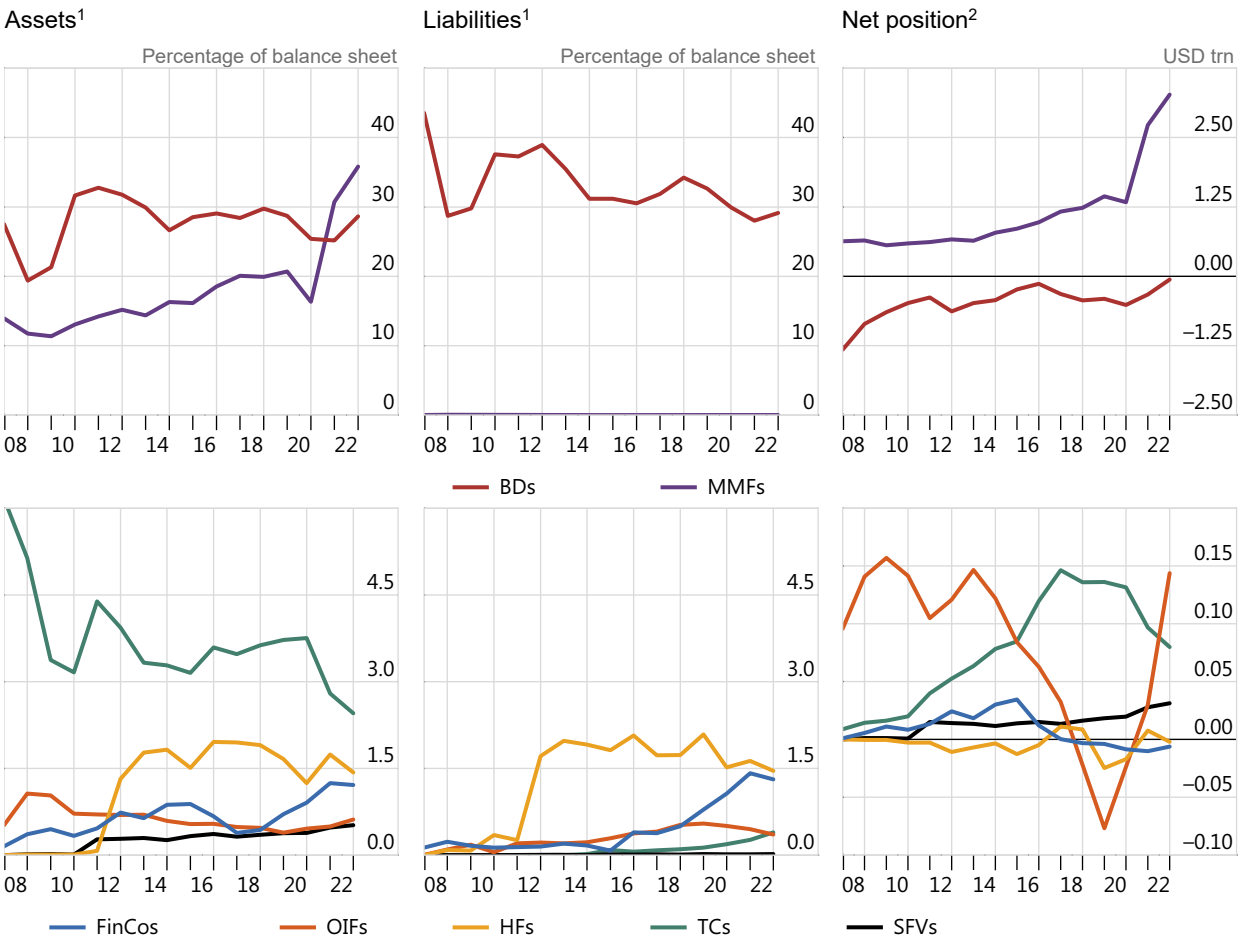
[1] Short-term funding is defined as wholesale funding whose residual maturity is less than 12 months. Includes data for Russia up until 2020. [2] All deposit-taking corporations. [3] Repo assets less repo liabilities. Assets related to repo transactions on the buyer's (collateral-taker, cash-provider) balance sheet. Liabilities related to repo transactions on the seller's (collateral-provider, cash-taker) balance sheet. Does not include data for Russia.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

Across banks, pension funds, insurance corporations, and OFIs, the latter were the largest net cash providers in the repo market (Graph 1-10, RHS). OFIs' net level of repo assets continued to increase significantly in 2022, with net positive repo positions at end-2022 six times higher than two years before. They accounted for the largest share of repo assets. Amongst the 18 jurisdictions that reported OFI repo activity, MMFs, other investment funds, structured finance vehicles, and trust companies tended to be net cash providers through reverse repo transactions, while broker-dealers, hedge funds and finance companies achieved an almost net zero repo position (Graph 1-11). For more detail on broker dealers' expansion of their repo assets, see also section 2.4.

OIFs' repo liabilities decreased sharply in 2022

21+EA-Group **Graph 1-11**



[1] Assets related to repo transactions on the buyer's (collateral-taker, cash-provider) balance sheet. Liabilities related to repo transactions on the seller's (collateral-provider, cash-taker) balance sheet. Does not include data for Russia. MMF repo liabilities were slightly above zero and therefore not visible in the upper-middle panel. [2] Repo assets less repo liabilities. Does not include data for Russia.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

As was the case in 2021, the increase in OFIs' net level of repo assets was primarily driven by MMFs in the United States. Indeed, MMFs continued to increase their (cash) investments in the Federal Reserve's overnight reverse repo facility, which provided attractive risk-free returns.[20] The Federal Reserve introduced an overnight reverse repo facility in 2013, which serves as a monetary policy tool intended to improve control over short-term interest rates, and added MMFs as eligible counterparties. This facility provides an opportunity to invest cash on a collateralised basis at a rate set by the Federal Reserve and does not pose the same type of risks present in a repo transaction with a private counterparty. The facility already saw strong uptake in 2021, which further increased in 2022, reaching record inflows of $2.6 trillion at the end of 2022.

[20] See SEC Staff document (2021), *Primer: Money Market Funds and the Repo Market*, February.

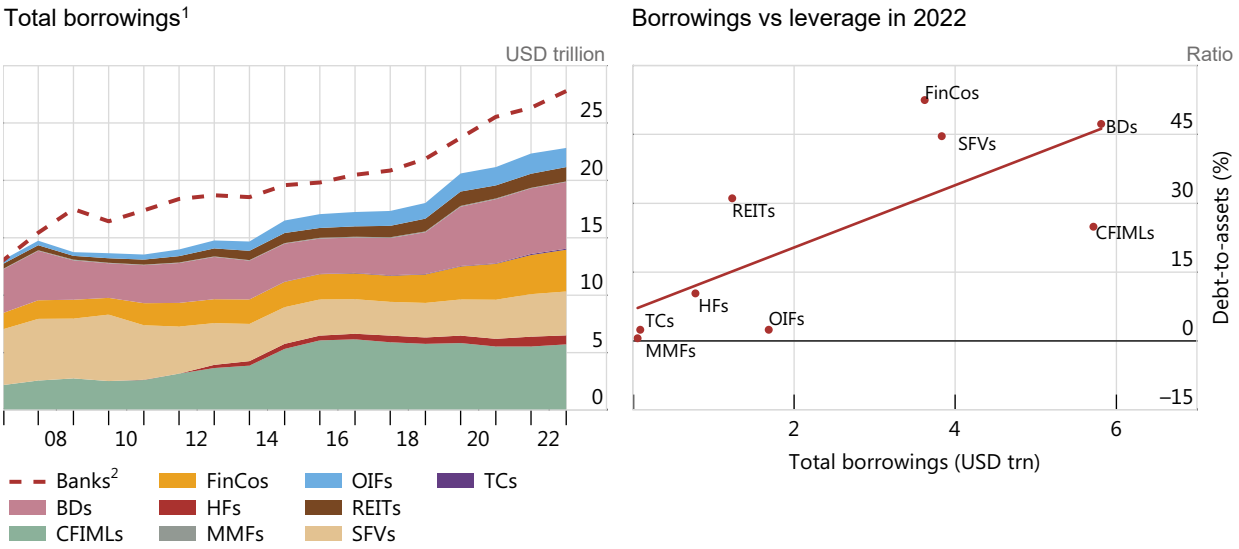
1.2.3. Financial leverage

As an enhancement to this year's report, the FSB collected data on borrowings per entity types outside of the narrow measure. Section 2 of the report features a number of vulnerability metrics to measure (financial) leverage for the entities within the narrow measure. However, entities outside the narrow measure – for example because they do not engage in credit intermediation – can also take on leverage. In certain cases, this can have negative consequences on financial stability.[21]

After a small decrease following the Global Financial Crisis, OFI entities have increased their borrowings, possibly leading to high levels of leverage (Graph 1-12, LHS). Total borrowings measure how much debt financial intermediaries have taken on through various means – issuing debt securities, taking on loans, or engaging in repo transactions (repo liabilities). In aggregate, OFI total borrowings were smaller than that of banks (Graph 1-12, LHS). Amongst OFIs, hedge funds and OIFs stood out as they decreased their borrowings 9.6% and 3.2% respectively, from 2021. In addition to debt levels, the debt-to-assets ratio was used throughout to measure the extent to which financial intermediaries were levered in 2022 (Graph 1-12, RHS).[22] Finance companies, broker-dealers, structured finance vehicles and REITs exhibited higher leverage ratios than other OFIs. Hedge funds' financial leverage appeared small, but data collected did not measure synthetic leverage.

OFI borrowings and leverage

29-Group **Graph 1-12**



[1] Borrowings include debt securities, loans, and repos on the liability side of the balance sheet. [2] All deposit-taking corporations. For these entities, borrowings do not include deposits on the liability side of the balance sheet.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

[21] FSB (2023), *The Financial Stability Implications of Leverage in Non-Bank Financial Intermediation*, September.

[22] This ratio was preferred to others (e.g. using equity) given data availability.

1.3. Interconnectedness among financial sectors

Financial interconnectedness is a feature of an open and integrated global financial system. It may help share risk across financial sectors but may also serve as a channel for risk transmission, particularly when entities along intermediation chains employ a high degree of leverage or engage in maturity and/or liquidity transformation. Therefore, measures of interconnectedness among banks, OFIs, and other NBFI entities can serve as important indicators of potential contagion, within and across sectors and borders. This section focuses on direct domestic and cross-border balance sheet interconnectedness between banks, insurance corporations, pension funds, and OFIs. Interconnectedness is further discussed in each EF section. To measure direct interconnectedness, such as direct borrowing and lending, or investment exposures between two counterparties, the FSB compiled aggregated balance sheet data to identify balance sheet asset and liability exposures between financial sectors that arose from credit provision and/or investment in a counterparty.[23] These aggregated data were used to calculate measures of interconnectedness between sectors, including exposures and funding dependence.

Data enhancement for this year's report reduced the data gaps relating to interconnectedness, thus providing a more comprehensive picture of linkages between entities and across borders. This work, which has sought to consider differences in reporting approaches across jurisdictions, has been successful in reducing unidentified linkages as highlighted in this section.

1.3.1. Aggregate linkages

Households had the largest claims on pension funds, insurance corporations, and banks. OFIs had the largest cross-border linkages across entity types expressed as a percentage of both total claims and liabilities, and these formed the largest proportion of OFIs' identified linkages, though a significant share remained unknown (Graph 1-13, LHS). Banks' claims were also mostly on the rest of the world (RoW). Pension funds and insurance corporations continued to have large claims on OFIs, reflecting the use of investment funds to manage some of their assets. The claims of central banks, public financial institutions, and non-bank deposit-taking corporations are largest on banks, followed by OFIs (Graph 1-13, RHS).

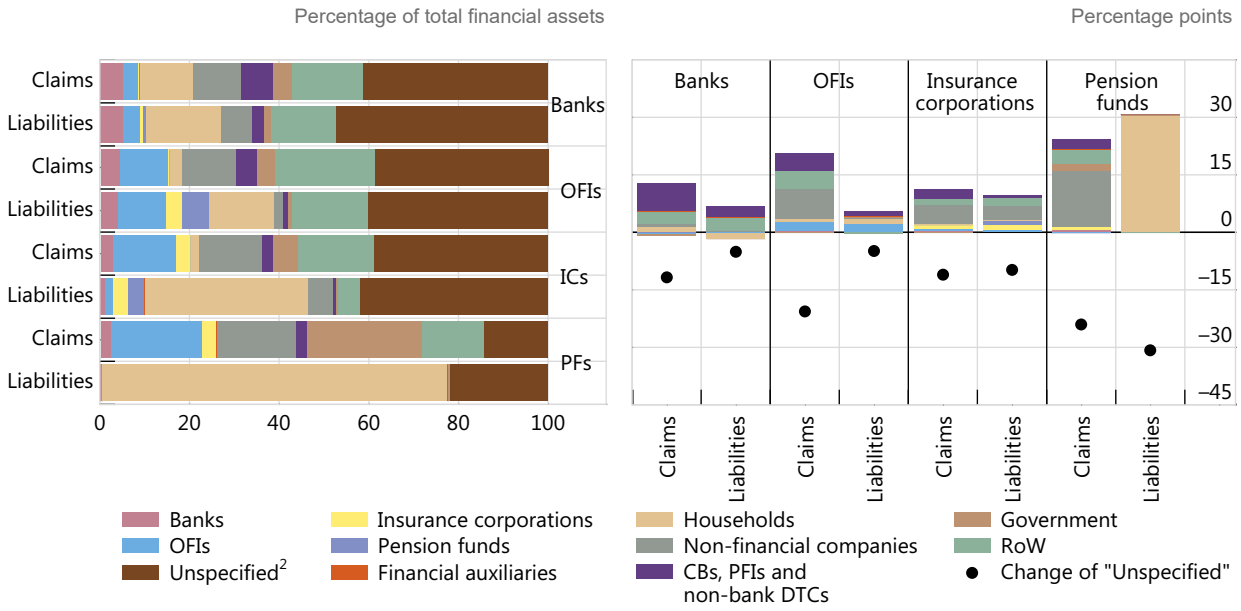
While unspecified linkages are a gap in global data reporting, for 2022, jurisdictions significantly reduced the share of unspecified financial linkages. This improvement was observed across all entity types and was most notable in the case of pension funds, where identified linkages increased by approximately 25 – 30 percentage points with regard to both claims and liabilities (Graph 1-13, RHS). Thus, unspecified linkages accounted for only 21.8%, at most, for pension funds (Graph 1-13, LHS).

[23] Equity data was included in both "claims on" and "liabilities to".

Aggregate linkages, measured as a percentage of financial assets

29-Group **Graph 1-13**

Aggregate linkages[1] Change in identified linkages 2023 vs. 2022



[1] The total reported linkages of all participating jurisdictions as a percentage of total claims and liabilities of each sector. The computed measures do not capture risks from indirect interconnectedness and do not take into account important qualitative aspects, such as the difference between secured and unsecured liabilities. [2] "Unspecified" indicates linkages to other sectors not identified by jurisdiction or not covered in this report.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

1.3.2. Linkages between the banking and NBFI sectors

Banks and NBFI entities are directly connected, with funding channels operating in both directions. For instance, banks often extend credit to (or invest in) insurance corporations, pension funds, or OFIs, while these entities provide funding to banks or deposit the non-invested part of customer assets with custodian banks.

Interconnectedness between the banking and NBFI sectors decreased for the banking sector, but increased for the NBFI sector, as measured by the size of links as a proportion of the respective sector assets. Banks continued to be net recipients of funding from NBFI entities, although this funding has been gradually decreasing since 2013 in proportion to banks' assets (Graph 1-14, LHS). In contrast, OFIs' use of funding from banks, when measured as a proportion of OFI assets, increased in 2022 from 4.1% to 4.5% (Graph 1-15, LHS). While OFIs' liabilities to banks increased year-on-year, the increase in the measure of interconnectedness is largely attributed to OFIs' assets having decreased in 2022, with the United States (-12.6%), Ireland (-7.1%) and Luxembourg (-5.6%) contributing significantly to this fall in OFIs' assets. In nominal terms, OFIs' use of funding from banks increased by approximately $180 billion.

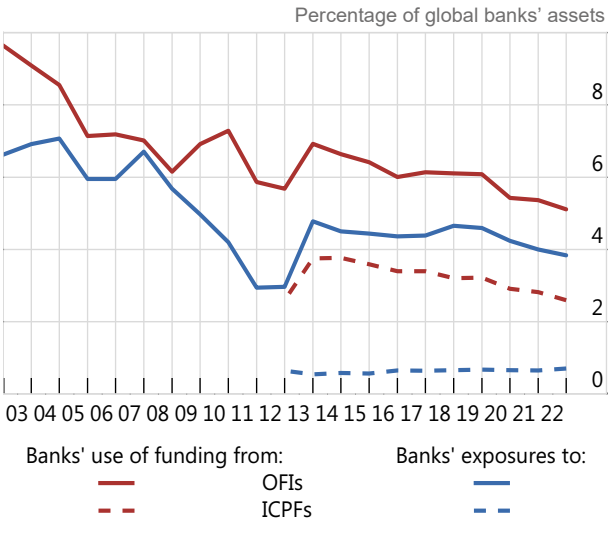
Banks' overall use of funding from NBFI entities has not changed significantly across jurisdictions. As in 2021, in South Africa, funding from NBFI entities was larger than 30% of

total banks' assets. In Luxembourg[24] and Chile, banks' use of funding from NBFI entities was over 20% of total banks' assets, and for Brazil,[25] Korea, Australia, Switzerland, and Argentina it was over 10% (Graph 1-14, RHS).

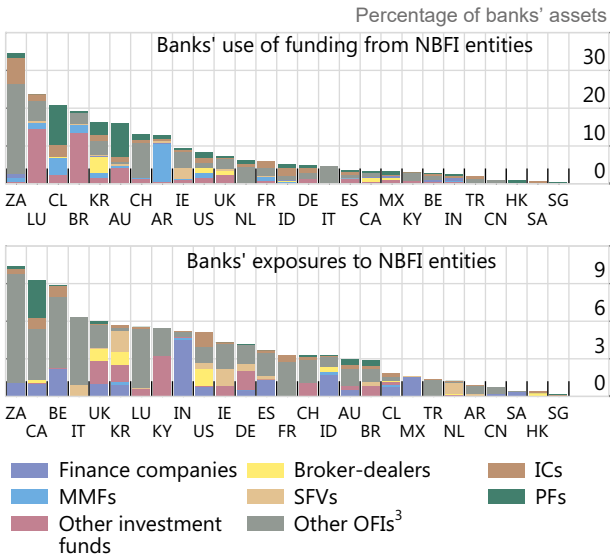
Banks' interconnectedness with NBFI continued to decrease relative to bank assets

Graph 1-14

Banks' interconnectedness with OFIs and ICPFs[1]



By jurisdiction, at end-2022[2]



The left-hand panel includes data for the 21+EA-Group, while the right-hand panels include data for the 29-Group.

[1] The sharp rise in OFI linkages in 2013 partly reflects availability of euro area aggregate data from 2013 onwards. Includes data for Russia up until 2020. [2] For upper (lower) panel, banks' use of funding from (exposure to) the corresponding NBFI sub-sector, net of prudential consolidation (where data permits), as a share of bank assets. Neither includes data for Russia. [3] "Other OFIs" includes CCPs, hedge funds, trust companies, and unidentified OFIs.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

Within NBFI entities, OFIs' interconnectedness with banks continues to be higher than that of insurance corporations and pension funds taken together (Graph 1-15). OFIs' funding from banks exceeded 15% of OFI assets in two jurisdictions. For most jurisdictions, the OFIs entities most commonly using bank funding were CCPs, hedge funds, trust companies, and unidentified OFIs, with the exception of India, Indonesia, and Saudi Arabia – where they were finance companies. OFIs' exposures to banks were very large in South Africa and Argentina (more than 30% of OFI assets), with South African OFIs being CCPs, hedge funds, trust companies, and other unidentified OFIs, while Argentinian OFIs were predominantly MMFs.

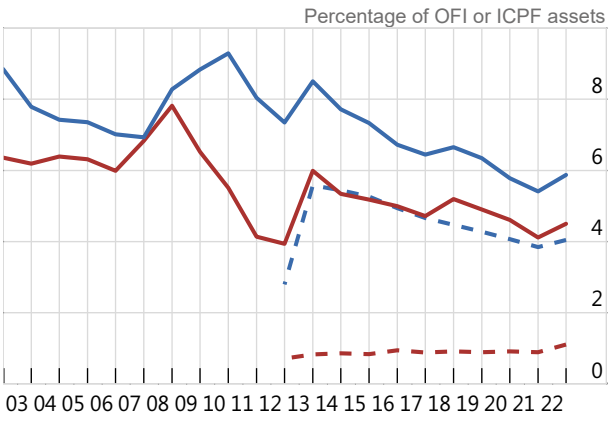
[24] In Luxembourg, these linkages arise mainly because investment funds deposit part of their cash at local custodian banks.

[25] In Brazil, these linkages mainly arise because investment funds channel their liquidity to banks via reverse repo operations backed by government debt; the Central Bank drains this liquidity through repos with banks.

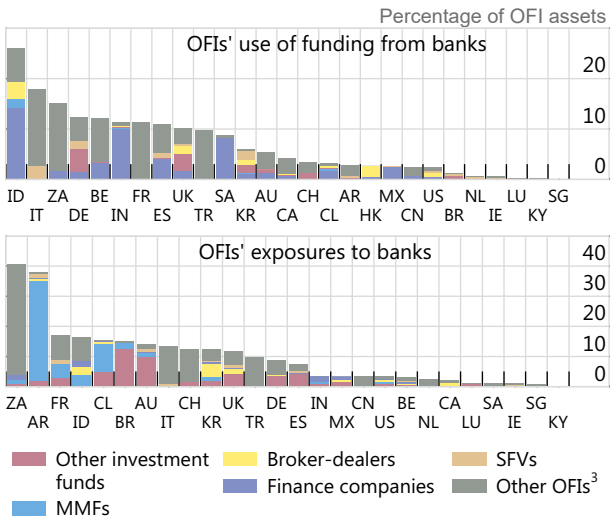
NBFI's interconnectedness with the banking sector increased relative to NBFI assets

Graph 1-15

Interconnectedness of NBFI sector with banks[1]



By jurisdiction, at end-2022[2]



The left-hand panel includes data for the 21+EA-Group, while the right-hand panels include data for the 29-Group.

[1] Includes data from 19 jurisdictions and EA Group. The sharp rise in OFI linkages in 2013 partly reflects availability of euro area aggregate data from 2013 onwards. Includes data for Russia up until 2020. [2] For upper (lower) panel, banks' claims on (liabilities to) the corresponding OFI sub-sector, net of prudential consolidation (where data permits), as a share of OFI assets. Neither includes data for Russia. [3] 'Other OFIs' includes CCPs, hedge funds, trust companies, and unidentified OFIs.

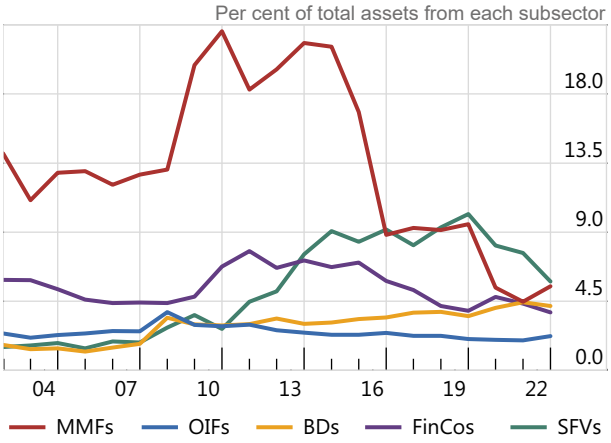
Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

OFI subsectors' deposit exposures to banks largely continued to decrease, with the exception of MMFs (Graph 1-16, LHS), while OIF's use of funding from the NBFI sector decreased (Graph 1-16, RHS). OFI funding sources varied across jurisdictions: pension fund linkages were highest in Australia, insurance corporations in South Africa, and other financial intermediaries in Brazil.[26] (Graph 1-17).

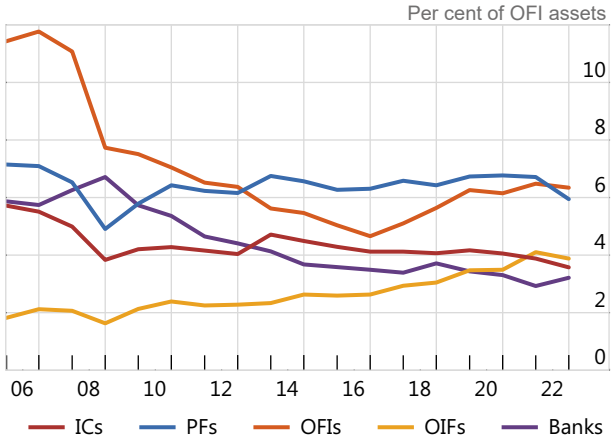
[26] In Brazil, OFI linkages were predominantly with OIFs and mainly due to funds of funds.

Recent trends in OFIs' deposit exposures to banks largely continued, with the exception of MMFs, while OFIs' use of funding from NBFIs decreased **Graph 1-16**

OFI deposits – selected entities[1]



OFIs' use of funding[2]

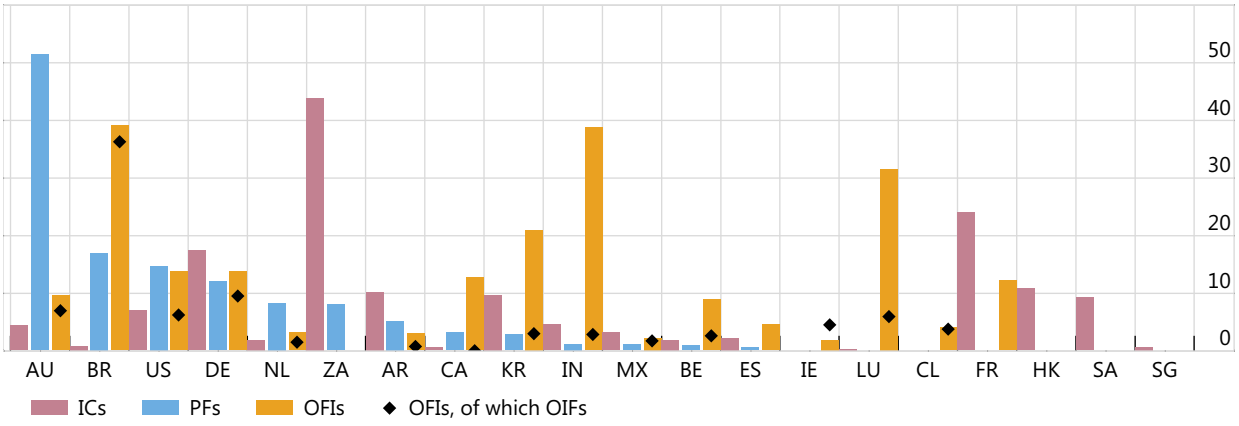


[1] Includes data from 16 jurisdictions. [2] OFIs use of funding from ICs = OFIs' liabilities to ICs as a share of OFI assets. OFIs use of funding from PFs = OFIs' liabilities to PFs as a share of OFI assets. OFIs' use of funding from OIFs is based on data reported on a consolidated basis by jurisdictions, net of entities prudentially consolidated into banking groups.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

OFIs' use of funding from NBFI per jurisdiction

End-2022, as a percentage of OFI assets **Graph 1-17**



Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

1.3.3. Cross-border interconnectedness

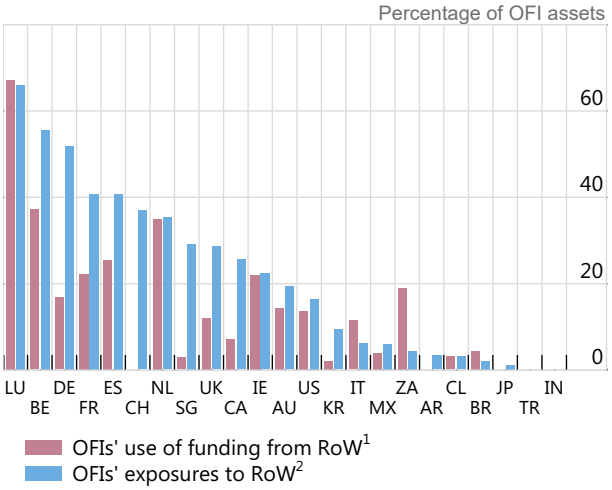
In some jurisdictions, cross-border linkages continued to represent a large share of OFI assets (Graph 1-18, LHS). Funding from and exposures to the rest of the world were larger than 20% of OFI assets in Luxembourg, Belgium, Spain, France, the Netherlands, and Ireland. South Africa stood out as the only jurisdiction where OFIs' use of funding from the rest of the world was much larger than the claims. OIFs accounted for more than 40% of OFIs' linkages with the rest of the world (Graph 1-18, RHS). In some jurisdictions, cross-border linkages may also be due to ownership structures and/or operational and distributional agreements involving entities domiciled in different jurisdictions. This was particularly relevant for investment funds where cross-border activities tend to play an important role.

Cross-border interconnectedness

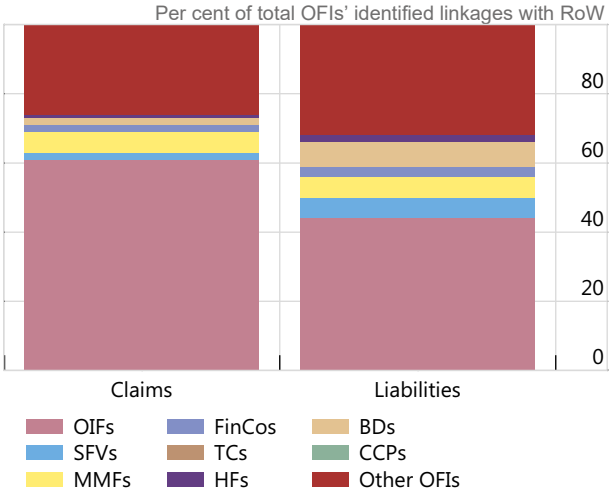
29-Group

Graph 1-18

Aggregate exposures between OFIs and RoW



OFIs' cross-border interconnectedness, at end-2022



[1] OFIs' liabilities to the RoW as a share of OFI assets. [2] OFIs' claims to the RoW as a share of OFI assets.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

2. The narrow measure of NBFI

This section explores the narrow measure of NBFI in greater detail. It first provides an overview of global trends for the overall narrow measure across all EFs.[27,28] It then presents trends and vulnerability metrics[29] for each of the five EFs (see Annex 4 for a discussion of the metrics used to describe them).[30] Each EF contains multiple entity types. Different entity types, and business lines within entity types, may give rise to different types of vulnerabilities (Table 2-1); this report provides an overview of the main vulnerabilities.

Table 2-1: Classification by economic functions

Economic function	Definition	Typical entity types[31]
EF1	Management of collective investment vehicles with features that make them susceptible to runs	MMFs, fixed income funds, mixed funds, credit hedge funds,[32] real estate investment trusts and funds
EF2	Loan provision that is dependent on short-term funding	Finance companies, leasing/factoring companies, consumer credit companies
EF3	Intermediation of market activities that is dependent on short-term funding or on secured funding of client assets	Broker-dealers, securities finance companies
EF4	Facilitation of credit creation	Credit insurance companies, financial guarantors, monoline insurers
EF5	Securitisation-based credit intermediation and funding of financial entities	Securitisation vehicles, structured finance vehicles, asset-backed securities

27 For an overview of the process followed to arrive at the narrow measure, please refer to Annex 3.

28 As in previous reports, the 29-Group sample is used for the narrowing down section of this report because of its greater granularity. Therefore, all the aggregates discussed in this Section relate to the 29-Group sample and might deviate from the aggregates discussed in Section 1 (which rely, in part, on the 21+EA-Group sample).

29 The FSB (2021) Financial Stability Surveillance Framework focuses on vulnerabilities, i.e. the accumulation of imbalances in the financial system, as opposed to the shocks that may trigger those vulnerabilities. The terminology of the Global Monitoring Report on NBFI has been updated to be consistent with the surveillance framework.

30 The Experts Group periodically assesses the effectiveness of these metrics as measures of the underlying vulnerabilities of each economic function.

31 The FSB's Policy Framework acknowledges that the narrow measure may take different forms across jurisdictions because of different legal and regulatory settings, as well as the constant innovation and dynamic nature of the non-bank financial sector. By examining underlying economic functions, authorities are able to capture new structures or innovations that may introduce vulnerability. Thus, the entity types listed should be taken as typical examples. For details, see FSB (2013).

32 Credit hedge funds are hedge funds that invest primarily in credit assets (e.g. bonds, loans).

2.1. Narrow measure trends

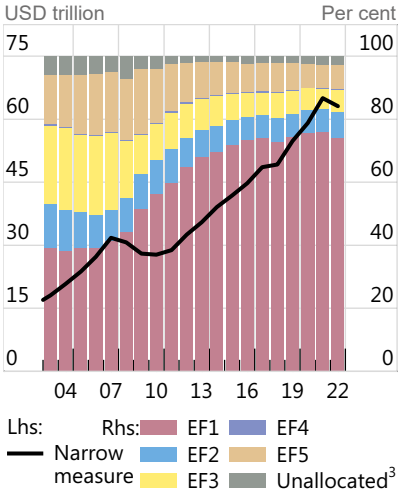
2.1.1. Overview

The total financial assets of entities in the narrow measure decreased for the first time since the Global Financial Crisis, to reach $63.1 trillion in 2022. They decreased 2.9%, which is smaller than the record decrease registered in 2009 (-8.8%). Despite this, the narrow measure remained somewhat stable as a share of total global financial assets (13.9% vis-à-vis 14.2% in 2021). This decrease is smaller than that of total NBFI sector assets (-5.5%: see section 1), which was mainly driven by entities outside the narrow measure, in particular equity funds and equity exchange-traded funds (ETFs), contributing to almost half of the decrease.

EF1 drove the decline in the narrow measure[1]

29-Group **Graph 2-1**

Share of the narrow measure, per economic function[2]



The narrow measure by economic function[4]

	Narrow measure	EF1	EF2	EF3	EF4	EF5	Unallo-cated[3]
Size at end-2022 (USD trillion)	63.1	46.9	5.0	4.5	0.1	5.0	1.6
Share of narrow measure (%)	100.0	74.3	7.9	7.1	0.2	7.8	2.6
Growth in 2022 (year-over-year, %)	-2.9	-5.2	9.7	4.6	7.2	2.0	-3.5
Growth 2017–21 (annualised growth, %)	7.8	8.5	6.6	5.2	-1.0	3.8	10.3
Share of total financial assets (%)	13.9	10.3	1.1	1.0	0.0	1.1	0.4

[1] Net of entities prudentially consolidated into banking groups. [2] Includes data for Russia up until 2020. [3] Unallocated = assets of entities that were assessed to be involved in NBFI, but which could not be assigned to a specific economic function. [4] Does not include data for Russia.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

The decline in narrow measure assets can be almost entirely attributed to economic function 1 (EF1), as the four other economic functions continued to grow.[33] EF1 continued to be the primary driver of changes in the narrow measure since 2009. Despite its decrease, it still accounted for almost three quarters of the narrow measure. The different behaviour of EF1 compared with other economic functions was due to valuation losses for a range of assets, which particularly affected fixed income and mixed funds. On the other hand, all the other economic functions continued to grow and, in most cases, even exceeded their 5-year average annual growth rate. In the cases of EF2 and EF4, this growth was due to enhancements in the statistics collected, with new entities starting to report in 2022.

[33] The unallocated part of the narrow measure also decreased.

- **Collective investment vehicles with features that make them susceptible to runs (EF1) contracted 5.2% in 2022, representing 74.3% of the narrow measure.** Measures of credit intermediation and liquidity transformation for non-government MMFs and fixed income funds remained at elevated levels.[34] Measures of maturity transformation for fixed income funds also remained at elevated levels despite a slight decline. Data on the percentile values of the metrics provide a more detailed assessment of the vulnerabilities and their dispersion within each jurisdiction.

- **Loan provision that is typically dependent on short-term funding (EF2) grew 9.7% in 2022, representing 7.9% of the narrow measure.** Measures of maturity transformation, leverage, and liquidity transformation largely resembled those in 2021, albeit with increases in the maximum values of these distributions.

- **Intermediation of market activities dependent on short-term funding (EF3) grew 4.6% in 2022, representing 7.1% of the narrow measure.** Measures of maturity and liquidity transformation decreased in 2022, while credit intermediation and leverage increased.

- **Insurance or guarantees of financial products (EF4) grew 7.2% in 2022, representing 0.2% of the narrow measure.** Vulnerability metrics for EF4 are not published because of the difficulty in interpreting the sparse vulnerability data provided by jurisdictions.

- **Securitisation-based credit intermediation (EF5) grew 2.0% in 2022**, **representing 7.8% of the narrow measure.** Vulnerability metrics did not change much in 2022 compared to 2021, with high levels of credit intermediation and leverage.

[34] They are close to the upper range that the metric values can take.

Table 2-2: Major entity types in the narrow measure (29-Group)

	EF1				EF2	EF3	EF5	
	MMFs	FIFs[1]	Mixed funds[2]	Credit HFs[3]	FinCos	BDs	SFVs	TCs[4]
Total financial assets								
Total financial assets (in USD trn)	9.1	11.5	8.1	7.0	6.3	12.3	6.2	3.9
Growth in 2022 (%)	↑ 2.9	↓ -14.3	↓ -12.1	↑ 2.2	↑ 8.6	↑ 5.0	↑ 2.7	↑ 1.4
of which: Credit assets (in USD trn)	7.2			4.5	4.7	6.1	4.1	1.7
Growth in 2022 (%)	↑ 1.1			↑ 11.2	↑ 8.6	↑ 9.0	↑ 3.8	↓ -2.2
Narrow measure								
Total assets classified into the respective economic functions (in USD trn)	9.1	11.5	8.2	7.0	4.1	4.4	4.7	0.2
Share of the narrow measure (%)	14.4	18.2	12.9	11.1	6.5	7.0	7.5	0.4
Vulnerability metrics								
Credit intermediation	—	—	▲	N/A	—	▲	▲	N/A
Maturity transformation	▼	▼	▼	N/A	▲	—	—	N/A
Liquidity transformation	—	—	—	N/A	—	▼	—	N/A
Leverage	—	▲	▲	N/A	—	▲	—	N/A

For total financial assets, arrows pointing up (down) indicate an increase (decline) in the corresponding total assets in 2022 compared to 2021. For vulnerability metrics, the arrows pointing up (down) indicate an increase (decline) in the median value in 2022 compared to 2021, while the horizontal bar indicates little change. The shades of blue indicate the relative degree of credit intermediation, maturity transformation, liquidity transformation, and leverage across the entity types shown in the table, measured as the median value of the metric. For each vulnerability metric, the darkest (lightest) colour corresponds to the entity type with the largest (smallest) engagement in the relevant metric/activity, in the median. Does not include data for Russia.

[1] Some fixed income funds (FIFs) are included in the mixed funds category in the narrow measure. [2] Total financial assets include other funds such as referenced investment funds, external debt investment funds, currency funds, asset allocation funds, other closed-end funds, etc. [3] Credit HFs refer to hedge funds investing primarily in credit assets. Vulnerability metrics data for Credit HFs in EF1 were not collected given IOSCO's own data collection: IOSCO (2023), Investment Funds Statistics Report, January 2023. Some funds perform activities that are close to those of hedge funds, from an economic perspective, and have therefore been classified as credit HFs under EF1. [4] Vulnerability metrics data for TCs in EF5 were not collected.

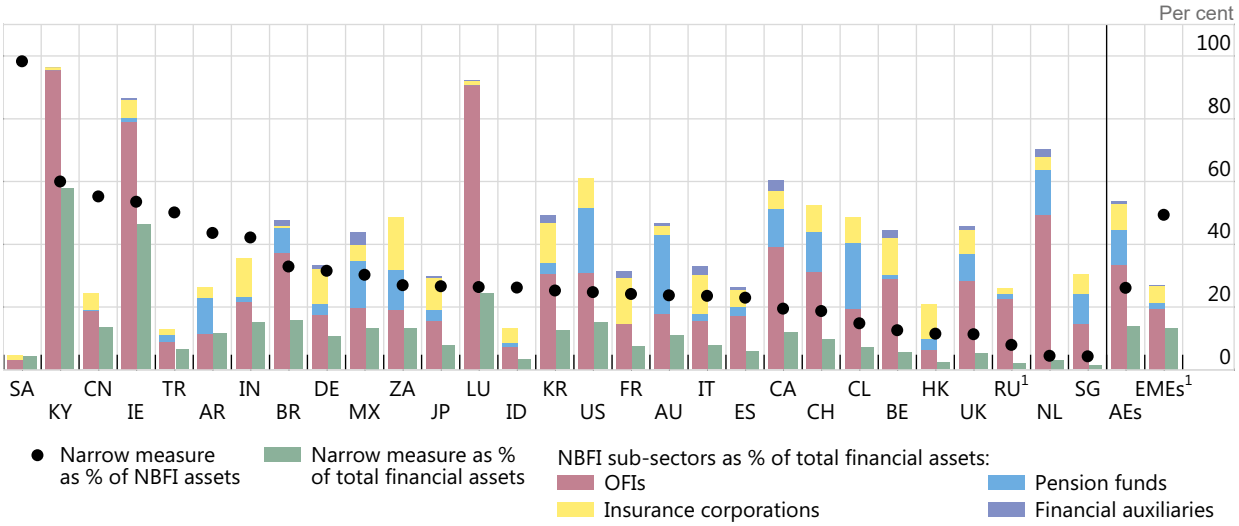
Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations

2.1.2. Narrow measure in advanced economies and emerging market economies

In general, the narrow measure amounted to a larger share of NBFI sector assets in emerging market economies (EMEs) than in advanced economies (AEs); however, this varied significantly across jurisdictions. Graph 2-2 compares the components of the NBFI sector to the narrow measure by jurisdiction, each displayed as a percentage of total national financial assets.

The ratio of the narrow measure to NBFI varies significantly across jurisdictions

29-Group, end-2022; **Graph 2-2**



[1] Data for Russia as of 2020 not included in the EME aggregate.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

While advanced economies experienced a decline in their narrow measure (-3.7%), the narrow measure in emerging market economies grew 0.2% (Graph 2-3, LHS and middle panel). This reflected growth from a low base and relatively high inflation rates. Inflation rates can indeed explain the exceptional nominal growth observed in both Argentina (85.7%) and Türkiye (101.7%). In the case of Argentina, real growth was in fact negative. While the declines in AEs were widespread across jurisdictions and generally substantial, except for France where it was instead more subdued at -1.4%, there were a few jurisdictions with opposite trends, as described below:

- In the United Kingdom the narrow measure increased 11.1%. This was due to increases in broker-dealer and finance company assets. The growth in broker-dealer assets was due to increases in the value of derivative assets, and also due to currency effects as some broker-dealers operate in dollars, which appreciated against the British pound in 2022. The growth in finance company assets was due to a change in statistical definitions (see section 2.3).

- In Japan the narrow measure increased 8.6%, due to the growth of broker-dealer assets. This was because of an increase in short-term repo transactions, resulting in the expansion of both repo assets (reverse repos) and repo liabilities.

- In Korea the narrow measure increased 5.0%, due mainly to growth in MMFs and mortgage real estate funds. The asset growth of MMFs was mainly attributable to their reported positive performance and the increased demand by investors as a result of the high interest rate environment during the year, which was in line with the trend in other major markets.

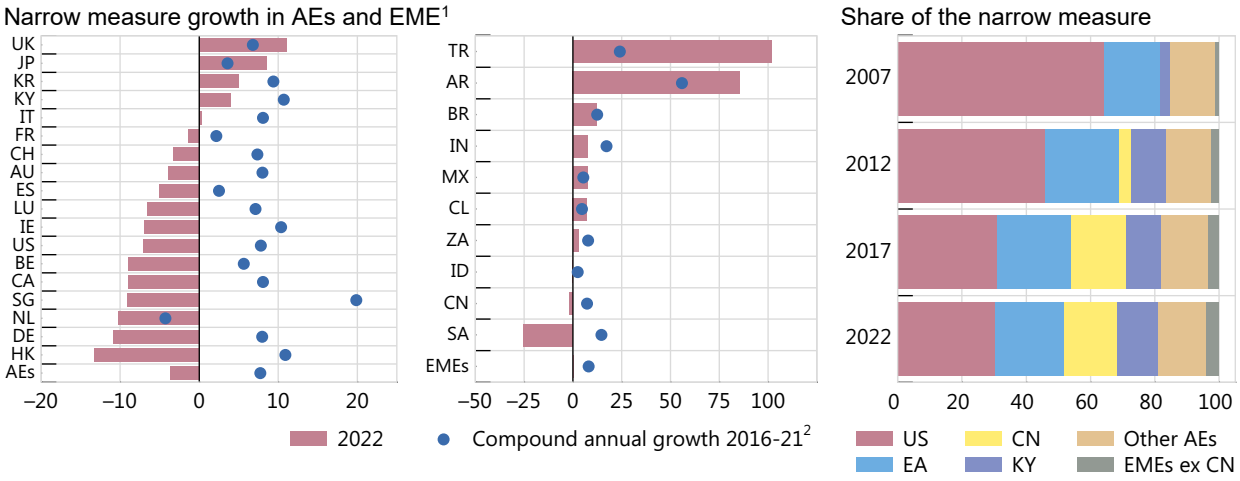
- In the Cayman Islands the narrow measure increased 4.0% reflecting the growth of hedge funds and mixed funds.

- In Saudi Arabia the narrow measure decreased significantly -25.3%, following a pattern similar to that observed in most advanced economies: a decrease in EF1 assets due to valuation effects.

The United States continued to account for the largest share of narrow measure assets with $19.2 trillion in 2022, representing 30.4% of the total narrow measure (Graph 2-3, RHS). The eight participating euro area jurisdictions accounted for the second largest share (with a combined $13.6 trillion in assets, 21.5%), followed by China ($10.3 trillion, 16.3%) and the Cayman Islands ($8.1 trillion, 12.8%).

Narrow measure size and growth by jurisdiction

In per cent, *29-Group* **Graph 2-3**



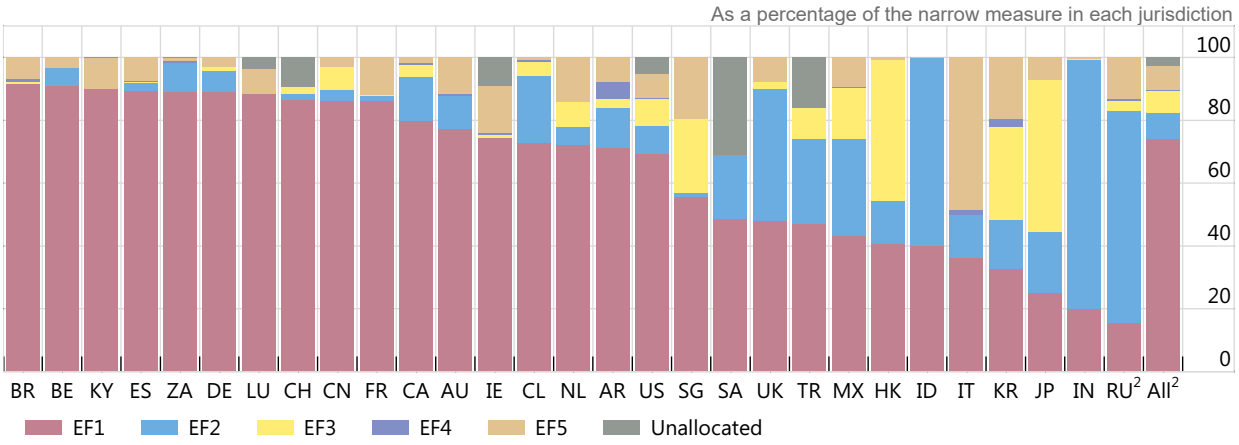
[1] Growth rates in Argentina and Türkiye reflect a high rate of inflation. Aggregates are computed as a weighted average on the basis of rolling GDP weights. [2] The high compound annual growth for Singapore was due to growth in 2021 for SFVs (growth driven by covered bond issuances by banks amidst favourable market conditions and recovery from the pandemic in 2021) and broker-dealers(higher number of entities and growth of online brokerage platforms which saw increased investor participation and trading volumes). However, the narrow measure in Singapore remained small, representing 1.5% of total national financial assets

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Although EF1 assets constituted the largest portion of the narrow measure on a global level, shares of each economic function within the narrow measure varied across jurisdictions. EF1 represented more than half of the narrow measure in 18 jurisdictions, down from 20 in 2021. EF2 continued to be the largest entity type within the narrow measure in India and Indonesia, whereas EF3 constituted the largest share of the narrow measure in Japan and Hong Kong, but no longer in Korea (Graph 2-4). EF4 accounted for a small share of the narrow measure and was at least 1% only in Argentina, Korea, Italy and Brazil. Italy was also the only jurisdiction for which its share of EF5 was close to 50%, explained, to some extent, by the disposal plans of banks' non-performing loans that were securitised. The relative share of the unallocated part of the narrow measure for Saudi Arabia was larger this year because of the significant decrease of EF1 assets. Overall, the weight of EMEs in the economic function assets relative to that of AEs increased for economic functions 1, 3 and 4, but slightly decreased for the other two economic functions (see Graph A6-2).

EF1 remained the largest economic function in 23 jurisdictions at end-2022[1]

Economic function classification by jurisdiction at end-2022 **Graph 2-4**



Unallocated = assets of entities that were assessed to be involved in NBFI, but which could not be assigned to a specific economic function.

[1] Net of entities prudentially consolidated into banking groups. [2] Data for Russia as of 2020 not included in "All."

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

2.2. Collective investment vehicles with features that make them susceptible to runs (EF1)

EF1 comprises collective investment vehicles with features that make them susceptible to runs (e.g. fixed income funds,[35] mixed funds,[36] short-term government MMFs, non-government/longer maturity MMFs, credit hedge funds, and mortgage REITs). Funds are a means for investors to efficiently diversify risk exposures by pooling their resources with those of other investors to purchase portfolios of assets. Collective investment vehicles can dampen shocks to the financial system by allocating losses from an entity's distress or insolvency or from adverse financial market conditions among a group of investors. However, some collective investment vehicles that engage in maturity and/or liquidity transformation or employ leverage can become susceptible to liquidity pressures because of heightened investor redemption requests or margin call dynamics, which may cause these vehicles to sell assets at a significant discount and potentially amplify liquidity strains in times of stress.[37] In many jurisdictions, structural features of EF1 entities mitigate potential liquidity pressure and run-risk dynamics. Moreover, policy tools to further address potential liquidity and other vulnerabilities are also available in many jurisdictions. An overview of the availability of policy tools for EF1 is provided in Box 2-1.

2.2.1. Economic function 1 assets decreased in 2022 because of valuation losses in investment funds

With an overall decrease of 5.2%, EF1 assets declined notably for the first time in 20 years and stood at $46.9 trillion (Graph 2-5, LHS). Valuation effects dented AUM of fixed income

35 Including fixed income exchange-traded funds (ETFs).

36 Including mixed ETFs.

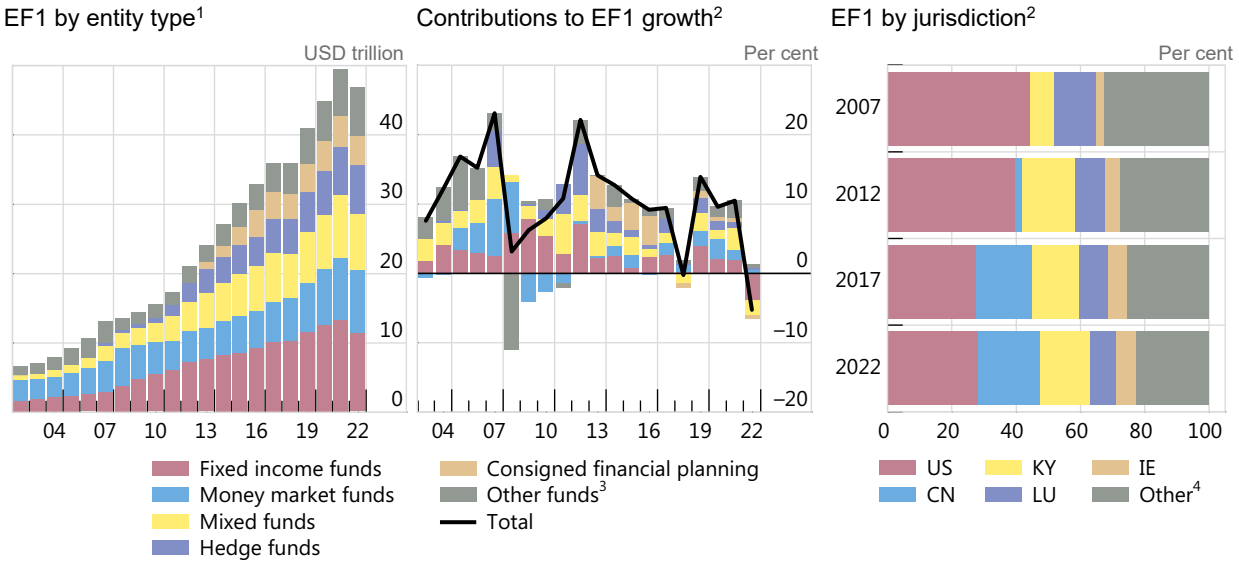
37 See FSB (2022), *Enhancing the Resilience of Non-Bank Financial Intermediation: Progress Report*, November.

funds and mixed funds, both of which also faced net outflows during 2022. AUM of non-government MMFs however grew due to inflows in the second half of the year, on the back of more attractive yields for short-term interest rates after years of low or even negative rates (see Box 1-1). EF1 accounted for close to three quarters (74.2%) of the narrow measure in 2022, a slight reduction compared to 2021 (76.1%).

The decline in EF1 assets was broad-based across most entity types but mainly driven by fixed income funds and mixed funds (Graph 2-5, middle panel). Fixed income funds remained the largest EF1 entity type with 24.5% of total EF1 assets, even though classified assets decreased 14.3%, thus contributing significantly to the overall EF1 decline. Mixed fund assets fell 12.1% in 2022 to a share of 17.3% of total EF1 assets. Because of that, they were overtaken by MMFs, which became the second largest entity type in EF1, with a share of 19.4%. Credit hedge funds' assets grew 2.4%, driven by the Cayman Islands, and their relative share of total EF1 assets increased to 14.9%.

Economic Function 1

29-Group **Graph 2-5**



[1] Includes data for Russia up until 2020. [2] Does not include data for Russia. [3] Other funds include investment funds not displayed separately, such as referenced investment funds, external debt investment funds, equity funds, currency funds, asset allocation funds, other closed-end funds, and funds of funds. Equity funds include open-ended equity funds holding more than 20% credit assets. [4] Other jurisdictions in *29-Group* not displayed separately.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

The United States accounted for the largest share of EF1, followed by China and the Cayman Islands (Graph 2-5, RHS). Two of the four largest jurisdictions within EF1 – the United States and Luxembourg – were also the largest contributors to overall EF1 contraction in 2022, contributing 53.2% and 12.7%, respectively. As in previous years, the Cayman Islands and Luxembourg remained the jurisdictions with the largest EF1 sectors compared to their GDP, with EF1 sizes of around 1,445 and 43 times their GDP, respectively.

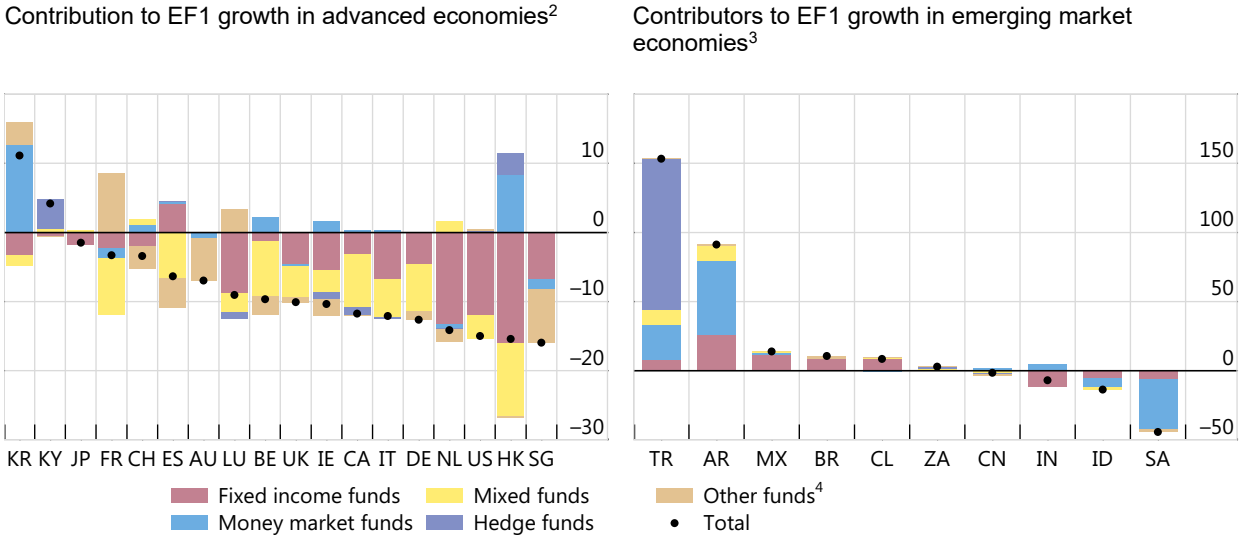
EF1 assets decreased in 20 jurisdictions in 2022 (Graph 2-6). Fixed income funds and mixed funds' assets were the main contributors to the fall in many AEs, while in EMEs they had an impact that varied across jurisdictions. Among AEs, only Korea and the Cayman Islands saw an increase in EF1 assets. In the case of Korea the growth was mostly driven by MMFs and mortgage real estate funds, whereas for the Cayman Islands it was mainly due to hedge funds.

Hong Kong also saw a significant increase in MMF assets under management, though overall EF1 assets decreased. As for EMEs, fixed income funds have increased in 2022 for Latin American jurisdictions, possibly reflecting the rising demand for inflation-adjusted bonds. At the same time, in Argentina and, to a smaller extent, Türkiye, the growth in EF1 in nominal terms also reflected the high inflation rates experienced in these two jurisdictions in 2022.

Contributions to EF1 growth varied across jurisdictions[1]

In per cent

Graph 2-6



[1] Does not include data for Russia. [2] Hong Kong hedge funds and private funds data were available in 2022 for the first time, which explains the growth in the "hedge funds" category. [3] For Argentina and Türkiye, the growth in EF1 reflects the high inflation rate experienced in 2022. [4] Other funds include investment funds not displayed separately, such as referenced investment funds, external debt investment funds, equity funds, currency funds, asset allocation funds, other closed-end funds, and funds of funds. Equity funds include open-ended equity funds holding more than 20% credit assets.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

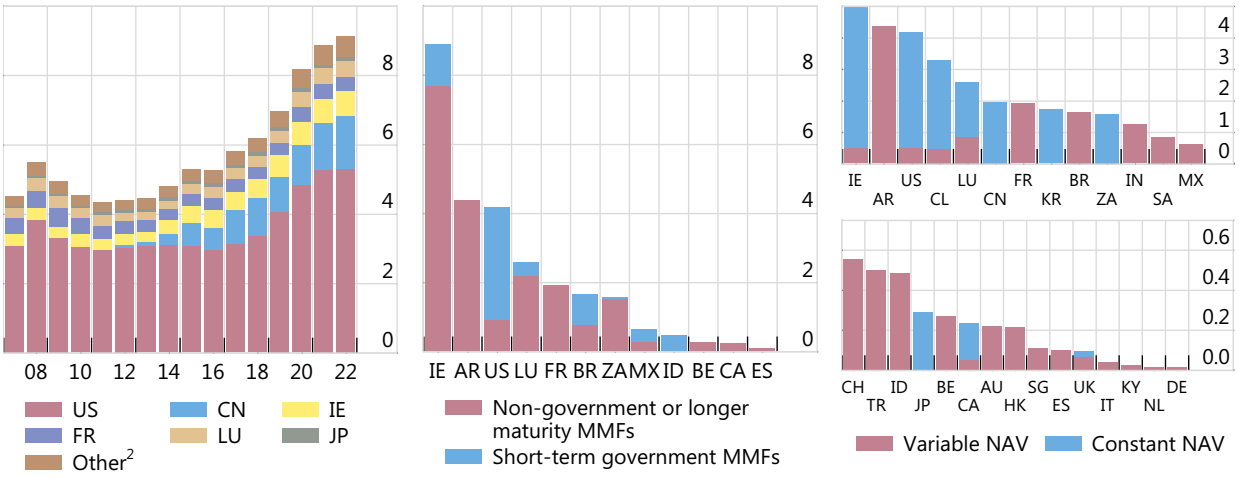
MMF assets continued to grow in 2022 (2.9%), largely driven by China, Ireland, and Korea. These three jurisdictions contributed 54.9%, 20.3% and 15.8% to overall asset growth in MMFs, respectively. Even though MMFs' asset growth was significantly lower than in 2021 (8.7%) and well below the 5-year compound average growth (11.0%), this should be put in perspective with the declines in the overall narrow measure and EF1. The majority of MMF assets were held in the United States, which accounted for 58.1% (or $5.3 trillion) of global MMF assets, and China (16.6% or $1.5 trillion) (Graph 2-7, LHS). Short-term government MMFs accounted for the vast proportion of MMFs in the United States at 77.7% ($4.1 trillion). Funds offering constant (stable) net asset value (NAV) accounted for 82.3% of global MMF assets and represented the largest type of MMFs in nine jurisdictions (Graph 2-7, RHS).

MMF trends across jurisdictions

29-Group **Graph 2-7**

By jurisdiction[1] | By type and jurisdiction, at end-2022[3] | By type and jurisdiction, at end-2022[4]

USD trillion | % of total national financial assets | % of total national financial assets



[1] Includes data for Russia up until 2020. [2] Other jurisdictions in 29-Group not displayed separately. [3] Jurisdictions with total MMF assets of less than 0.1 per cent as a share of total national financial assets are not displayed. Does not include data for Russia. [4] The bar for Ireland's constant NAV (8.4%) is not shown entirely because it is particularly high compared to the rest of the jurisdictions. Does not include data for Russia.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

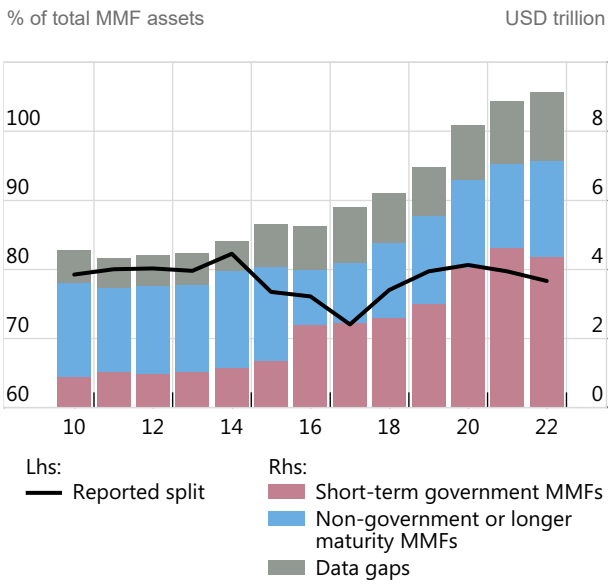
Short-term government MMFs contracted 5.5%, whereas non-government/longer term MMFs grew 13.8% (Graph 2-8, LHS). This contraction was broad-based, with most jurisdictions reporting a decrease in 2022, including the United States, which held 94.6% of global short-term government MMF assets. Non-government/longer maturity MMF assets grew to $2.8 trillion in assets under management, driven by inflows from investors seeking to benefit from higher yields in ten out of thirteen jurisdictions. In the United States, outflows from short-term government MMFs' investors were, in net terms, offset by inflows into non-government MMFs for retail investors who were likely attracted by the higher yields relative to their bank savings accounts.[38] The split between constant NAV MMFs and variable NAV MMFs did not change materially (Graph 2-8, RHS).

[38] IMF (2023), US Money Market Fund and Developments in 2022, February.

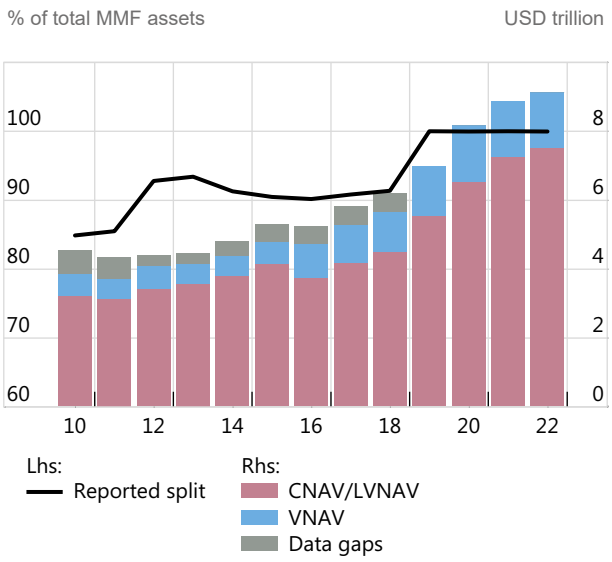
Short-term government MMF still represented the majority of global MMFs, despite a decline in their share[1]

29-Group **Graph 2-8**

Short-term government MMFs vs. non-government or longer maturity MMFs



Accounting split between MMFs



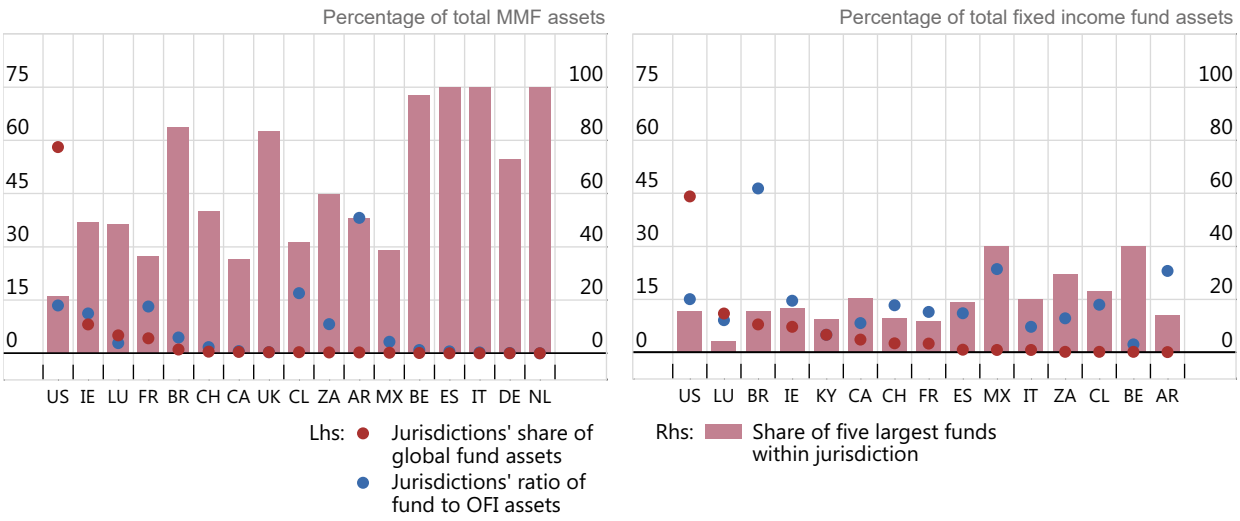
[1] Does not include data for Russia.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

As in previous years, concentration levels in MMFs were generally higher than those in fixed income funds in 2022, ranging from 21.4% to 100% (Graph 2-9). The five-largest MMFs accounted for over 40% of total MMF assets in 13 out of the 17 jurisdictions reporting the relevant data. In jurisdictions with at least six MMFs, the market share of the top five MMFs ranged from 21.4% in the United States to 96.8% in Belgium. Jurisdictions with greater concentration in domestic MMF sectors tended to have smaller domestic MMF sectors. Fixed income funds, on the other hand, were less concentrated in most jurisdictions with Luxembourg having the least concentrated sector with a market share of only 4.4% for the top five fixed income funds. Concentration of mixed funds across jurisdictions ranged from 6.9% to 75.1%.

Five largest entities' share of total assets, by fund type and jurisdiction

29-Group **Graph 2-9**



Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

2.2.2. Vulnerability metrics

Vulnerability metrics measuring credit intermediation, maturity transformation, liquidity transformation, and leverage were collected for MMFs, fixed income funds, and mixed funds. The values vary across these entity types, depending on their business models. For instance, MMFs and fixed income funds show higher levels of credit intermediation than mixed funds because the latter also invest in equity instruments, which do not constitute credit assets. In general, fixed income funds also display higher levels of maturity and liquidity transformation than mixed funds and non-government/longer maturity MMFs, because mixed funds typically allocate a smaller proportion of assets to credit assets, and non-government/longer maturity MMFs have limits on the maturity and creditworthiness of assets that they hold. Funds engaging in liquidity or maturity transformation that do not effectively manage liquidity risk may face greater liquidity strains if they experience large and unexpected redemptions, especially under stressed market conditions. Hedge funds' leverage metrics are published by the International Organization of Securities Commissions (IOSCO) on an annual basis.[39] Therefore, jurisdictions' 2023 submissions did not include vulnerability metrics for credit hedge funds in the narrow measure.

Vulnerability metrics calculated using annual aggregate data per jurisdiction

Vulnerability metric median values, computed using annual aggregate data per jurisdiction, remained stable in 2022. The main takeaways are as follows:

39 IOSCO (2023), *Investment Funds Statistics Report*, January 2023.

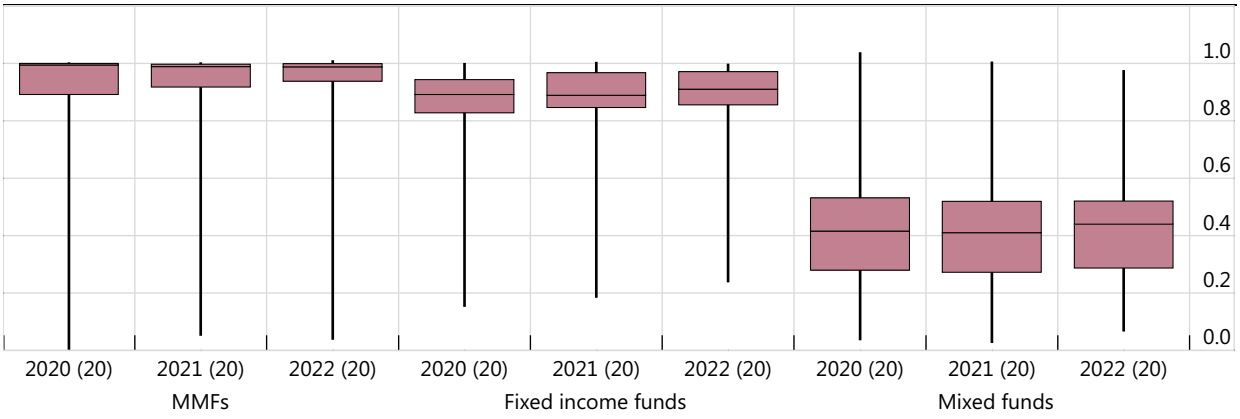
- Credit intermediation remained high for MMFs (both short-term government and non-government/longer maturity MMFs, Graph 2-14, LHS) and fixed income funds and increased slightly for mixed funds. (Graph 2-10).

- Maturity transformation for all EF1 funds tended to marginally decline in 2022, possibly reflecting the rising interest rate environment experienced in most economies (Graph 2-11).

- Liquidity transformation stayed largely unchanged from previous years' levels: fixed income funds, mixed funds, and MMFs (in particular, non-government/longer maturity MMFs, Graph 2-14, RHS) continued to have high liquidity transformation metrics in 2022 (Graph 2-12).

- Reported balance sheet leverage continued to be low across the largest EF1 entity types (Graph 2-13).

Credit intermediation[1] remained stable across all fund types **Graph 2-10**



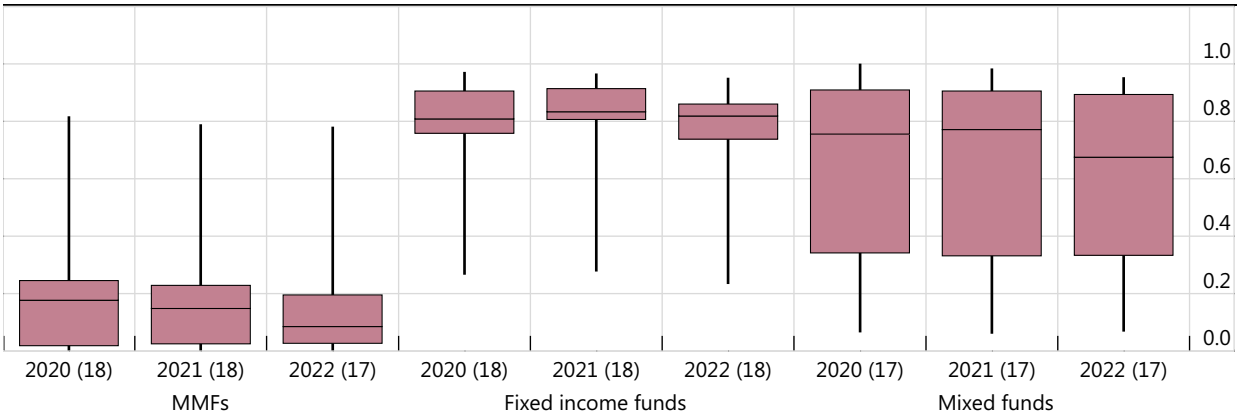
The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution between years might be related to changes in the sample of jurisdictions that provided data.

[1] Credit assets / total financial assets (CI1). The sample size indicates the number of jurisdictions submitting the relevant data per year. Each jurisdiction's data submission reflects data from many individual entities within that jurisdiction. The sample of reporting jurisdictions in 2022 represents 84% of total MMF assets and more than 100% of total fixed income funds' and mixed funds' assets, respectively. The coverage of these vulnerability metrics is higher than 100% due to some jurisdictions using a sample that includes entities prudentially consolidated into banking groups to calculate vulnerability metrics, while such entities are excluded from those classified into the narrow measure.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Maturity transformation[1] declined for all fund types

Graph 2-11



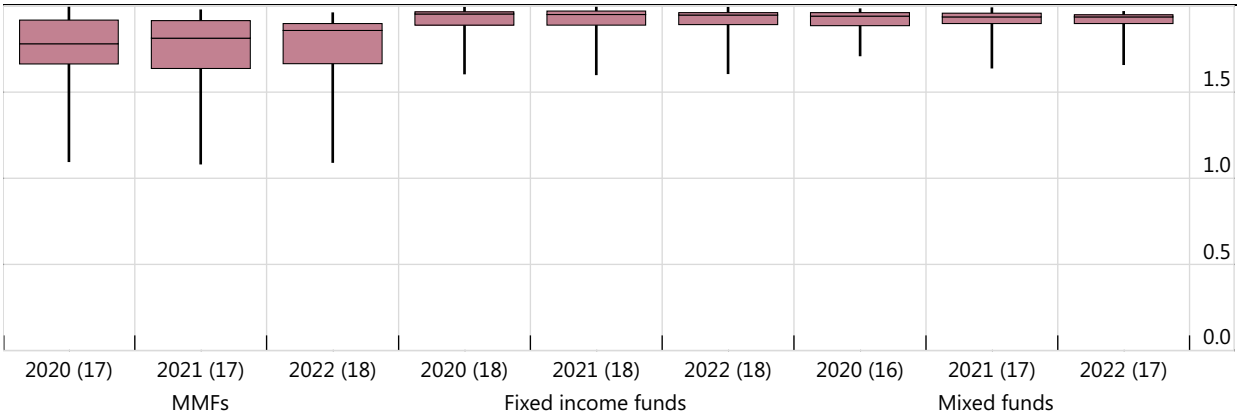
The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution across years might be related to changes in the sample of jurisdictions that provided data.

[1] (Long-term assets – equity – long-term liabilities) / total financial assets (MT1). The sample size indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission reflects data from many individual entities within that jurisdiction.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

EF1: Liquidity transformation[1] was little changed in 2022

Graph 2-12



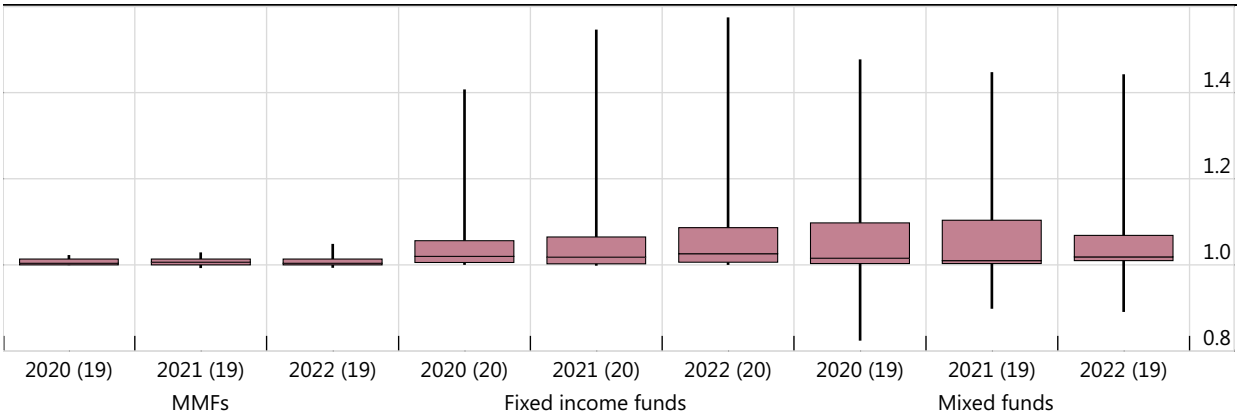
The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution across years might be related to changes in the sample of jurisdictions that provided data.

[1] (Total financial assets - liquid assets + short-term liabilities + redeemable equity) / total financial assets (LT1). The sample size indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission reflects data from many individual entities within that jurisdiction. The sample of reporting jurisdictions in 2022 represents 81%, 83% and 92% of MMFs, fixed income funds' and mixed funds' total assets, respectively.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Balance sheet leverage[1] remained low across major entity types

Graph 2-13



The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution across years might be related to changes in the sample of jurisdictions that provided data.

[1] Total financial assets / equity (leverage 1). The sample size indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission reflects data from many individual entities within that jurisdiction. The sample of reporting jurisdictions in 2022 represents 83% of total MMF assets and more than 100% of total fixed income funds' and mixed funds' assets, respectively. The coverage of these vulnerability metrics is higher than 100% due to some jurisdictions using a sample that includes entities prudentially consolidated into banking groups to calculate vulnerability metrics, while such entities are excluded from those classified into the narrow measure.

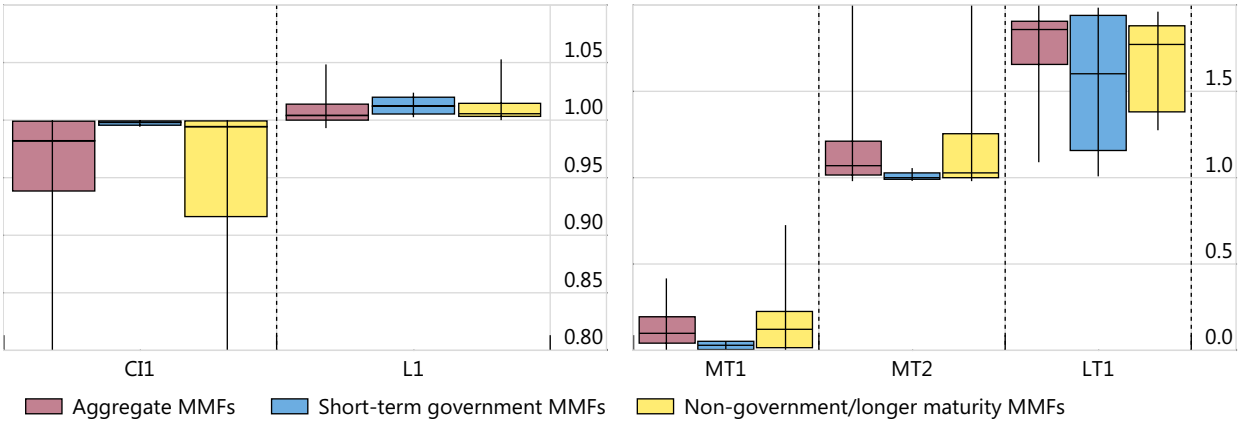
Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Vulnerability metrics for MMFs split by type[1]

Graph 2-14

Credit intermediation and leverage in 2022

Maturity transformation and liquidity transformation in 2022



[1] The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution across years might be related to changes in the sample of jurisdictions that provided data. The sample of reporting jurisdictions in 2022 provided for a coverage higher than 100%, because some jurisdictions used a sample that includes entities prudentially consolidated into banking groups to calculate vulnerability metrics, while such entities were excluded from those classified into the narrow measure. Ten jurisdictions reported metrics for non-government/longer maturity MMFs, and 4 for short-term government MMFs. Does not include data for Russia.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

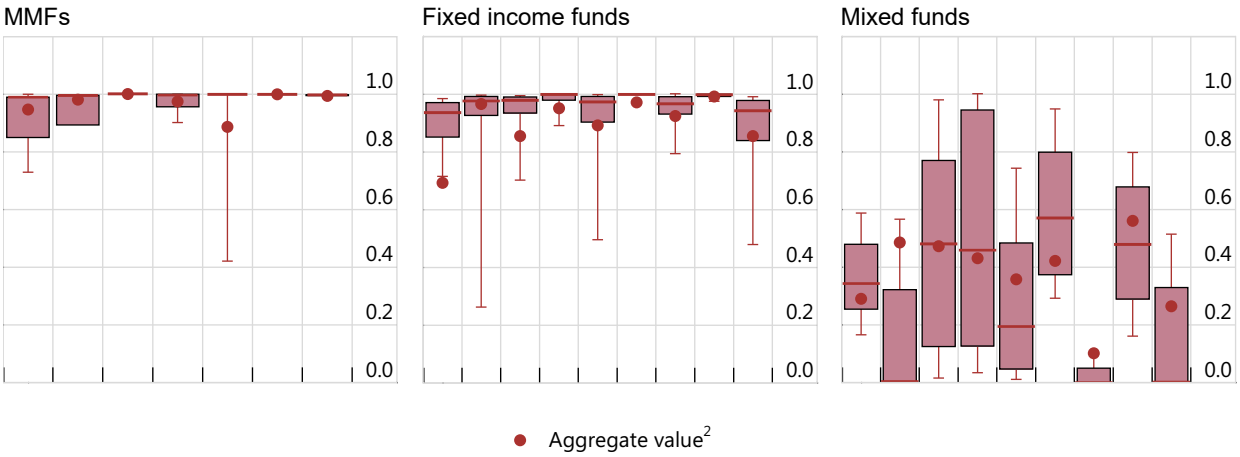
Within-jurisdiction percentile data for the vulnerability metrics

Starting from the 2023 global monitoring exercise, on a best-efforts basis jurisdictions contributed percentile data for the vulnerability metrics. Jurisdictions were asked, on a best-efforts basis, to provide vulnerability metric data for the 10th, 25th, 50th (i.e. median), 75th, and

90th percentiles. While such data was available for only nine jurisdictions, this allowed this year's monitoring exercise to shed light on the within-jurisdiction distribution of the metrics and evidenced in most cases a marked degree of dispersion across entities.

The median level of credit intermediation appeared to be similar across jurisdictions for MMFs and fixed income funds, but distributions exhibited long tails for the latter (Graph 2-15). Percentile data confirmed the high credit intermediation of MMFs that was observed at aggregate level and that this trend was evident for all types of MMFs, given the very compressed range in most jurisdictions. On the other hand, fixed income funds exhibited long tails also for within-jurisdiction distribution. Finally, mixed funds displayed wide variation across jurisdictions but symmetric distributions on average.

Credit intermediation[1] varied widely within jurisdictions **Graph 2-15**



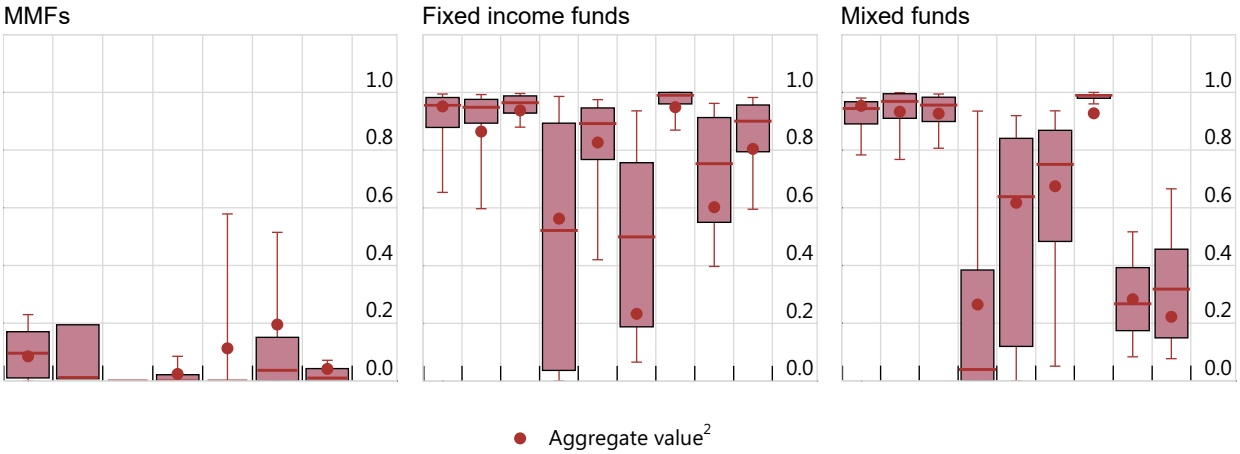
[1] Credit assets / total financial assets (CI1). Jurisdictions have been anonymised. Each box plot represents a jurisdiction's data submission and reflects data from many individual entities within that jurisdiction. Box plots show medians, interquartile ranges, and 10th-90th percentiles. [2] Vulnerability metric calculated using a jurisdiction's aggregated balance sheet data.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Maturity transformation in fixed income funds was high overall, while that of mixed funds displayed dispersed levels (Graph 2-16). In six jurisdictions out of nine, the median level for fixed income funds was higher than 0.7. The dispersion for mixed funds highlighted that these funds can adopt different strategies and invest in short- or long-term fixed income assets and equity (considered short-term for the metric calculation).

Maturity transformation percentiles by jurisdiction (EF1)[1]

Graph 2-16



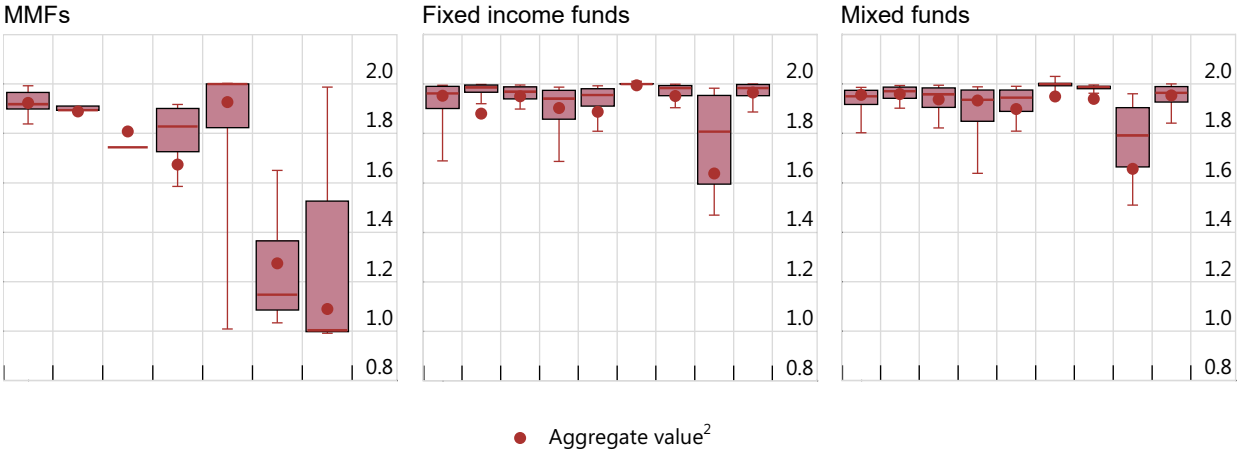
[1] (Long-term assets – equity – long-term liabilities) / total financial assets (MT1). Jurisdictions have been anonymised. Each box plot represents a jurisdiction's data submission and reflects data from many individual entities within that jurisdiction. Box plots show medians, interquartile ranges, and 10th-90th percentiles. [2] Vulnerability metric calculated using a jurisdiction's aggregated balance sheet data.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

High liquidity transformation was broad-based for most funds in the jurisdictions that provided percentile data (Graph 2-17). MMFs in two jurisdictions emerged as the only outliers.

Liquidity transformation percentiles by jurisdiction (EF1)[1]

Graph 2-17



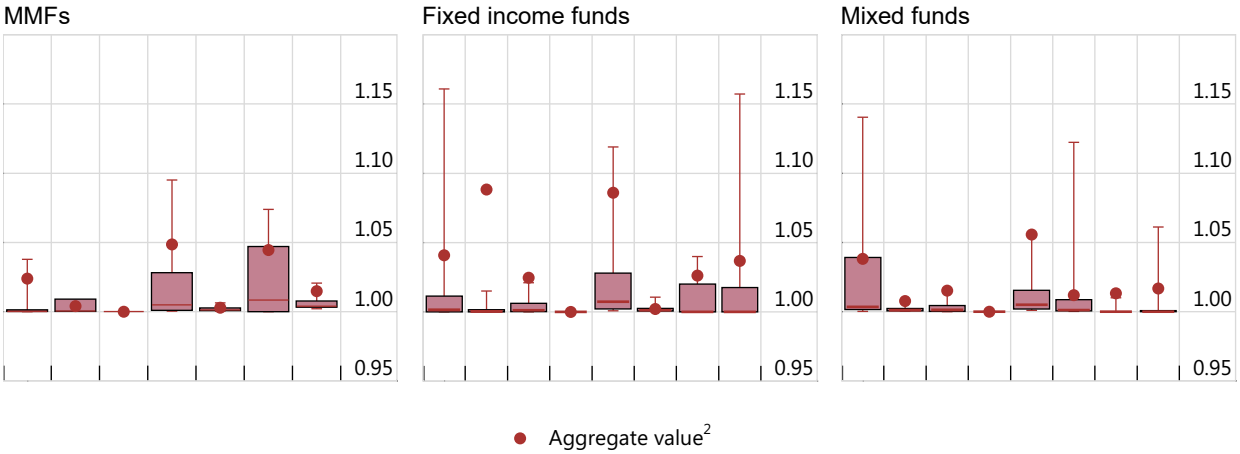
[1] (Total financial assets - liquid assets + short-term liabilities + redeemable equity) / total financial assets (LT1). Jurisdictions have been anonymised. Each box plot represents a jurisdiction's data submission and reflects data from many individual entities within that jurisdiction. Box plots show medians, interquartile ranges and 10th-90th percentiles [2] Vulnerability metric calculated using a jurisdiction's aggregated balance sheet data.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Within-country distributions further confirmed that EF1 entities broadly had low balance sheet leverage (Graph 2-18). Furthermore, distributions were compressed in the span of two decimals.

Balance sheet leverage percentiles by jurisdiction (EF1)[1]

Graph 2-18



[1] Total financial assets / equity (leverage 1). Jurisdictions have been anonymised. Each box plot represents a jurisdiction's data submission and reflects data from many individual entities within that jurisdiction. Box plots show medians, interquartile ranges, and 10th-90th percentiles. [2] Vulnerability metric calculated using a jurisdiction's aggregated balance sheet data.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Box 2-1: Policy tools in EF1

Policy tools for EF1 aim to address vulnerabilities associated with liquidity transformation and use of leverage by collective investment vehicles. This box looks at policy tools available for investment funds included in EF1. MMFs are, however, excluded, as the FSB has launched a thematic peer review to take stock of the measures adopted by FSB member jurisdictions to enhance MMF resilience,[40] following the policy proposals it published in 2021.[41]

Policy tools aiming to address vulnerabilities associated with liquidity transformation and leverage

In certain circumstances, some collective investment vehicles that engage in maturity/liquidity transformation or employ leverage can become susceptible to liquidity pressures because of heightened investor redemption requests or margin call dynamics. To mitigate potential liquidity pressures and run-risk dynamics, structural features and policy tools are mandatory or available in many jurisdictions.

- **The vast majority of funds had access to price-based tools**, such as redemption fees and anti-dilution levies (in 89% of the responding jurisdictions) or swing pricing (in 53% of the responding jurisdictions).
- **Similarly, tools that restrict access to investor capital were widely available.** In 94% of the responding jurisdictions, funds had the ability to suspend redemptions, while in the remaining 6% at least some of these entities had the possibility of suspending redemptions. Similarly, notice periods were available to all funds (69% of responding jurisdictions) or at least some entities (an additional 19% of responding jurisdictions). In comparison, about half of the responding jurisdictions reported availability of redemption gates and side pockets.
- **The vast majority of responding jurisdictions had structural features to limit liquidity mismatches, although these varied across responding jurisdictions.** Structural features included limits on asset concentration (all responding jurisdictions at least for some funds), limits

40 FSB (2023), *Thematic Peer Review on Money Market Fund Reforms: Summary Terms of Reference*, August.

41 FSB (2021), *Policy proposals to enhance money market fund resilience: Final report*, October.

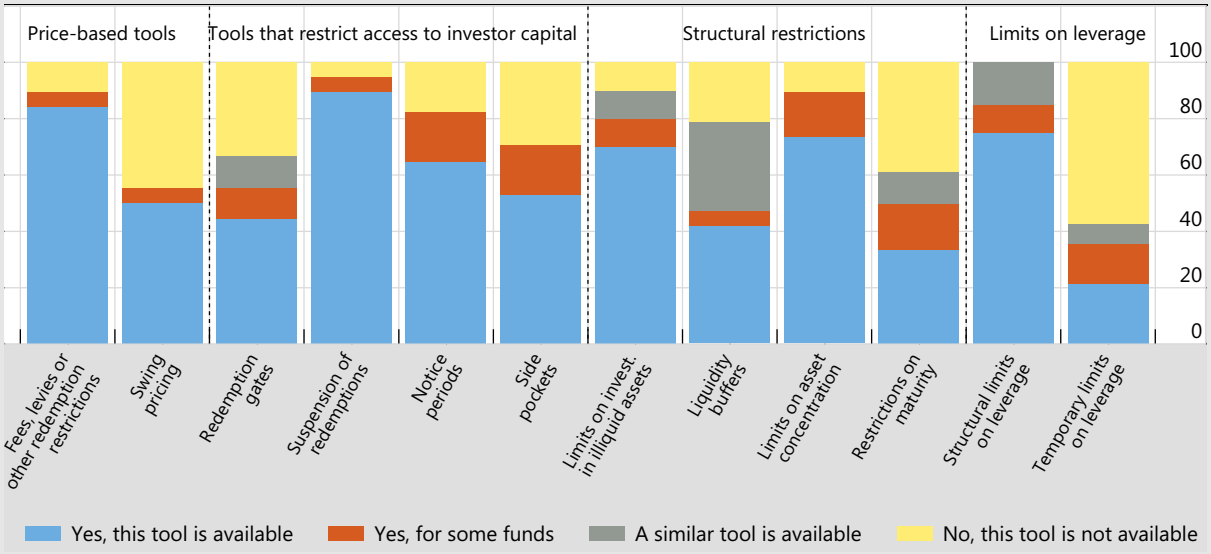
on investment in illiquid assets (79% of responding jurisdictions), liquidity buffers (50% of responding jurisdictions), and restrictions on the maturity of portfolio assets (47% of responding jurisdictions).

- **The majority of investment funds from responding jurisdictions were subject to regulatory limitations on leverage.** Limitations existed in almost all responding jurisdictions for all, or a subset of, funds (84% of responding jurisdictions). In addition, temporary limits, that can be activated by authorities to mitigate specific risk, were available in 38% of responding jurisdictions.

Beyond the tools to address vulnerabilities associated with liquidity transformation and leverage, there was a diverse range of other tools and features across responding jurisdictions that can help mitigate potential liquidity pressures and run risks in funds. This included redemption in-kind, short-term borrowing, restrictions regarding use of derivatives, limitations on counterparty risk, use of collateral, and valuation methods.

Availability of EF1 policy tools[1]

Percent of jurisdictions that participated in the survey response **Graph B1**



[1] Based on data from the 21 jurisdictions that participated in the survey. Blank responses not included.

Source: Jurisdictions' 2023 survey response submissions; FSB calculations.

2.2.3. *Interconnectedness*

EF1 entities collect savings and provide funding to the economy, thereby creating linkages. EF1 entities are a way for the "ultimate savers" to diversify risk exposures, which can dampen shocks to the financial system by allocating losses from adverse financial market conditions more broadly among a group of investors. Ultimate savers include households, non-financial corporates, governments, banks and other financial entities and institutional investors.[42] In addition, EF1 entities can create linkages among themselves and with other economic functions. For example, credit hedge funds can have prime brokerage relationships with multiple broker-dealers; fixed income funds might invest into securitised credit assets.

[42] See Graph 1 in FSB (2021), *Enhancing the Resilience of Non-Bank Financial Intermediation, progress report*, November, for a stylised schematic of the NBFI ecosystem and its interconnections.

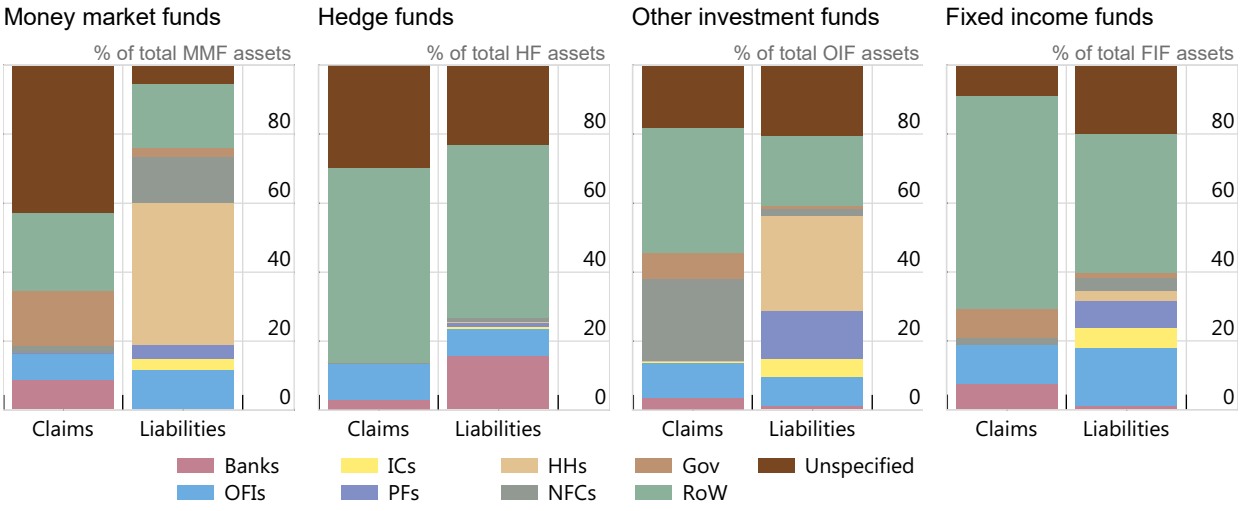
EF1 indirect linkages typically occur through portfolio similarities: different funds investing in the same assets or sector are indirectly correlated via their exposures. For example, a credit event might affect different EF1 entities with similar exposures at the same time. EF1 entities might also underestimate endogenous effects within EF1 because of indirect linkages when reacting to market events because they usually cannot observe them. EF1 entities may also transmit shocks to other markets, as well as across other jurisdictions, initially not affected by a specific turbulence, especially in cases where EF1 entities exhibit high liquidity transformation and leverage. For example, a shock affecting the high-yield bond market might trigger redemptions from investors in fixed income funds, which in turn might then cause these funds to liquidate not only their holdings in high-yield bonds but also in other liquid assets to meet redemptions.[43]

EF1 entities showed diverse linkages with other financial market entities, though a material share of these linkages could not be identified. Graph 2-19 presents the interconnectedness of MMFs, hedge funds, and OIFs (including fixed income funds) that were inside and outside EF1. The vast majority of MMFs and hedge funds were classified into EF1. In the case of OIFs, almost half of the segment was classified into EF1. The largest share of identified claims of OIFs was on the rest of the world and on non-financial corporations, while showing large exposure to households on the liabilities side, reflecting their role as popular investment vehicles for retail investors. In the case of fixed income funds specifically, a similar pattern was observed although identified linkages with non-financial corporations, on the asset side, and households, on the liability side, were much more subdued compared to OIFs more generally and mostly replaced by cross-border linkages in both cases. Jurisdictions also highlighted the important role of institutional investors in fixed income funds, such as insurance corporations and pension funds. The rest of the world was the largest investor in credit hedge funds – as they are mostly domiciled in financial centres – followed by banks. Identified linkages of MMFs were rather low relative to their assets and were mostly composed of claims on the rest of the world and the government sector, which is explained by the large share of short-term government MMFs in the data (see Graph 2-8, LHS). The identified investor base of MMFs was led by households, though this varied by jurisdiction. An important channel through which MMFs, hedge funds, and fixed income funds create linkages is the repo market. Typically, MMFs and fixed income funds are net lenders in repo markets. These transactions were usually intermediated by broker-dealers. Annex 7 provides flow charts to visualise the linkages for EF1 entities.

[43] To address potential run risk that may lead to propagation of shocks across financial markets, many jurisdictions have mandated structural features to address vulnerabilities for some or all EF1 entities.

Investment fund identified linkages with other financial market participants[1]

29-Group **Graph 2-19**



[1] Linkages as the amount of total claims on/liabilities to investment funds as a share of their assets. Graphs reflect the data of jurisdictions that reported linkages to investment funds. A total of 25 jurisdictions reported data on MMF linkages (82% of total MMF assets), 10 jurisdictions reported data on hedge fund linkages (10% of total hedge fund assets), 23 jurisdictions reported data on OIF linkages (80% of total OIF assets), and 10 jurisdictions reported data on FIF linkages (36% of total FIF assets).

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

2.3. Loan provision dependent on short-term funding (EF2)

EF2 entities engage in loan provision that is typically dependent on short-term funding. Finance companies, the long-standing dominant EF2 entity type, often specialise in areas such as consumer finance, auto finance, retail mortgage provision, commercial property finance, and equipment finance. Entities engaged in these activities tend to either compete with banks or offer services in niche markets where banks are not active players and often concentrate their lending activities in specific sectors due, in part, to expertise. As a result of such specialisation, finance companies may become highly exposed to cyclical sectors. Finance companies that rely on short-term or wholesale funding may amplify cycles in these sectors or serve as a means of shock transmission to the sectors they serve, if they are unable to roll over these short-term liabilities. Further, finance companies that offer deposit-like products to the retail sector may raise further risks for households and creditors especially, as such products may not be covered by jurisdictions' deposit insurance schemes and may be susceptible to runs. Taking a conservative approach and where data permit, finance companies that are prudentially consolidated into banking groups are excluded from EF2.

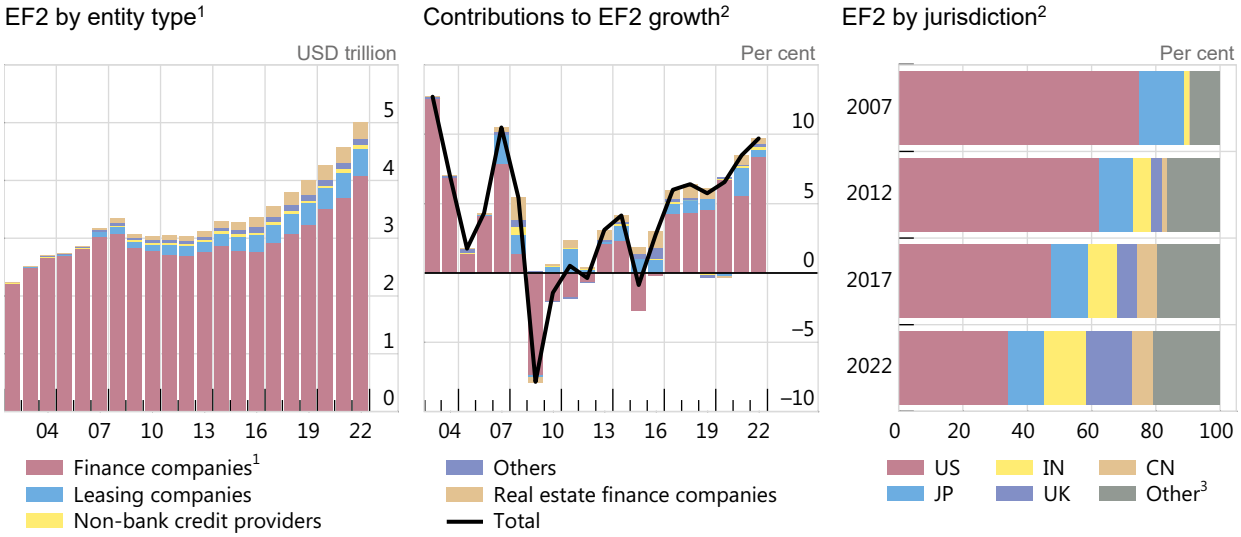
2.3.1. EF2 assets continued to grow in 2022

Contrary to the aggregate narrow measure, global EF2 assets grew in 2022 and reached $5.0 trillion, thereby increasing EF2's share in the narrow measure (Graph 2-20, LHS). The composition of EF2 entities has been stable over many years, with finance companies accounting for 81.5% of global EF2 assets – largely unchanged from the previous year's 81.0% – followed by leasing companies (9.2%) and real estate finance companies (5.8%). Around 64.4% of total finance companies' assets were classified into EF2, representing $4.1 trillion.

The United Kingdom, India, and Japan contributed the most to global EF2 asset growth. In aggregate, EF2 assets in these three jurisdictions increased $416.1 billion, which constituted 93.8% of the net increase in global EF2 assets. Overall, 21 jurisdictions, representing around 60% of global EF2 assets, reported asset growth. In 2022, there was a large increase ($327.9 billion) in reported EF2 assets in the United Kingdom (an 82.2% increase), explaining most of EF2 asset growth and overtaking India and Japan to become the second largest EF2 jurisdiction. This increase was due to changes in the sample of the data collection survey in the United Kingdom, which led to an increase in the number of entities (and hence assets) being included in EF2. In India, credit demand by small and medium-sized enterprises increased and the government's initiative to promote financial inclusion also contributed to the increase in EF2. The United States, the United Kingdom, India, and Japan accounted for the largest share of EF2 assets with 34.0%, 14.5%, 12.8%, and 11.4%, respectively. In contrast to the global trend, several jurisdictions experienced decreases in EF2 assets. Hong Kong EF2 assets, in particular, decreased 16.0%. This was mostly due to regulatory changes that were anticipated by money lenders and borrowers.[44]

Finance companies continued to be the main contributor to EF2 asset growth

29-Group **Graph 2-20**



[1] Includes data for Russia up until 2020. [2] Does not include data for Russia. [3] Other jurisdictions in 29-Group not displayed separately.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

[44] These changes are the lowering of the statutory interest rate cap for lending from 60% to 48% per annum and the threshold of extortionate rate (which may trigger reopening of the transaction by the court, having regard to the relevant circumstances) from 48% to 36% per annum starting from 30 December 2022.

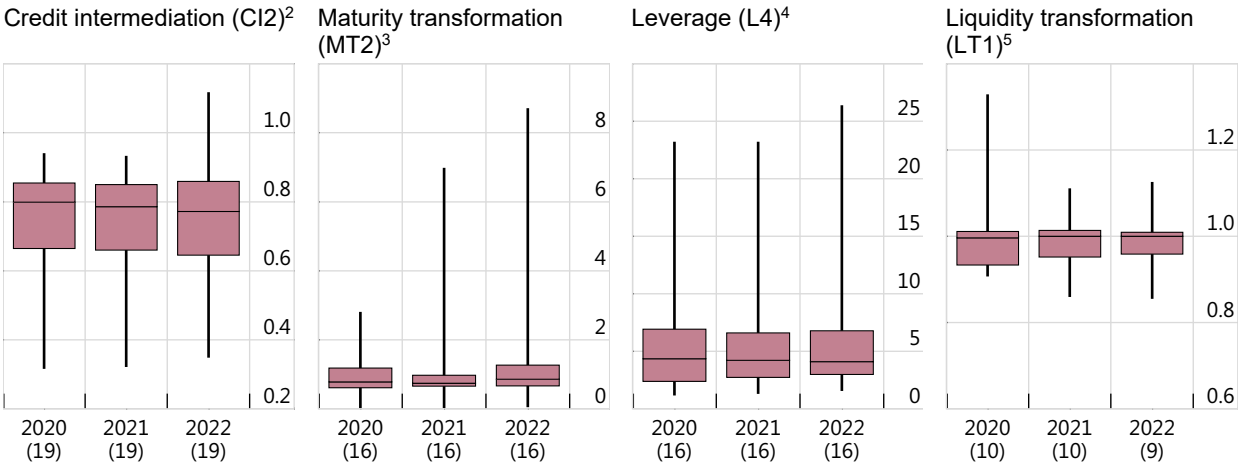
2.3.2. *Vulnerability metrics for finance companies remained largely stable*

Vulnerability metrics for finance companies appeared stable in 2022 compared to the previous two years, especially when focusing on the median ratios (Graph 2-21).[45] Finance companies are active in credit intermediation and are the non-bank intermediaries most similar to banks in terms of their business models and scope of activities.

The distributions for maturity transformation (MT2), leverage (L4) and liquidity transformation (LT1) in 2022 largely resembled those in 2021, albeit with notable increases in the maximum values of these metrics. Median maturity transformation (MT2)[46] remained largely stable in 2022. Out of 16 reporting jurisdictions, nine exhibited increases in MT2, including the jurisdiction with the highest level of MT2 in 2021. This expanded the range for the metric and highlights that finance companies possibly increased the duration of the loans they issued. Leverage (L4)[47] levels were globally the same as in previous years, with large variations, notably because of highly leveraged entities. The level of liquidity transformation (LT1)[48] was close to one in most reporting jurisdictions and almost the same as the previous year across them.

Vulnerability metrics for finance companies were stable over the three previous years[1]

Ratios for the last three years **Graph 2-21**



The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution across years might be related to changes in the sample of jurisdictions that provided data.

[1] The sample size indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission reflected data from many individual entities within that jurisdiction. [2] loans / total financial assets (CI2). The sample of reporting jurisdictions in 2022 represented 95% of FinCos' total assets. [3] Short-term liabilities / short-term assets (MT2). The sample of reporting jurisdictions in 2022 represented 90% of FinCos' total assets. [4] Total liabilities / equity (L4). The sample of reporting jurisdictions in 2022 represented 90% of FinCos' total assets. [5] (Total financial assets – liquid assets (narrow) + short-term liabilities) / total financial assets (LT1). The sample of reporting jurisdictions in 2022 represented 64% of FinCos' total assets.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

45 In several jurisdictions, data used to calculate risk include entities owned by banks and hence prudentially consolidated into banking groups as data limitations mean EF2 entities could not be separately identified.

46 Measured as the ratio of short-term liabilities to short-term assets.

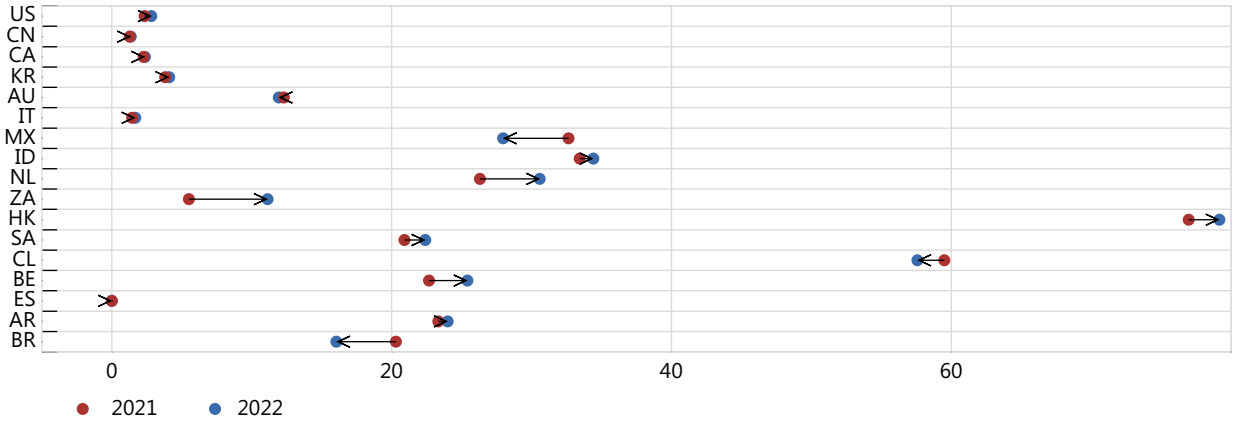
47 Measured as the ratio of total liabilities to equity.

48 Measured as the ratio of less-liquid assets funded by short-term liabilities.

The use of short-term wholesale funding by finance companies remained largely the same in 2022 for most jurisdictions, though increases were observed in a few of them (Graph 2-22). EF2 entities in Hong Kong[49] and Chile continued to be heavily dependent on short-term wholesale funding, which represented more than 50% of total finance companies' assets. In six additional jurisdictions, short-term wholesale funding represented more than 20% of total finance companies' assets.

The use of short-term wholesale funding by finance companies changed little in most reporting jurisdictions in 2022[1]

As a percentage of total finance companies' assets — **Graph 2-22**



[1] Includes only jurisdictions that provided short-term wholesale funding data for both years. For the Netherlands, the increase is due to one company who met, for the first time, the reporting criteria for wholesale funding. This company is prudentially consolidated in a banking group. In Mexico, short-term funding declined because finance companies liquidated their short-term debt and refinanced to longer-term debt. Does not include data for Russia.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

2.3.3. Interconnectedness among EF2 entities

Direct interconnectedness with the financial system for EF2 entities comes mainly from their funding, while there are linkages with the real economy on their asset side. Finance companies rely on funding provided typically by banks or OFIs to issue loans. They generally rely on short-term loans or get funding through the repo markets. On the asset side, EF2 entities are interconnected with the household and non-financial corporate sectors. There could, however, be more complex linkages when EF2 entities provide loans to OFIs.

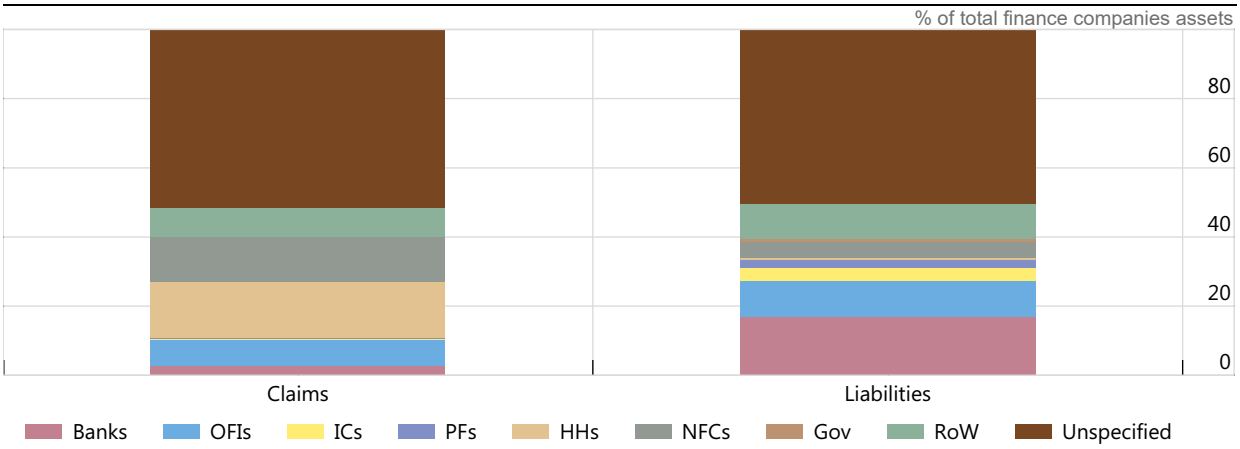
Finance companies' linkages with other sectors revealed relevant information about EF2 entities (Graph 2-23). As discussed at the beginning of section 2.3, 64.4% of finance companies' assets were allocated to EF2. Finance companies mainly provided funding to households, non-financial corporates, the rest of the world, and OFIs. Most identified liabilities of finance companies were held by banks, which might be explained by those entities being part of banking groups. However, finance companies' linkages with other entities need to be interpreted with caution, as only about 48% and 49% of finance companies' claims and liabilities

[49] For Hong Kong, the ratio of short-term assets to short-term liabilities of finance companies continued to be close to 1 in 2022, which means little maturity transformation.

relative to their assets were identified, respectively. Annex 7 provides flow charts to visualise the linkages for EF2 entities.

Finance companies' identified linkages with other financial market participants[1]

29-Group **Graph 2-23**



[1] Linkages as the amount of total claims on/liabilities to finance companies as a share of finance companies' assets. A total of 20 jurisdictions reported data on finance companies' linkages (81% of total finance companies' assets).

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

2.4. Intermediation of market activities dependent on short-term funding (EF3)

EF3 consists of intermediation activities that depend on short-term funding, including secured funding of client assets, and securities borrowing and lending. EF3 activities are predominantly performed by broker-dealers,[50] which account for 97.8% of EF3 assets. Broker-dealers fulfil several important functions, including providing short-term credit to their clients in covering their positions, supplying liquidity through market-making activities, facilitating trading activities, providing brokerage or investment advice to clients, publishing investment research, and helping raise capital for corporations. The connections that broker-dealers make as market intermediaries are central to the proper functioning of an economy. The FSB's monitoring exercise takes a conservative approach such that, data permitting, broker-dealers that are owned by, and hence prudentially consolidated into, banking groups are excluded from EF3 and the narrow measure. Given that broker-dealers are the predominant EF3 entity type,[51] the vulnerability metrics analysed in this section focus exclusively on broker-dealers.

2.4.1. EF3 assets grew slightly in 2022

EF3 total assets grew 4.6% to $4.5 trillion in 2022, following closely the 4.7% increase registered in 2021 (Graph 2-24, LHS). EF3's share in total narrow measure assets stood at 7.1%, making it the fourth largest economic function by asset size. EF3 assets prudentially

[50] A total of 35.0% of broker-dealer assets were allocated into EF3: the remaining assets were not because those broker-dealers were consolidated into banking groups.

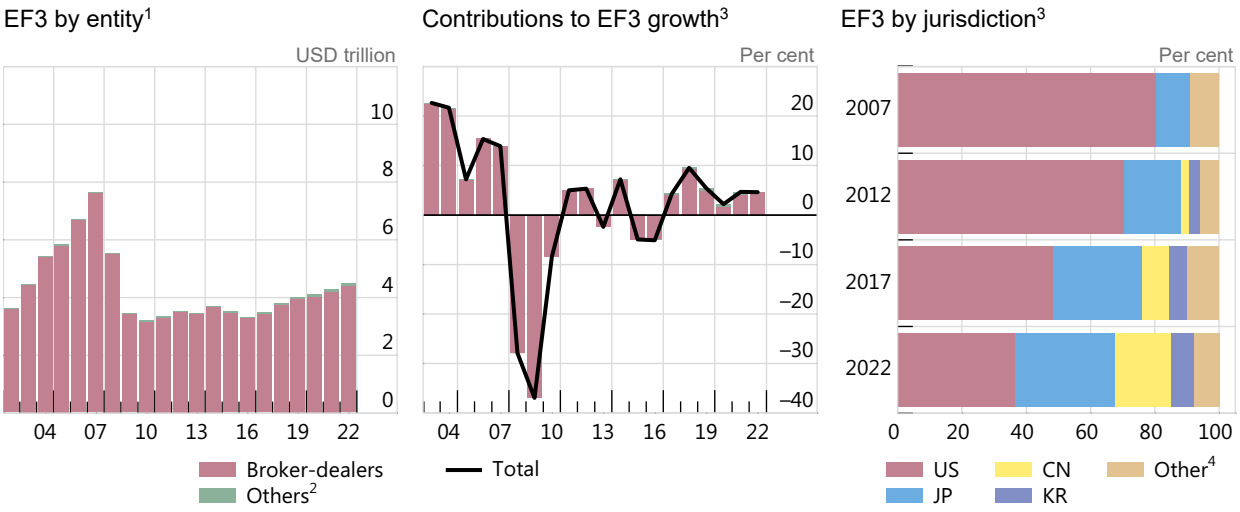
[51] Securities finance companies also fall within EF3.

consolidated into banking groups were almost twice as large as EF3 assets not prudentially consolidated into banking groups.

Growth in total broker-dealers' assets during 2022 varied across jurisdictions with assets in EMEs growing at a faster rate (12.3%) than assets in AEs (3.2%). This trend was reflected in the growth of total EF3 assets, as broker-dealers assets accounted for 97.8% of EF3. Among AEs, the highest share of broker-dealers' asset growth was attributed to Japan. In Japan, both repo assets, reverse repos, and repo liabilities expanded due to an increase in short-term repo transactions. The United States, Japan, China, and Korea accounted for more than 90% of EF3 assets (Graph 2-24, RHS). China's share of global EF3 assets increased from approximately 8.5% in 2017 to 17.2% in 2022, and growth in China (12.3%) drove the 2022 growth in EMEs. Japan's share of global EF3 assets also increased from 27.6% in 2017 and reached 31.2% in 2022, whereas the United States' global share of EF3 continued to decrease from 48.4% in 2017 to 36.7% in 2022, since their broker-dealers' assets stayed stable while they grew in other jurisdictions. In Japan, EF3 constituted the largest share of the jurisdictional narrow measure with 48.2% of narrow measure assets. Other than China, the EMEs' share in EF3 assets remained low, perhaps reflecting underdeveloped securities intermediation markets.

Broker-dealers' assets increased slightly in 2022

29-Group **Graph 2-24**



[1] Includes data for Russia up until 2020. [2] Others include securities finance companies and dealers. [3] Does not include data for Russia. [4] Other jurisdictions in *29-Group* not displayed separately.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

2.4.2. Vulnerability metrics for EF3 for broker-dealers exhibited mixed trends

Broker-dealers are a critical part of financial intermediation chains, in particular by facilitating other entities' trading in securities and providing liquidity to securities markets. Any vulnerabilities materialising in this sector, therefore, have the potential to spread quickly through the financial system, in particular during periods already featuring scarce market liquidity. As a result, broker-dealers may be vulnerable as they use leverage or engage in a significant degree of maturity and liquidity transformation. In some circumstances, such

vulnerabilities could amplify shocks or cause them to spill over to impact the wider economy.[52] Depending on these entities' funding models, their intermediation activities may involve liquidity risk. These entities may also be vulnerable to roll-over risk or runs by lenders if they are leveraged, particularly if their funding is primarily dependent on short-term wholesale funding (e.g. repos). Leveraged investors may amplify and propagate shocks if they unwind positions quickly to raise cash. Thus, such entities are exposed more generally to the risk of dysfunction in short-term funding markets, particularly when counterparty risk management practices are insufficiently robust.

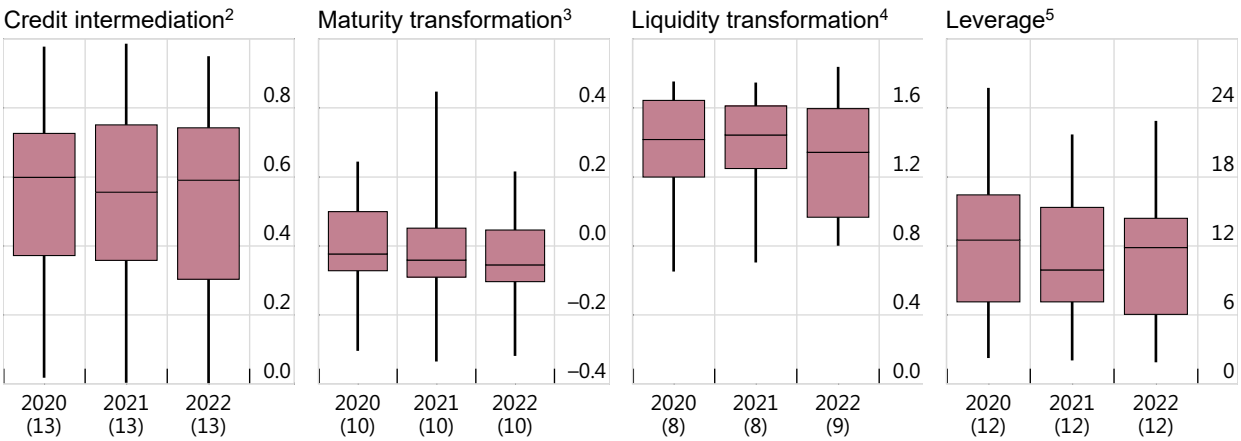
Broker-dealers' credit assets grew strongly 9.0% in 2022, almost twofold compared to the 5-year average growth rate of 4.7% between 2017 and 2021. In contrast, lending assets contracted 9.5%, while their average growth rate for the prior five-year period had been relatively high (16.5%). Broker-dealers' claims in the form of deposits also decreased slightly (-1.4%), which means that the growth in credit assets was driven by debt securities. In several jurisdictions, broker-dealers' credit intermediation activities continued to occur mainly through debt securities, repo, and reverse repo transactions.[53] Direct lending is only a small fraction of broker-dealers' credit intermediation activities. Unlike banks and finance companies, direct lending is not typically part of a broker-dealer's business model. The median ratio of CI1 (credit assets to total financial assets) for broker-dealers was marginally higher than in the previous year at 0.59 in 2022 and returned to the level of 2020.

52 In some jurisdictions, these vulnerabilities of broker-dealers are generally mitigated by the fact that the transactions are secured with liquid securities (i.e. securities that have a ready market) as collateral, and the balance sheets of the broker-dealers are composed almost exclusively of cash and liquid securities.

53 Transactions in which a party sells or buys a security to an eligible counterparty, most likely a broker-dealer, with an agreement to repurchase or sell that same security at a specified price and at a specific time in the future.

Vulnerability metrics exhibited mixed trends in 2022

Vulnerability metrics for broker-dealers[1] **Graph 2-25**



The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution across years might be related to changes in the sample of jurisdictions that provided data.

[1] The number in parentheses indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission reflects data from many individual entities within that jurisdiction. The coverage for these vulnerability metrics is higher than 100% because of some jurisdictions classifying higher total assets in the vulnerability metrics data than in the classification data, after subtracting prudentially consolidated entities into banking groups from the latter. [2] Credit assets / total financial assets (CI1). [3] (Long-term assets – equity – long-term liabilities) / total financial assets (MT1). [4] (Total financial assets – liquid assets (narrow) + short-term liabilities) / total financial assets (LT1). [5] Total financial assets/equity (L1).

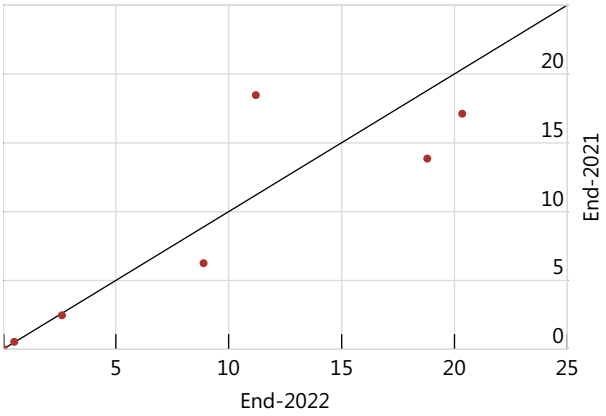
Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Metrics of maturity and liquidity transformation decreased in 2022, while credit intermediation and leverage increased (Graph 2-25). Six jurisdictions experienced a decrease in the maturity transformation (MT1) metric levels in 2022. The median level of liquidity transformation (LT1) decreased slightly, driven by two jurisdictions and by the inclusion of an additional jurisdiction in the 2022 sample. EF3 broker-dealers' leverage (L1) increased and reverted to levels observed in 2020. Out of 12 reporting jurisdictions, half observed higher broker-dealers' leverage in 2022, and two jurisdictions had increases larger than 30% in their individual leverage vulnerability metric. This increase appeared to be due to an increase in total assets, in particular in derivative and repo assets, probably owing to the increased volatility in financial markets. In some jurisdictions, the equity of broker-dealers decreased significantly (following the general trend of stock prices), and this led to a higher leverage ratio.

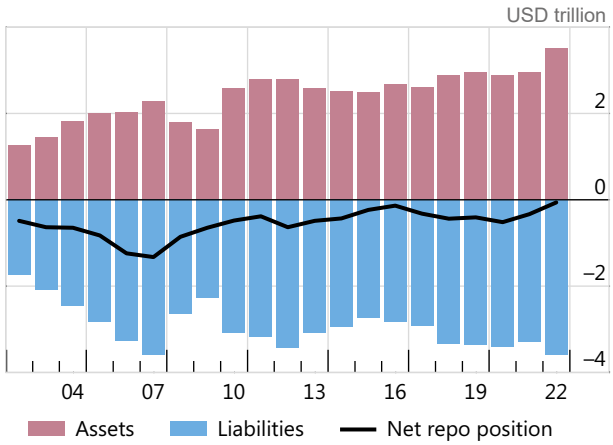
The net position for broker-dealers' repo assets and liabilities in 2022 showed that broker-dealers were close to achieving a net zero position on the repo market (see Graph 2-26). Both repo assets and repo liabilities increased in 2022, 19.5% and 9.3% respectively. Therefore, the change in the net repo position is driven by an expansion in repo lending rather than by a contraction in the demand for repo funding. Wholesale total funding, except repo funding, grew 10.1% in the case of broker-dealers in 2022, while the short-term component of wholesale funding grew only 3.6%.

Broker-dealers were close to a neutral net repo position in 2022 **Graph 2-26**

Debt-to-equity ratios[1]



Broker-dealers' repo assets and liabilities[2]



[1] Includes data from 7 jurisdictions representing 77% of total EF3 assets. Does not include data for Russia [2] For Australia, Brazil, Canada, Chile, Spain, Hong-Kong, Indonesia, India, Japan, Korea, Mexico, the Netherlands, Singapore, the United Kingdom and the United States.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

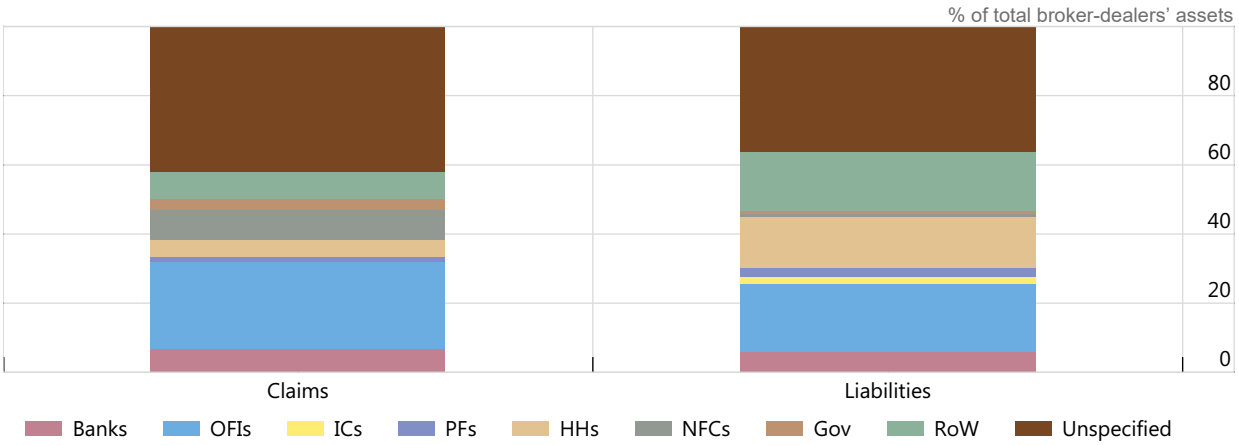
2.4.3. Interconnectedness

Broker-dealers allow ultimate savers to buy and sell securities and, in the process, allow for financial asset-price discovery and market-making. They are conduits in financial markets between ultimate savers, ultimate borrowers, non-bank lenders, and institutional investors; hence they have exposure to all other economic functions and entities outside the narrow measure. Furthermore, in the course of providing these services, broker-dealers may develop linkages with other broker-dealers and other types of financial intermediaries. These linkages may be with entities outside of the narrow measure, such as CCPs, or inside the narrow measure, such as SFVs, MMFs, and credit hedge funds. Interconnectedness data for broker-dealers refer to the whole segment. The FSB's annual monitoring exercise does not distinguish between the linkages that belong to the narrow measure and the others that are not part of it. Broker-dealers' linkages with other sectors still highlighted relevant information about the connections of EF3 entities (Graph 2-27), although the share of unspecified linkages remained high (approximately 40% of both claims and liabilities).

In terms of interconnectedness, the size of the claims and liabilities of broker-dealers did not significantly contribute to total OFI liabilities and claims, respectively. Broker-dealers were particularly exposed to OFIs, as claims on OFIs accounted for about 25% of total assets. Broker-dealers also heavily relied on OFIs for their funding. This link was positive in net terms, as broker-dealers' claims on OFIs exceeded its liabilities to OFIs. Broker-dealers' interconnectedness with banks was limited as a share of total assets. Gross bank claims on broker-dealers amounted to $555 billion in 2022, whereas bank liabilities to broker-dealers amounted to $631 billion.

Broker-dealers' identified linkages with other financial market participants[1]

29-Group **Graph 2-27**



[1] Linkages as the amount of total claims on/liabilities to broker-dealers as a share of broker-dealers' assets. A total of 18 jurisdictions reported data on broker-dealers' linkages (76% of total broker-dealers' assets).

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

In some jurisdictions, broker-dealers may serve as prime brokers to hedge funds. These broker-dealers may develop indirect connections with other broker-dealers and be one important source of leverage for market participants.[54] Due to limited data outside the scope of the monitoring exercise, some of these links cannot be quantified – for example, broker-dealers' links with credit hedge funds in EF1 and hedge funds outside the narrow measure. It is, however, expected that these linkages play an important role in the financial system, given the role of liquidity providers of prime brokers/broker-dealers. In addition, broker-dealers may interact with financial entities outside the narrow measure, such as insurance corporations, pension funds, and financial auxiliaries. Annex 7 provides flow charts to visualise the linkages for EF3 entities.

2.5. Insurance or guarantees of financial products (EF4)

EF4 comprises entities that insure or guarantee financial products by writing insurance on structured securities and other financial products such as residential mortgages. They provide credit enhancements to loans (e.g. guarantees or credit derivatives) made by banks as well as non-bank financial entities. For example, financial guarantors or monoline insurers extend guarantees to bank and non-bank financial firms, often using off-balance-sheet commitments and derivatives. In doing so, EF4 entities facilitate credit creation by attracting investors and lenders seeking to offload a portion of the credit risk associated with loans and debt securities.

If credit, liquidity, or counterparty risks are mispriced, or incentives are misaligned, EF4 entities may contribute to excessive risk-taking, potentially contributing to boom-bust cycles. The pricing of credit protection should reflect the creditworthiness of both the borrower and guarantor, but asymmetric information or other market frictions can cause imperfect credit

[54] See, for example, FSB (2023), *The Financial Stability Implications of Leverage in Non-Bank Financial Intermediation*, September.

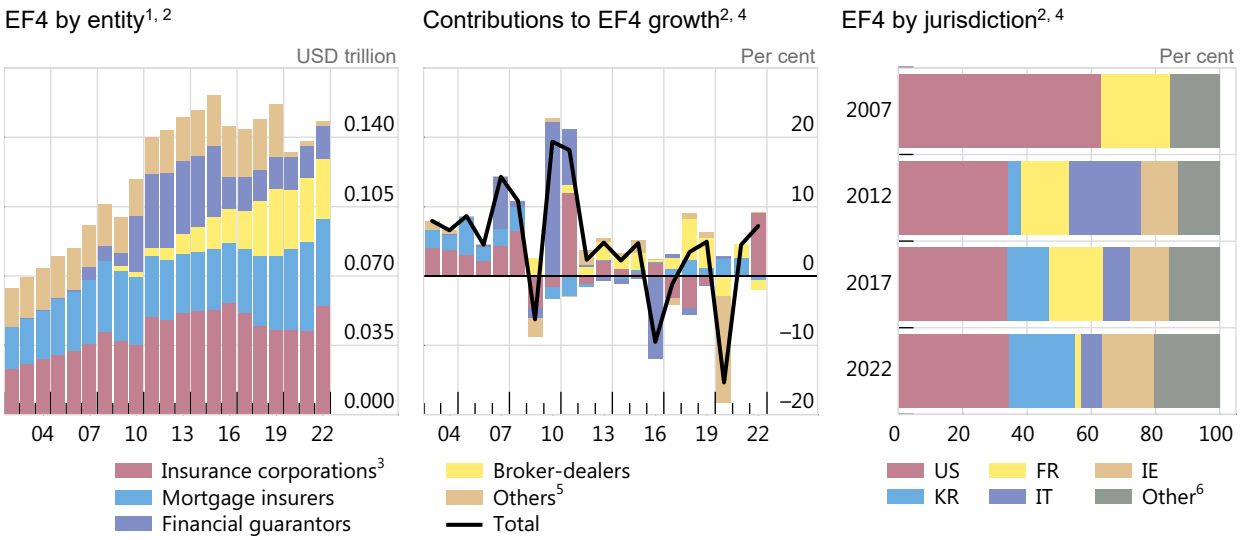
risk transfer. In booms, these inefficiencies could result in an oversupply of credit to the real economy, whereas in busts, they could overly restrict credit supply.

EF4's impact and importance may be significantly understated because of the difficulty of adequately capturing off-balance-sheet exposures and the lack of vulnerability metrics. The analysis in this section relies on credit insurers' balance sheets, which are often modest. Balance sheets may not reflect the nominal value of credit exposure when entities offer credit protection using derivatives contracts. Only four jurisdictions included off-balance-sheet assets in EF4. Because of the small size of EF4 assets as a proportion of total financial assets in reporting jurisdictions, reporting of vulnerability metrics data for EF4 is particularly sparse and therefore these are not published.[55]

Assets classified into EF4 in 2022 increased 7.2% in 2022 to $148.3 billion, and EF4 continued to be the smallest economic function in the narrow measure (Graph 2-28, LHS). Insurance corporations mainly drove the growth of EF4 assets, while mortgage insurers and broker-dealers saw slight declines.[56] EF4's share in the aggregate narrow measure remained generally stable at 0.2% in 2022. The United States, Korea, Ireland, and Italy accounted for close to 80% of EF4 assets. France used to be an important contributor to EF4 assets, but, in 2022, a specific EF4 entity was reclassified from the OFI sector to the general government sector with retroactive effect from 2020. As a result, it was excluded from the narrow measure, which explains the significant decrease in EF4 assets in 2020 and in France's share of global EF4 assets.

Growth in EF4 was driven by insurance corporations

29-Group **Graph 2-28**



[1] Includes data for Russia up until 2020. [2] The decline in "Others" in 2020 is linked to the reclassification of one specific entity in France as a public administration entity. [3] The growth in insurance corporations' assets is due to an increase in the number of entities classified by Ireland as EF4. [4] Does not include data for Russia. [5] Includes SFVs and SPVs. [6] Other jurisdictions in *29-Group* not displayed separately.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

55 The FSB's Experts Group establishes a threshold for reporting of vulnerability metrics and requests vulnerability metrics data from a jurisdiction only if an entity type's aggregate assets represent more than 1% of the jurisdiction's total financial assets or 1% of total global assets for the specific entity type classified in the narrow measure.

56 Only Korea classifies broker-dealers into EF4.

Insurance corporations overtook mortgage insurers as the largest entity type within EF4, with shares of 37.1% and 29.5%, respectively. This was due to a change in sample composition in Ireland.[57] Nine jurisdictions classified some of their insurance corporations into EF4. Five jurisdictions reported mortgage insurers as EF4 entities. Other identifiable entity types engaged in EF4 are broker-dealers and financial guarantors. Broker-dealers, exclusively coming from Korea, accounted for 20.6% of EF4 assets. These broker-dealers provided securitisation services to structured finance vehicles as well as guarantees, credit, and liquidity lines as part of this service. Financial guarantors accounted for another 11.2% of EF4 assets.

2.6. Securitisation-based credit intermediation (EF5)

EF5 includes entities that are involved in securitisation-based credit intermediation (e.g. issuing asset- or mortgage-backed securities and collateralised loan obligations (CLOs)). It also includes entities such as investment funds or trust companies that finance illiquid assets by raising funds from markets. Both banks and NBFI entities use securitisation for funding diversification, revenue generation, and regulatory capital and accounting benefits, with or without the transfer of assets and risks from the securitisation entities. By facilitating the transfer of credit risk off-balance-sheet, securitisation reduces funding costs for both bank and non-bank entities and promotes the availability of credit to the real economy. Nonetheless, securitisation may contribute to a build-up of excessive credit, maturity/liquidity transformation, or leverage. Vulnerabilities arising from securitisation-based credit intermediation may be more prominent in financial systems with relatively weak lending standards. The securitisation market is also sensitive to sudden reductions in market liquidity, particularly in the case of complex or opaque securitisations.

2.6.1. EF5 assets continued to grow in 2022

Contrary to the aggregate narrow measure, global EF5 assets increased 2.0% in 2022 to $5.0 trillion (Graph 2-29, LHS). EF5 assets also increased their share in the narrow measure in 2022 and accounted for 7.8% of it. This share, however, was still much below its peak in 2009 at 20.5%. The United States, the Cayman Islands, Ireland, Luxembourg, Italy and China accounted for close to 80% of global EF5 assets. EF5 was composed of structured finance vehicles and trust companies, which represented 95.1% and 4.9% of EF5 assets, respectively, in 2022. These two entity types have followed different trends over the last couple of years. Indeed, the proportion of trust companies in EF5 has shrunk since 2017, as a result of a sustained decline in the assets of Chinese entities and after the introduction of tighter regulations, as well as enhanced monitoring of them in recent years.[58]

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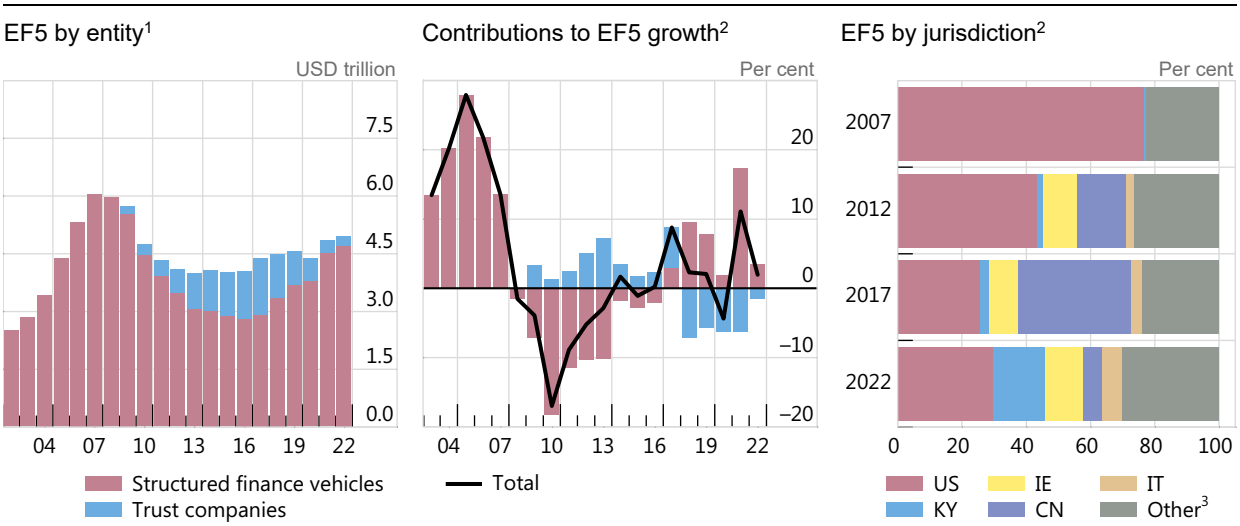
[57] Entities are classified into EF4 if their activity related to the facilitation of credit creation makes up at least 5% of their balance sheet. In 2022, one insurance company in Ireland held sufficient credit derivatives and provided sufficient credit insurance to be above this threshold.

[58] In November 2017, a new policy was issued by the Chinese authorities to regulate banks and trust corporations, requiring that trust corporations not provide financial institutions with a conduit service for the purpose of avoiding regulations such as investment or leverage constraints. This policy was followed by a series of guidelines for regulating the asset management businesses of financial institutions that were released jointly in April 2018 by the Chinese authorities. Meanwhile, the China Banking and Insurance Regulatory Commission strengthened the monitoring of conduit trusts and took enforcement action against violations.

Structured finance vehicle assets classified into EF5 grew 3.8% in 2022, continuing a trend that started in 2017. This overall growth was supported by growth in the United States (5.7%), Luxembourg (8.0%), Japan (10.2%), Italy (10.2%), and France (10.6%). After the pandemic-induced disruptions in March and April of 2020, markets recovered following the intervention of central banks and public authorities, which allowed for more favourable funding conditions and tighter spreads, explaining the growth in 2021.[59] In 2022, spreads on mortgage-backed securities widened significantly, which reduced the growth in SFV assets.[60] EF5 assets in China and the Netherlands continued to decrease, with a fall of 33.9% and 10.1%, respectively.[61,62]

Structured finance vehicles continued to be the main entity type in EF5

29-Group **Graph 2-29**



[1] Includes data for Russia up until 2020. [2] Does not include data for Russia. [3] Other jurisdictions in 29-Group not displayed separately.
Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

2.6.2. Vulnerability metrics for structured finance vehicles increased slightly in 2022

Structured finance vehicles classified into EF5 continued to engage in a significant degree of credit intermediation, particularly through issuance of debt securities backed by loan portfolios. The median ratio of loans on the asset side of the balance sheet to total financial assets, or CI2, changed little and stayed around 0.83 (Graph 2-30, LHS). The high values for CI2 indicated that these entities typically intermediated more loans than bonds. However, in some jurisdictions they also engage to a significant extent in credit intermediation

59 In the United States, for example, tight spreads of asset-backed securities (ABS) created favourable funding market conditions for specialty finance companies, and issuance of ABS in 2021 ran at a record pace and significantly higher compared to 2020. See Financial Stability Oversight Council (2021), *Annual Report*.

60 In the United States, for example, spreads on mortgaged-backed securities widened materially in 2022. See Financial Stability Oversight Council (2022), *Annual Report*. In Luxembourg, the growth was mainly due to an increase in debt securities held by SFVs (+10%) while securitised loans decreased (-1%). In Italy, the growth was explained by the disposal plans of banks' non-performing loans.

61 For China, besides the decrease in trust companies' assets described above, part of the EF5 assets' decrease can be attributed to the suspension of new individual mortgage-backed securitisation issuance.

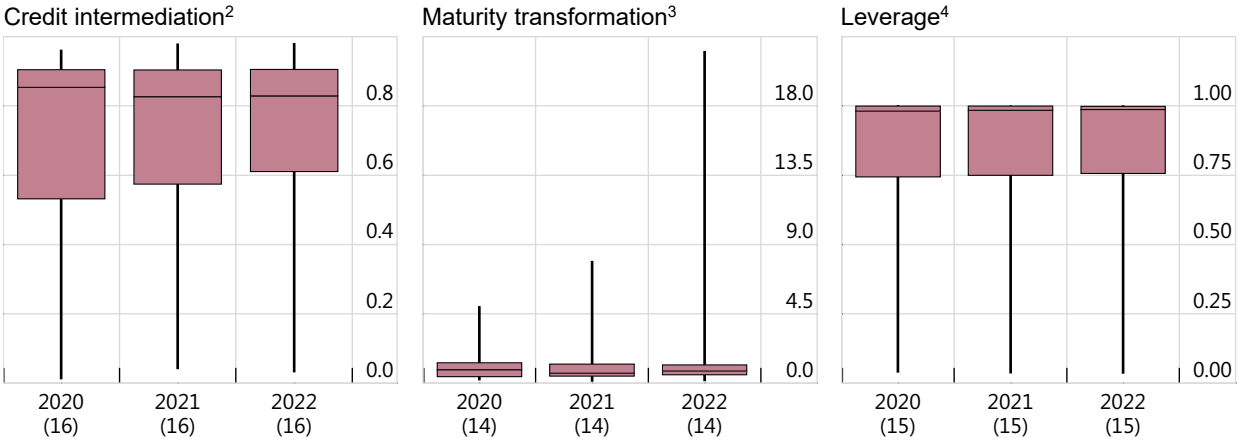
62 For the Netherlands, new securitisations (by non-banks) with Dutch collateral took place, especially of buy-to-let mortgages, but they were too small to compensate for the decline and were not helped by the redemption of one large transaction. More competition from direct investments in mortgages by institutional investors could also have contributed to fewer securitisations.

through the securitisation of debt securities.[63] There were also a couple of jurisdictions that consistently showed a very low level of credit intermediation.

Maturity transformation of structured finance vehicles remained low in most jurisdictions, indicating that liabilities and assets closely match in maturities (Graph 2-30, middle panel). The median ratio of short-term liabilities to short-term assets (both less than or equal to 12 months) (MT2) stayed slightly below one across the 14 reporting jurisdictions at 0.77 Its extreme value, however, increased significantly, showing that maturity transformation remained large in one jurisdiction.

Leverage, measured as the ratio of total liabilities to total financial assets, largely remained unchanged in 2022. Most jurisdictions presented a ratio higher than 0.9, and the median remained close to one. In some jurisdictions, however, structured finance vehicles appeared to issue substantial equity, explaining low levels of leverage (Graph 2-30, RHS).

Credit intermediation and leverage remained stable, while maturity transformation increased slightly in 2022[1] **Graph 2-30**



The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution across years might be related to changes in the sample of jurisdictions that provided data.

[1] The number in parentheses indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission reflected data from many individual entities within that jurisdiction. Does not include data for Russia. [2] Loans / total financial assets (CI2). The sample of reporting jurisdictions in 2022 represented 73% of SFV total assets. [3] Short-term liabilities / short-term assets (MT2). The sample of reporting jurisdictions in 2022 represented 68% of SFV total assets. [4] (Total financial assets – equity) / total financial assets (L5). The sample of reporting jurisdictions in 2022 represented 67% of SFV total assets.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

2.6.3. Interconnectedness among EF5 entities

Investors holding EF5 liabilities are exposed to different levels of credit risk. EF5 entities allow a diverse base of investors to gain exposure to credit assets of different credit quality. Thus, these investors share a common credit exposure among themselves, and vis-à-vis the entities that issued the loans.

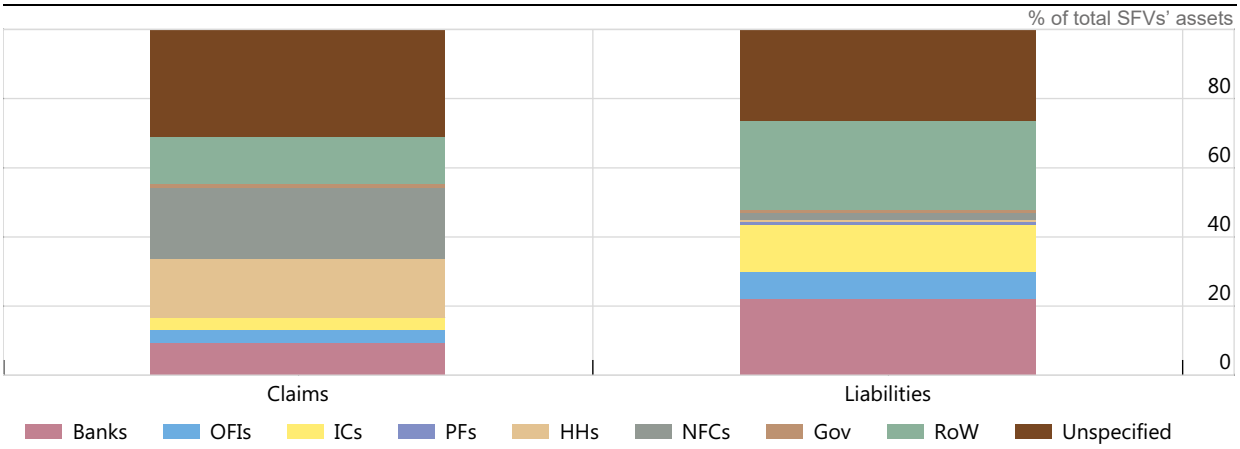
[63] In some jurisdictions, due to data limitations, data used to calculate vulnerability metrics included entities prudentially consolidated into banking groups.

The rest of the world was the most significant entity within structured finance vehicles' investor base, followed by banks (Graph 2-31). Most structured finance vehicles' assets were allocated to EF5. Banks owned a large share of their liabilities, either providing funding or investing in the securitised assets they issued. As investors, structured finance vehicles held claims on different entities, mainly NFCs and households. Trust companies held claims mainly on banks and OFIs. Significant shares of the linkages remain unspecified: 31% of claims and 27% of liabilities. Annex 7 provides flow charts to visualise the linkages for EF5 entities.

Structured finance vehicles' identified linkages with other financial market participants[1]

29-Group

Graph 2-31



[1] Linkages as the amount of total claims on/liabilities to broker-dealers as a share of SFVs' assets. A total of 17 jurisdictions reported data on structured finance vehicles' linkages (81% of total structured finance vehicles' assets).

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

3. Case study on private finance and non-bank financial intermediation

3.1. Introduction

Private markets fulfil an important economic function. Investors provide financing to companies in the form of private equity, private credit, and investments in real assets (e.g. natural resources, infrastructure or other real estate assets). Private markets thereby enable financing for parts of the economy that may not be able to receive sufficient funding from the traditional finance sector, such as small and medium-sized enterprises, including start-up companies, or where bank lending might be too costly.

Asset managers active in private markets collect and invest capital mainly from institutional investors, such as insurance companies and pension funds, of which many have a long investment horizon. The asset managers usually contribute their own capital to the fund they manage, thereby generating return in addition to management and incentive fees (so-called carried interest). Depending on the jurisdiction, private finance products are also increasingly offered to high net-worth and retail clients, although the market is still dominated by institutional investors.

Most entities active in private markets are private equity and private credit funds with limited liquidity transformation, due to their closed-end structures or lock-up periods that prevent early withdrawals. However, the recent growth in private finance has raised questions about potential financial stability implications, amid tighter funding conditions, asset revaluations, and as some institutional investors have reached their target allocations to the asset class. Interconnections to other parts of the financial system provide for potential channels of contagion. For example, sources of funding of private finance can involve co-investing and credit provision by banks, which could result in significant cross-sectoral linkages and potential channels for risk transmission. At the same time, limited transparency may impede the assessment of vulnerabilities in private markets and their implications for financial stability.

This case study provides an overview of private finance structures and interconnectedness, focusing mainly on the role of non-bank financial intermediation. It explains how private finance is partially included in the monitoring activities summarised in this report and includes an overview of private finance in selected jurisdictions (see Box A-1).

3.2. Private finance and the role of NBFI

Private finance is broadly understood as a private asset management activity and includes activities relating to the provision of funding from non-bank investors to companies through bilateral transactions. While the legal forms and strategies of private finance products can vary widely, a common feature is that private finance entities are usually invested in non-listed and/or illiquid assets, i.e. primarily equity, but also debt and real assets. Accordingly, asset holding periods and fund maturities are relatively long compared to public markets, ranging from a few years to more than a decade, or may have indefinite lifespans (e.g. for evergreen funds).

Private credit and private equity funds are typically subject to the broader regulatory frameworks applicable to alternative investment funds, such as private fund regulations in the United States or the Alternative Investment Fund Managers Directive (AIFMD) in the European Union. These frameworks cover a relatively wide range of economic and legal fund structures in private finance. But there is no explicit and precise regulatory definition of private equity or private credit fund strategies across jurisdictions. Nevertheless, regulatory reporting may provide information on certain types of funds engaged in private finance, e.g. on venture capital and leveraged buyout strategies.[64] Leverage may be calculated based on data for gross and net assets reported at the fund level, e.g. in the United States, or funds might report leverage metrics directly, e.g. in the United Kingdom and European Union.

From an NBFI perspective, it is essential to characterise the various non-bank financial structures by their liquidity and leverage properties. Accordingly, it matters primarily to assess the extent to which the funds engage in liquidity transformation and/or liquidity provision services, and whether they use leverage to increase asset exposures.

With regard to liquidity transformation, most funds active in private finance have closed-end structures or lock-up periods, which limits their liquidity transformation. However, liquidity shortages can arise from committed but not yet invested capital ("dry powder") if investors are not able or willing to fulfil their funding commitment. On the other hand, if investors demand liquidity, private equity funds may pass on assets in secondary operations, whereby existing fund assets are sold to new private equity funds.[65] Private funds have also increasingly relied on subscription credit lines from banks to smooth the impact of capital calls on investors. Increasing efforts by private finance managers to sell their products to retail investors creates additional demand for solutions that allow investors to redeem or sell their shares,[66] especially as the products offered to retail clients typically have an indefinite lifespan.

Private finance often engages in leveraged strategies and is a significant sponsor of leveraged debt issuance at the portfolio company level. In fact, leverage is an essential element of some private fund investment strategies, typically of leveraged buyouts. While the use of leverage is relatively common among private funds, leverage ratios are generally low at the fund level, especially in comparison to other legal structures such as debt vehicles.[67] However, so called NAV financing has become more common, whereby private equity funds borrow against portfolio assets, typically to return cash to their investors. Leverage may also play a role beyond the fund structures, for instance when leverage is refinanced by that of portfolio company firms or if funds invest via substructures, such as holding companies or special purpose vehicles (SPVs) that involve leverage. Depending on the jurisdiction, the reporting frameworks do not necessarily capture all forms of indirect leverage of private funds via portfolio investments.[68] Moreover, leverage can also be present in collateralised fund obligations (CFOs), which involve the securitisation of equity stakes in private funds marketed to end-investors.

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64 E.g. see Grillet Aubert, L. (2023), "*Private equity: overview and vulnerabilities*", AMF report, September.

65 On the asset side, private equity funds hold typically portfolio company shares for 4 to 5 years, whereas the funds have an 8- to 10-year maturity, which can potentially be extended by one, up to a few years.

66 For instance, unlisted business development companies may provide quarterly withdrawals.

67 See IOSCO (2023), *Thematic Analysis: Emerging Risks in Private Finance*, September.

68 For example, the AIFMD leverage reporting exempts holdings of special purpose vehicles from the scope of its requirements.

3.3. Key market segments and developments in private finance

Over the last decade, private finance recorded substantial growth, as its assets under management (AUM) doubled in four years to around $12 trillion as of mid-2022.[69] The growth was driven by positive net fund collections, mainly due to increased institutional asset allocations, and concurrent positive asset valuation effects. Within the market, private equity (including venture capital) accounts for more than two-thirds of private funds' AUM. The share of private credit funds has remained at stable over the past few years at around 11–13%.

Within private equity, venture capital strategies target the financing of non-listed SMEs, e.g. at an early stage of their development, and leveraged buyout strategies target more mature firms and rely structurally on portfolio company leverage to benefit from their ongoing growth. While venture capital accounts for the majority of funds and a growing share of private equity's AUM (a third as of 2022), leveraged buyout still accounts for a larger share of AUM within a more limited number of funds.

Similarly, private credit refers, in part, to debt financing of smaller or younger, and more generally higher-risk companies, including highly indebted firms (so-called leveraged debt issuers), which often find it difficult to obtain debt funding from banks or public markets. Private credit funds can include mezzanine funds, distressed funds, special situations funds, direct lending funds, and various other strategies like structured credit vehicles or multi-credit strategy funds. Funds investing in syndicated leveraged loans are also sometimes counted towards private finance funds.[70]

Over the past few years, the share of funds in North America within global AUM has remained relatively stable at about half of total AUM (Graph 3-1). In 2022, the United Kingdom represented about 10% of AUM globally and the euro area about 5%. Asia's market share has grown strongly in recent years and represented about 24% in 2022. Asian growth has been particularly significant in the emerging market segment of "growth" funds which extends venture capital strategies to more mature firms.

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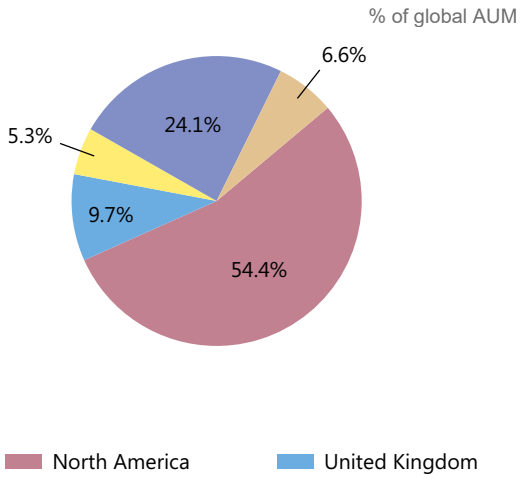
69 According to estimates by McKinsey based on Preqin data, AUM of private finance amounted to $11.7 trillion as of mid-2022. Estimates by Bain suggest a total market size of $12.8 trillion, while PitchBook data comprise $10.3 trillion AUM of private finance at the end of 2022.

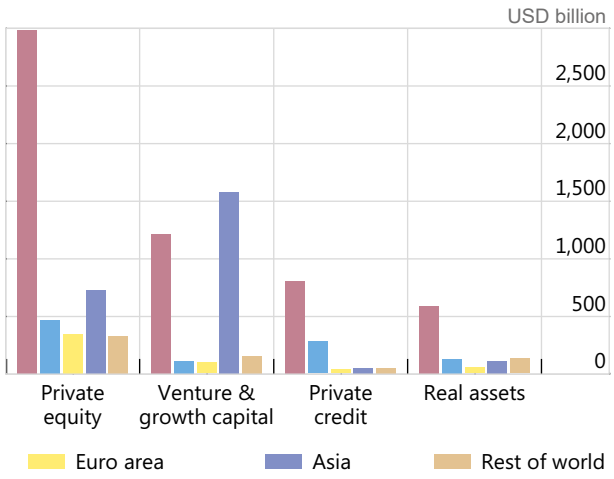
70 See Munday S., W. Hu, T. True, J. Zhang (2018); "Performance of private credit funds: A first look"; The Journal of Alternative Investments, Vol. 21-2, pp. 31-51.

Geographical distribution of private finance assets across market segments[1] **Graph 3-1**

Assets under management by region



Assets under management by specialisation



[1] As of 31 December 2022.

Sources: PitchBook; FSB calculations.

3.4. Private finance in the FSB global monitoring report

Twelve jurisdictions reported data on venture capital and private equity entities in this year's exercise, accounting for approximately $5.3 trillion of total assets (or approximately 1.2% of total global financial assets). While jurisdictions' submissions indicate that private finance entities currently play a limited role at the global aggregate level, data limitations, and in particular the level of data granularity, may lead to jurisdictions potentially over- or underestimating the size of private finance entities in the global monitoring exercise. Data limitations may, for instance, preclude jurisdictions from distinguishing private credit and equity funds from other investment funds, or cross-border investment. Nevertheless, most jurisdictions confirmed the rapid growth of private finance activities globally and some identified pockets of vulnerability, though the overall limited size of the market segment and closed-end structure of many funds should help mitigate some vulnerabilities.

Based on jurisdictions' submissions, loans accounted for a very small share of OFI assets in 2022, also suggesting a limited size of private credit funds. In particular, the bulk of the credit assets held by OIFs were debt securities, as reflected by the ratios of loans to total financial assets that were close to zero. While open-ended private credit funds (i.e. funds that invest predominantly in loans) are in principle included in the narrow measure, private equity vehicles are not. This is due to the narrow measure's focus on credit intermediation, requiring that vehicles holding less than 20% of their AUM in credit-related assets are in general excluded. Some private credit and equity funds are thus classified by jurisdictions into EF1 (as credit hedge funds or other funds) or outside the narrow measure, while other funds are not included at all due to data limitations. A distinction is often made between private equity and private credit funds, as discussed, where funds are either classified as credit hedge funds, which are included in EF1, or non-credit hedge funds, which are outside the narrow measure.

The following box provides an overview of private finance in selected jurisdictions.

Box A-1: Private finance in selected jurisdictions

While private finance is only partially reflected in the data collected in this report and associated monitoring activities, this box provides an overview of private finance in a few selected jurisdictions: the euro area (including specific information for Germany and Luxembourg), Hong Kong, the United Kingdom, and the United States. The box aims to illustrate the difficulties in collecting and integrating private finance data in the FSB's Global Monitoring Report on NBFI. While it is not meant to be comprehensive in its coverage, it provides some evidence on jurisdiction specificities.

Euro area

Euro area private funds' AUM are relatively small compared to the total assets globally (about 6% at the end of 2022) and in particular when comparing it to total assets of the euro area financial system (below 1% of total financial system assets).[71] The private equity fund industry is concentrated in a few countries, with the top five accounting for more than 80% of total net asset value. In particular, Luxembourg, France, and the Netherlands host a relatively large share of the private equity funds, though Germany and Ireland also have some private equity funds in their jurisdiction.[72] Private credit funds are not readily identifiable in the data reported under the Alternative Investment Fund Managers Directive (AIFMD).[73]

Insurance corporations and pension funds are among the main euro area investors in private funds. While the small size of euro area private markets may imply limited risks, the market has been growing rapidly and there may be vulnerabilities from cross-border exposures and global interconnectedness.

Germany

The significance of private credit and private equity funds domiciled in Germany currently appears limited. While the segment has experienced rapid growth in recent years, it occurred from a very small base. At the end of 2022, private credit funds accounted for 0.6% of the total NAV of the German investment fund sector. Private equity funds accounted for approximately 1% of the total NAV. The closed-end structure of the vast majority of private credit and private equity funds should mitigate liquidity mismatch.

Luxembourg

As of end-2022, total financial assets of private equity funds in Luxembourg amounted to $758 billion, of which the majority has a closed-end structure. Indeed, according to data from the AIFMD reporting, open-ended private equity funds represented only 4% of private equity funds' aggregate net asset value in December 2022.[74] In terms of risks, liquidity mismatches were negligible, consistent with the fact that most funds are closed-end, and leverage remained low. Aggregate gross leverage[75], measured as gross exposure divided by the net asset value, stood at 103% as of end-2022.[76]

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71 Estimates based on PitchBook data and ECB statistics.

72 See ESMA, *EU Alternative Investment Funds – ESMA Annual Statistical Report 2022*, 3 February 2022.

73 More granular information is often available at the level of national jurisdictions.

74 The AIFM reporting covers all PE funds managed by Luxembourg AIFMs. Thus, the scope is not the same as the population of PE funds in Luxembourg but overlaps to a significant extent. For more data from the AIFM reporting, including on PE funds' asset composition, liquidity profile and leverage, please consult CSSF (2022), *AIFM Reporting dashboard*, December.

75 Gross leverage equals the ratio of the gross exposure quoted as a percentage of NAV. Under the gross method, exposures are calculated as the absolute value of all positions in the portfolio by including all assets and liabilities, relevant borrowings, derivatives (converted into their equivalent underlying positions) and all other positions, even those held purely for risk reduction purposes. Cash held in the base currency of the AIF is excluded.

76 To be noted that financial leverage may be contracted at sub-asset level (i.e. embedded leverage in intermediary vehicles, i.e. special purpose vehicles), which under the AIFMD may be excluded from leverage figures under certain conditions.

The majority of private equity funds domiciled in Luxembourg are included in the FSB global monitoring report, predominantly reported as equity funds or other funds.[77] Of these private equity funds, 69% were classified outside of the narrow measure of NBFI. These funds were classified outside of the narrow measure, in accordance with the classification guidance, as they hold negligible amounts of credit-related assets. 31% of private equity funds were classified in EF1 and they accounted for 4.5% of Luxembourg's total EF1 financial assets.

Hong Kong

As of December 2022, the total AUM reported by all licensed firms (other than public funds) was HK$10,601 billion. Among those firms, the AUM of private equity funds domiciled in Hong Kong and managed by licensed firms was HK$157 million. Some licensed firms in Hong Kong invest in private credit; however, the data available do not allow these funds to be clearly identified. There does not appear to be any systemic risk associated with private equity or private credit funds in Hong Kong.

United Kingdom

In the United Kingdom, authorities have focused on the financial stability risks of private credit alongside other riskier corporate credit markets, including leveraged loans and high-yield bonds. Private credit and leveraged loans are both floating-rate instruments, and so borrowers are more sensitive to interest rate rises and could be particularly vulnerable to any further tightening of financial conditions. Any crystallisation of risks in these markets could spill over to the United Kingdom given the role of riskier credit markets in financing U.K. businesses, and through U.K. financial institutions' exposures to affected global counterparties, including foreign banks.

Private credit exposures of U.K. banks are limited. The closed-ended nature of funds investing in private credit, their low leverage, and extended lifespan, may help to limit fire sale risks following a rapid re-assessment of risks by investors. Given the common features of leveraged loans and private credit – such as the floating rate nature of lending and links to private equity sponsored activity – there is a risk that stress in one market could spill over to the other.[78]

United States

Entities that engage in private credit in the United States generally include private credit funds and certain registered investment vehicles, such as business development companies. Private credit funds are pooled investment vehicles that originate or invest in loans to private businesses. As of Q4 2021, AUM of private credit funds[79] was at $1 trillion, with estimated "dry powder" of $228 billion.[80] Only institutional investors or high-net-worth individuals are eligible to invest in private credit funds, of which public and private pension funds were the largest investors by total private credit fund assets.

Financial stability risks associated with investor redemptions from private credit funds appear low, as most private credit funds have a closed-end fund structure and typically lock up capital for 5 to 10 years. For example, direct lending funds and distressed credit funds typically employ closed-end structures to invest in illiquid loans, limiting liquidity mismatches. Thus, while some private credit funds are primarily aggregated as part of other investment funds in the FSB's monitoring exercise, and predominantly fall within the EF1 classification, private credit funds engage in limited liquidity and maturity transformation. Moreover, these fund structures generally employ relatively modest levels of leverage at the fund-level.

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77 Not all private equity funds domiciled in Luxembourg are included in the Global Monitoring Report as small non-regulated alternative investment funds (total assets < €500 million) are exempted from statistical reporting (see BCL Circular 2018/241).

78 Bank of England (2023), *Financial Stability Report*, July.

79 Private credit funds are structured as "private funds"—that is, issuers that would be investment companies according to the Investment Company Act of 1940 but for section 3(c)(1) or 3(c)(7) of that act.

80 Uncalled capital (dry powder) is estimated as regulatory AUM (which includes uncalled capital commitments) minus total balance sheet assets.

In addition to private credit funds, business development companies were created via legislation[81] to help provide debt and equity funding to small-and medium-sized companies. In addition to institutional and accredited investors, business development companies typically have a retail investor base. Business development companies may trade publicly on an exchange or may be structured as illiquid or semi-illiquid products that offer limited liquidity to their shareholders (e.g. capped at a certain percentage on a quarterly basis). Per reports filed with the SEC as of Q3 2022, aggregate AUM of business development companies was approximately $267 billion.

3.5. Interconnectedness – across sectors and globally

Significant cross-sectoral and cross-border linkages in private finance provide channels for contagion within jurisdictions and globally. Such interlinkages can lead to the spreading of credit and liquidity risk across institutions and markets, should the underlying risks materialise. Although systemic risks to the financial system are generally assessed to be low, underlying vulnerabilities from leverage and liquidity risk could lead to a procyclical contraction of investments during a market downturn, with implications for the availability and cost of funding of target companies. The lack of transparency in the private fund industry reinforces the need for enhanced data and better monitoring of risks in this segment, including from an interconnectedness perspective.

A relevant channel of contagion is established via private equity funds' and their portfolio companies' leverage obtained from banks. In fact, banks play a central role in nearly all phases of a leveraged buy-out and/or private credit transactions, primarily through the provision of leverage. Banks typically coordinate the origination of these loans and participate in them. They might also provide other ancillary services for mergers and acquisitions' transactions. Whereas the amount of leverage is difficult to assess, leveraged buyouts have a sizeable global footprint in mergers and acquisitions activity and are typically funded via leveraged and/or syndicated loans.[82]

Over the past years, leveraged loan issuance in global primary markets has been buoyant and characterised by high levels of risk taking,[83] while more recent developments show that U.S. banks have largely withdrawn from providing new leveraged debt financing (e.g. in the syndicated loan market). In response to the slowdown in banks' appetite to provide funding via syndicated loans, asset management companies have increased their provision of funding to the target companies. Leveraged loans have also been securitised and sold to other investors via collateralised loan obligations, potentially including to private fund investors. These trends may alleviate concerns about further increases in bank credit risk, however it reinforces interconnections within the asset management industry.

Another link stems from the extension of credit by banks to private funds. While leverage at the fund level tends to be low, it mainly arises from the use of subscription credit lines to reduce the frequency of capital calls by lending against dry powder as collateral. There has also been recent

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81 As a technical matter, business development companies are not registered investment companies but elect to be subject to certain provisions of the Investment Company Act of 1940.

82 See Aramonte S. and F. Avalos (2021), "*The rise of private markets*", BIS Quarterly Review, December.

83 ECB Banking Supervision, Chair of the Supervisory Board A. Enria (2022), *Letter to the CEOs of significant institutions on banks on leveraged transactions*, 28 March.

evidence of an increasing use of NAV financing, where banks provide funding against portfolio assets as collateral, which is typically used to return cash to investors.

Interconnections within the non-bank financial sector arise mainly from institutional investments into private markets via private credit and private equity funds. In some jurisdictions, the allocations of pension funds and insurance companies into private funds has been rising over recent years, as have asset allocations of other investment funds to private funds. For instance, in the euro area, pension funds hold the largest relative allocation with around 8% of their total assets in private equity, infrastructure, and other private funds (Graph 3-2, left panel). A mitigating factor is the very long-term liabilities and investment horizons in the insurance and pension fund sector, which makes it easier for those investors to hold illiquid exposures. Also, the strong move of insurance corporations and pension funds into private finance is expected to slow in the current rate environment, where search for yield behaviour has become less pronounced.

Finally, cross-sectoral interconnectedness has been illustrated by a rising trend of private equity firms taking control of insurance companies over recent years. The relatively stable proceeds, mainly from life insurance premiums, can be invested in private credit and other alternative asset funds arranged and controlled by the private equity firms.[84] The phenomenon has been particularly documented in the United States and is confirmed by anecdotal evidence in some jurisdictions in the European Union.

Cross-border linkages in private finance are significant but difficult to assess, due to insufficient data on the size of cross-border holdings. However, the available data show a large portion of U.S. private equity funds invested especially in European companies (Graph 3-2, right panel). Accordingly, the aggregate gross value of EU companies controlled by the funds subject to Form PF reporting rules represented $3,072 billion as of 2022Q3, representing about 19% of aggregate capital gross value of private equity investments as reported on Form PF.[85] For comparison, the AUM of private funds in the European Union amounted to $1,216 billion as of mid-2022. Similar data for the United States are not available for private credit funds. Adding to this, U.S. institutional investors appear to represent a meaningful share of investments into EU private equity funds. Conversely, EU funds investment into the United States appears more limited.

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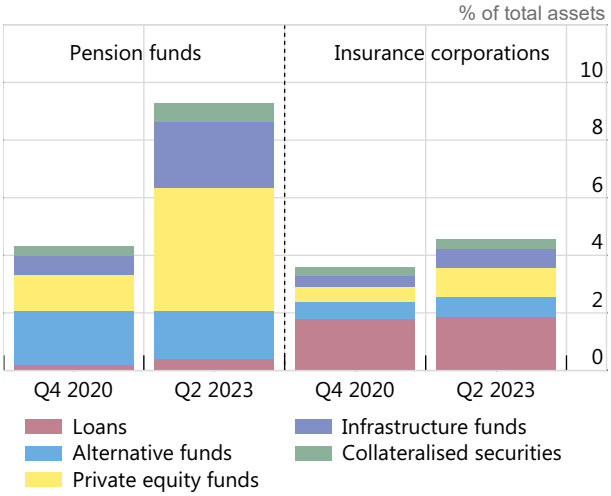
84 See IMF Global Financial Stability Report, October 2023, *Chapter 1*, Box 1.3. “Private Equity and Life Insurers,” which summarizes some of the analysis and policy recommendations by Cortes, Diaby and Windsor (forthcoming).

85 See US Form PF Table 76; Private Funds Statistics - Fourth Calendar Quarter 2022, 18 July 2023.

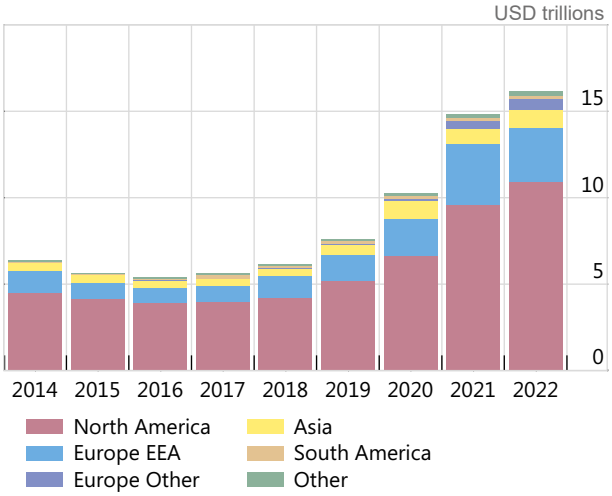
Cross-sectoral and cross-border investments in private finance

Graph 3-2

Investments in alternative assets by euro area insurance corporations and pension funds[1]



Aggregate gross value of U.S. private equity investments domestically and cross-border



[1] Pension funds include only occupational pension funds.

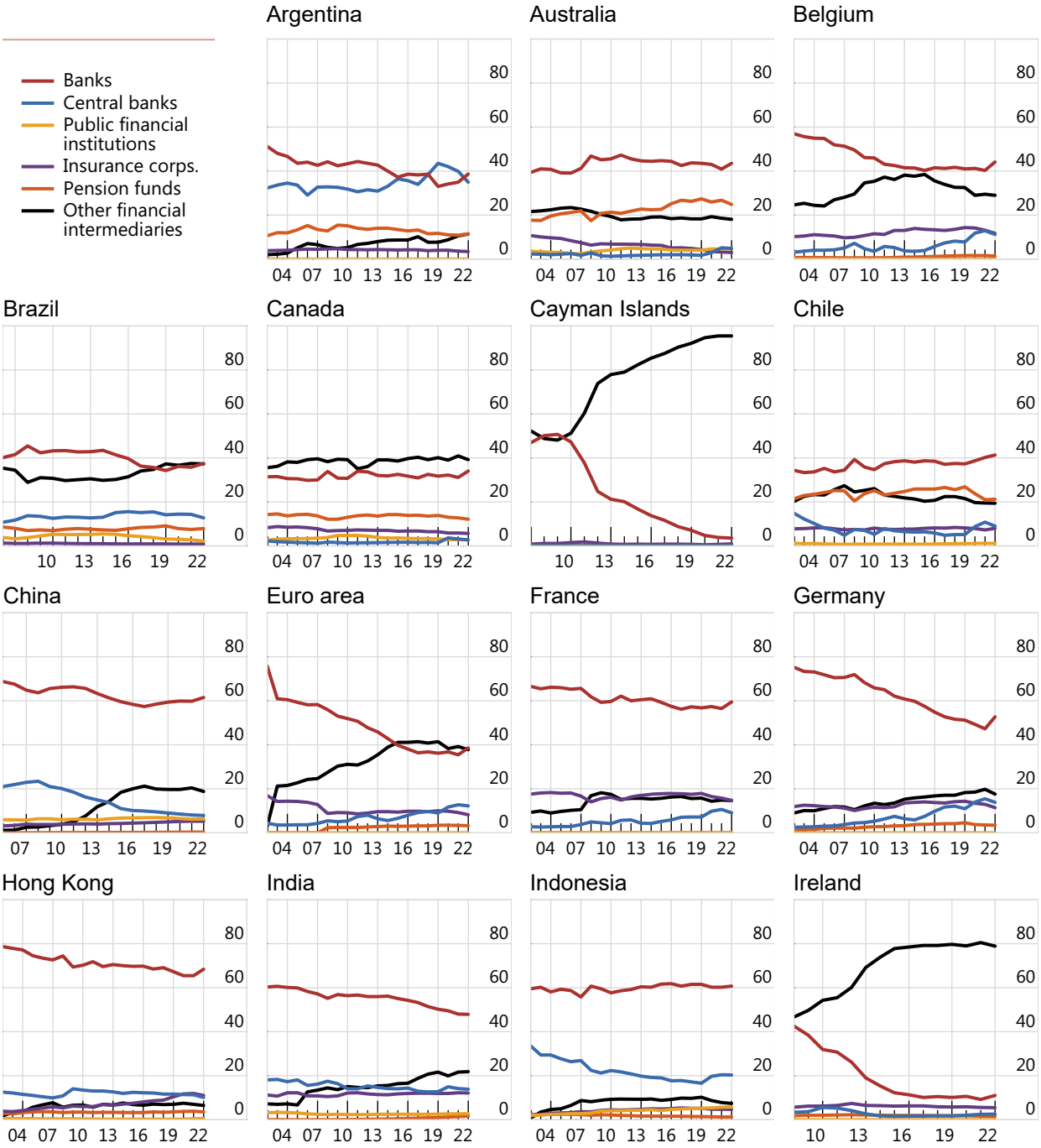
Sources: U.S. Securities and Exchange Commission; EIOPA; PitchBook; S. Aramonte and F. Avalos (2021), "*The rise of private markets*", BIS Quarterly Review December; FSB calculations.

Annex 1: Jurisdiction-specific financial sectors

Share of total national financial assets by jurisdiction[1]

In per cent

Graph A1-1



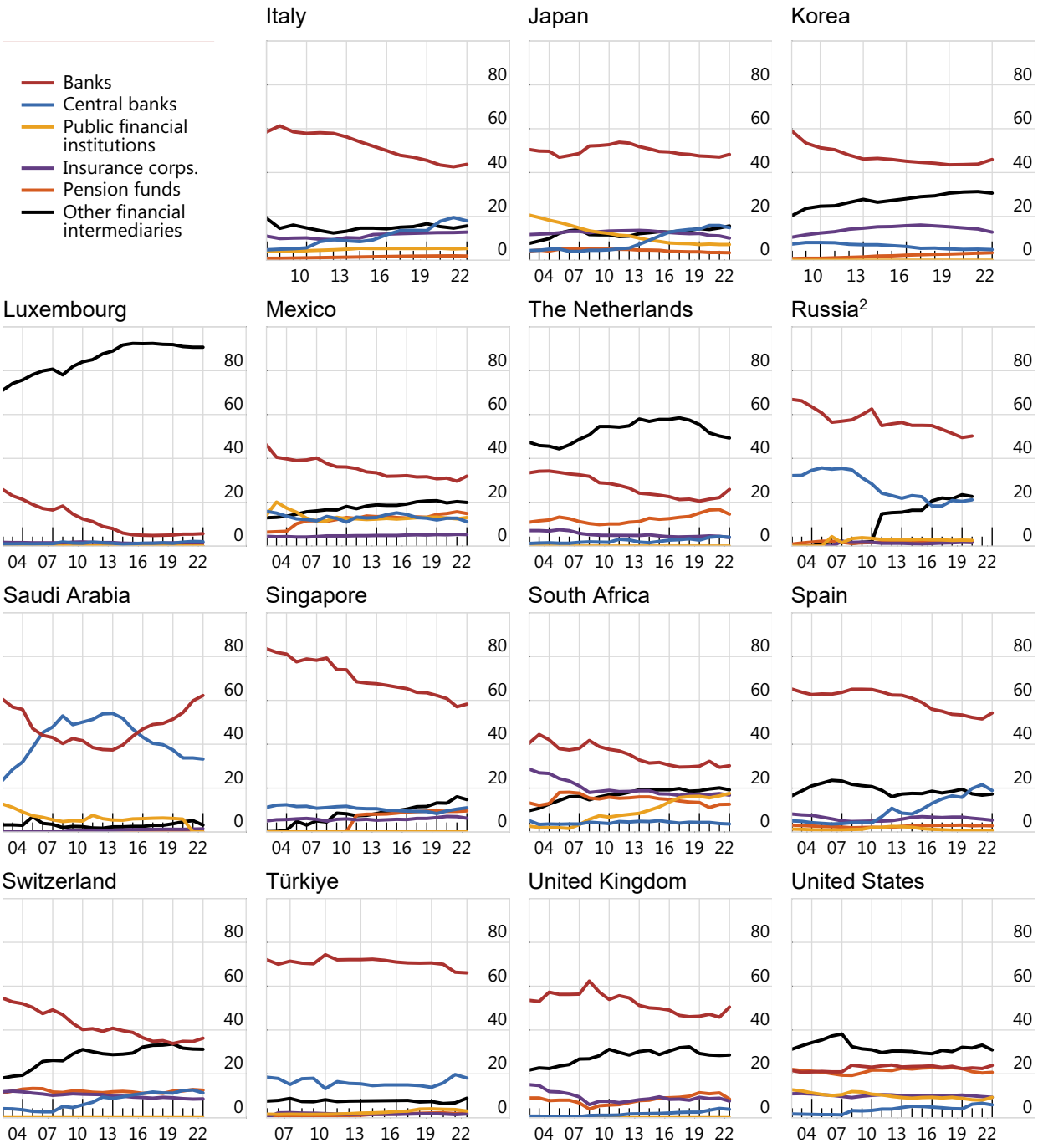
[1] Based on historical data included in jurisdictions' 2023 submissions. Exchange rate effects were netted out by using a constant exchange rate (from 2021).

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Share of total national financial assets by jurisdiction[1]

In per cent

Graph A1-2



[1] Based on historical data included in jurisdictions' 2023 submissions. Exchange rate effects were netted out by using a constant exchange rate (from 2021). [2] Data for Russia up until 2020.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

Annex 2: Summary table

Moving from NBFI to the narrow measure: 29-Group, in USD trillion

	NBFI sector	NBFI components				Excluded from narrow measure[1]	Narrow measure of NBFI	Narrow measure components (by economic function (EF))					
		ICs	PFs	OFIs	FAs			EF1	EF2	EF3	EF4	EF5	Unallocated
2008	96.1	18.2	19.3	57.3	1.2	65.4	30.7	13.6	3.3	5.5	0.1	6.0	2.2
2009	100.9	19.7	21.0	58.6	1.6	72.9	28.0	14.4	3.1	3.5	0.1	5.7	1.1
2010	108.5	21.1	22.9	62.8	1.5	80.8	27.7	15.6	3.0	3.2	0.1	4.8	1.0
2011	112.1	21.9	23.9	64.7	1.5	83.3	28.8	17.3	3.0	3.4	0.1	4.3	0.7
2012	122.2	23.6	25.6	71.3	1.6	89.6	32.6	21.1	3.0	3.5	0.1	4.1	0.6
2013	133.9	24.7	28.4	79.2	1.5	98.4	35.5	24.1	3.1	3.5	0.2	4.0	0.6
2014	147.3	26.6	30.1	88.9	1.5	108.2	39.1	27.2	3.3	3.7	0.2	4.1	0.7
2015	154.2	27.5	30.8	94.2	1.6	112.4	41.8	30.1	3.3	3.5	0.2	4.0	0.8
2016	165.9	29.0	32.6	102.3	1.7	121.1	44.8	32.8	3.4	3.4	0.1	4.0	1.0
2017	178.4	30.5	34.8	111.0	2.0	129.8	48.6	36.0	3.6	3.5	0.1	4.4	1.0
2018	178.5	30.8	35.1	110.5	2.0	129.3	49.2	35.9	3.8	3.8	0.1	4.5	1.1
2019	196.4	33.9	38.6	121.3	2.4	141.6	54.8	40.9	4.0	4.0	0.2	4.6	1.2
2020	212.5	36.2	41.0	132.8	2.5	153.4	59.1	44.8	4.3	4.1	0.1	4.4	1.4
2020[2]	*211.7*	*36.2*	*40.9*	*132.0*	*2.5*	*152.7*	*59.0*	*44.8*	*4.2*	*4.1*	*0.1*	*4.4*	*1.4*
2021[2]	231.0	38.0	43.6	146.5	2.8	166.0	65.0	49.5	4.6	4.3	0.1	4.9	1.7
2022[2]	218.5	35.6	40.9	139.1	2.8	155.4	63.1	46.9	5.0	4.5	0.1	5.0	1.6

NBFI = Non-bank financial intermediation; ICs = Insurance corporations; PFs = Pension funds; OFIs = Other financial intermediaries; FAs = Financial auxiliaries; Unallocated = included in narrow measure but not allocated to a particular EF. As in previous reports, the 29-Group sample is used for the narrowing down section of this report because of its greater granularity. Therefore, all the aggregates shown in this table relate to the 29-Group sample and might deviate from the aggregates discussed in Section 1 (which relies mainly on the 21+EA-Group).

[1] Includes NBFI entities classified outside the narrow measure, prudentially consolidated into banking groups, or that are part of the statistical residual. [2] Does not include data for Russia. Sources: Jurisdictions' 2023 submissions (national sectoral balance sheet and other data) and 2021 submission for Russia; FSB calculations.

Annex 3: Main developments per major NBFI sub-sectors

Table A3-1: Recent developments in major NBFI sub-sectors (29-Group)

	Size at end-2022 and growth/contraction year-on-year (yoy)	Jurisdiction-specific observations
Insurance corporations	• $35.6 trillion • -6% yoy, first decrease since 2008 • -8% yoy for AEs, first decrease since 2008 • 9% yoy for EMEs, smallest-ever increase but broadly in line with the previous five years	• 17 jurisdictions experienced a decrease. • The Netherlands and Spain experienced the largest decreases, both 14%. For the former, this was mainly caused by lower revaluations on investments. • Saudi Arabia experienced the highest growth rate, 16%, attributed to increasing premiums. • Assets held mainly in the United States (33.2%), the euro area(23.4%), China (11.4%), and Japan (10.4%).
Pension funds	• $40.9 trillion • -6% yoy, first decrease since 2008 • -7% yoy for AEs, first decrease since 2008 • 10% yoy for EMEs	• 16 jurisdictions experienced a decrease. • The United Kingdom experienced the largest decrease, at -23%, followed by the Netherlands, -15%. In both cases the fall was mostly due to valuation effects on bond holdings and also equities. • India experienced the highest growth, 27%, partly attributed to inflows. • Assets held mainly in the United States (64.3%), followed by the euro area (7.3%), the United Kingdom (6.9%), and Australia (5.3%).
MMFs	• $9.1 trillion • 3%, slowest rate of growth since the decline in 2016 • 2% for AEs • 8% for EMEs	• 18 jurisdictions experienced an increase. • China experienced the highest rate of growth, 10%, followed by Ireland, 8%. For the latter this was almost entirely driven by net investor inflows. • Saudi Arabia experienced the sharpest decline, -62%, due to valuation and flow effects.

	Size at end-2022 and growth/contraction year-on-year (yoy)	Jurisdiction-specific observations
		• Assets held mainly in the United States (58.1%), the euro area (17.7%), and China (16.6%).
Hedge funds	• $7 trillion • 2%, slowest rate of growth since 2018 • 4% for AEs • -9% for EMEs	• 15 jurisdictions reported hedge fund assets, of which 8 experienced increases and 7 experienced decreases. • Hedge fund assets are concentrated in the Cayman Islands and China, 74.3% and 11.7% of total hedge fund assets, respectively.
Real estate investment trusts and funds (REITs)	• $3.2 trillion • 5% overall growth • 4% for AEs • 10% for EMEs	• 24 jurisdictions reported REIT assets, of which 17 reported increases, 7 reported decreases. • Korea experienced the highest growth, 16%, which is consistent with the trend in this jurisdiction over recent years. • Saudi Arabia experienced the largest decrease, -10%. • Assets held mainly in the euro area (40.4%) and the United States (26.4%)
Other investment funds - i.e. excluding MMFs, hedge funds and REITs - (OIFs)	• $55.4 trillion • -14%, first decrease since 2018, and biggest decrease since 2008 • -15% for AEs • 1% for EMEs	• 23 jurisdictions reported a decrease and 5 reported an increase. • The Netherlands experienced the largest decrease, -30%, followed by Saudi Arabia, -25%. In the case of the Netherlands, this was largely attributed to pension funds withdrawing from affiliated equity and fixed income funds, in order to invest directly themselves. • India reported the largest increase, 12%, attributed to equity market performance and inflows. • Assets held mainly in the United States (43.5%), the euro area (26.0%) and the Cayman Islands (7.2%)
Finance companies	• $6.3 trillion • 9%, in line with the previous two years • 8% for AEs	• 24 jurisdictions reported finance company assets, of which 19 reported an increase and 5 reported a decrease.

	Size at end-2022 and growth/contraction year-on-year (yoy)	Jurisdiction-specific observations
	• 10% for EMEs	• The United Kingdom reported the highest rate of growth (70%), driven by changes in the sample of the data collection survey. Belgium reported the largest decline, -1%. • Assets held mainly in the United States (26.9%), the United Kingdom (16.8%), and Japan (14%).
Broker-dealers	• $12.3 trillion • 5%, a faster rate of growth than the previous year • 4% for AEs • 13% for EMEs	• 26 jurisdictions reported broker-dealer assets, of which 17 reported an increase and 9 reported a decrease. • Japan reported the fastest pace of growth, 17%, which was attributed to an increase in short-term repo transactions, resulting in the expansion of both repo assets (reverse repos) and repo liabilities. France reported the biggest decrease, -12%, followed by Hong Kong, -11%. For Hong Kong, the decrease is mainly attributed to the contraction of proprietary positions and margin loan receivables of EF3 brokers. • Assets held mainly in the United States (35.6%), the United Kingdom (25.4%), and Japan (14%).
Structured finance vehicles	• $6.2 trillion • 3%, notably slower growth than the previous year, but only slightly slower than in 2020 • 4% for AEs • -27% for EMEs	• 26 jurisdictions reported structured finance vehicle assets, of which 20 reported increases and 5 reported decreases. • Australia reported the fastest rate of growth, 11%, and Spain reported the largest decrease, -9%. • Assets held mainly in the euro area (38.7%), the United States (23.7%), and the Cayman Islands (13.0%).
Trust companies	• $3.9 trillion • 1%, a slower pace of growth than the previous year • -4% for AEs • 3% for EMEs	• 7 jurisdictions reported trust company assets, of which 4 reported a decrease and 3 reported an increase. • China reported the fastest rate of growth, 3%. • Singapore reported the largest decrease, -5%. • Assets held mainly in China (79.2%).

	Size at end-2022 and growth/contraction year-on-year (yoy)	Jurisdiction-specific observations
Captive financial institutions and money lenders (CFIML)	• $23 trillion • -2%, the same pace of decline as in 2020 • -2% for AEs • 5% for EMEs	• 16 jurisdictions reported CFIML assets, of which 10 reported decreases and 6 reported increases. • Italy experienced the largest decline, -30%. Japan experienced the fastest rate of growth, 24%; CFIML total assets reflect the assets of financial holding companies in Japan's flow of funds data; the increase is reflective of the increase in the number of financial holding companies following changes in banks' organisational structures. • Assets held mainly in the euro area (69.9%) and Canada (8.9%).
Central counterparties	• $824.3 billion • -4%, first decrease since 2019 • -4% for AEs • 9% for EMEs	• 13 jurisdictions reported assets for central counterparties, of which 7 reported increases and 6 reported decreases. • Assets held mainly in the United Kingdom (56.9%) and the United States (32.0%).

Note: In many cases, growth in Argentina and Türkiye are the largest; however, this is because of their inflation rates and, therefore, this Table does not comment specifically on those jurisdictions. Additionally, jurisdiction-specific observations are noted only where the NBFI entity type accounts for at least 5% of NBFI assets in a jurisdiction.

Annex 4: Narrowing down and exclusion of NBFI entity types from the narrow measure

The FSB's methodology of narrowing down entities in the NBFI sector to an activity-based narrow measure of NBFI involves two steps.

1. The first step casts a wide net to capture an aggregate measure of the financial assets of entities that engage in NBFI (the NBFI sector – discussed in Section 1). Such NBFI entities include ICs, PFs, OFIs and financial auxiliaries.

2. The second step narrows the focus to credit intermediation activities that could give rise to vulnerabilities because they involve liquidity/maturity transformation or use of leverage, resulting in the FSB's narrow measure of NBFI.[86] To accomplish this narrowing, the FSB classifies a subset of the NBFI entities into the five EFs shown in Table 2-1.[87]

Authorities assess non-bank financial entities' business models, activities, and associated vulnerabilities and classify relevant entities into one or more of the five EFs using the following steps:[88]

1. ***Insurance corporations, pension funds, financial auxiliaries and OFIs not classified into any of the five EFs* are excluded.** These entities, which do not tend to directly engage in credit intermediation or have been assessed as not being involved in liquidity/maturity transformation, leverage, and/or imperfect credit risk transfer, totalled $140.6 trillion at end-2022. OFIs not classified into any EF in the 2023 monitoring exercise include mainly captive financial institutions and money lenders ($21.4 trillion) and equity funds, including equity ETFs ($28.2 trillion). Details of these and other OFIs not included in the narrow measure are listed below.

2. ***Entities prudentially consolidated into banking groups are excluded.*** These entities are part of a banking group and already subject to consolidated prudential regulation and supervision (i.e. Basel framework),[89] including for maturity/liquidity transformation, leverage, and imperfect credit risk transfer, and are therefore excluded from the narrow measure.[90] These banking group consolidated entities typically include bank-owned/affiliated broker-dealers, finance companies and SFVs. Self-securitisation (or retained securitisation) assets are also excluded from the narrow measure, as under prudential consolidation rules they are treated as banking groups' own assets.[91] The

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86 This second step is based on the August 2013 FSB *Policy Framework*. The Experts Group periodically reviews the composition of the narrow measure in light of better data and analysis.

87 Entities may also be included in an unallocated category, which captures OFIs that the relevant authorities assessed as giving rise to bank-like financial stability risks, but which could not be assigned to a specific economic function. Some entity types may be classified into more than one economic function. In those instances, an entity's assets are proportionately allocated between the economic functions into which it was classified so as to only count once towards the jurisdiction's narrow measure.

88 In some cases, the determination to exclude entities from the narrow measure incorporates authorities' supervisory judgement.

89 See Basel Committee on Banking Supervision, Basel Framework.

90 Non-bank entities that are not prudentially consolidated into banking groups, but are individually subject to Basel-equivalent regulation, are not excluded from the narrow measure.

91 Self-securitisation/retained securitisation vehicles take loans from a bank and turn these into debt securities to be used by the same bank as collateral, should the need arise, for accessing central bank funding.

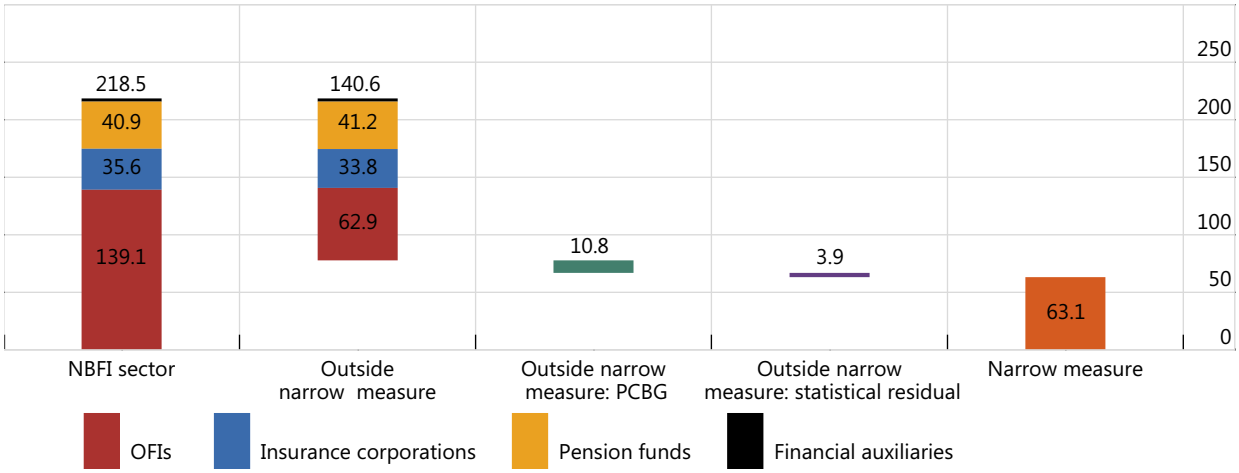
amount of prudentially consolidated assets, including self-securitisation, as of end-2022 was $10.8 trillion.

3. **The statistical residual category**, consisting of residuals generated in some jurisdictions' national financial accounts (NFA), is excluded from the narrow measure. These residuals are the difference between a jurisdiction's total OFI financial assets, as they are published in sectoral balance sheet statistics, and the sum of all known sub-sectors therein. While in theory this residual should be zero, in practice it is quite large in some jurisdictions. This may be the consequence of inconsistencies between "top-down" NFA estimates and "bottom-up" coverage of OFI sub-sectors, as well as challenges in aligning these two approaches, and differences in data granularity. These residuals totalled $3.9 trillion at end-2022 (1.8% of NBFI assets). While further understanding of the identified residuals is needed going forward, the narrow measure excludes these residuals, given uncertainty about the actual entities/activities included in this residual and in order to avoid major inconsistencies across jurisdictions.[92]

Narrowing down the NBFI sector

29-Group at end-2022, in USD trillion

Graph A4-1



PCBG = assets of classified entity types which are prudentially consolidated into a banking group; Statistical residual = reported residual for OFIs generated by the difference between total OFIs and the sum of all known sub-sectors therein. Does not include data for Russia.

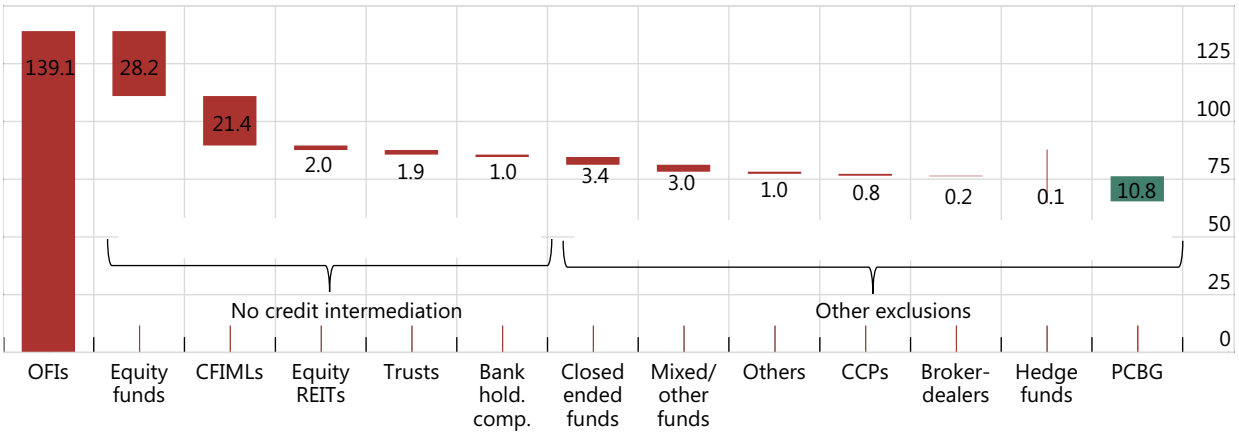
Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

92 Residuals were reported by Switzerland, Germany, Italy, and the Netherlands. The $3.9 trillion includes assets of OFIs that were neither classified into the narrow measure nor identified by jurisdictions as being outside the narrow measure. However, if conservatively assessed, this statistical residual of $3.9 trillion may be added to the $63.2 trillion narrow measure. The statistical residual should be distinguished from the unallocated category described below, through which authorities included entities in the narrow measure that could not clearly be assigned to a specific EF.

Exclusion of OFI entity types from the narrow measure

29-Group at end-2022, in USD trillion

Graph A4-2



OFIs also includes CFIMLs; CFIMLs = captive financial institutions and money lenders; Equity REITs = real estate investment trusts and real estate funds; Bank hold. comp. = bank holding companies; Trusts = trust companies; CCPs = central counterparties; PCBG = prudentially consolidated into banking groups. Does not include data for Russia.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

In addition to the five EFs, the narrow measure also includes $1.6 trillion of assets that are included in an "unallocated" category. This category includes non-bank financial entities that authorities did not assign to a specific EF, but either assessed these entities to be involved in credit intermediation or could not determine that they should be excluded from the narrow measure.[93]

The FSB's monitoring methodology allows for excluding from the narrow measure entities included in NBFI that either do not engage in significant credit intermediation or engage in credit intermediation but were prudentially consolidated into a banking group. Accordingly, for the 2023 monitoring exercise, authorities performed a classification assessment and a series of mutual reviews to arrive at the narrow measure and excluded $62.9 trillion of OFI assets that were included in the NBFI sector. This Annex provides a breakdown of those non-bank entity types that were excluded from the narrow measure and the reasons for exclusion.

- **Captive financial institutions and money lenders** are either (i) part of non-financial corporations and used for the pass-through of capital; or (ii) consolidated into banking groups and thus excluded from the narrow measure.

- **Equity funds** invest principally in equity securities and are not involved in credit intermediation. Equity funds and ETFs referencing equity indices that do not hold more than 20% of their AUM in credit-related assets are excluded from the narrow measure. These funds often hold a modest amount of cash and highly-liquid fixed income assets for cash management purposes.

93 Over time the size of this unallocated NBFI category may decrease to some extent as authorities, with better data and analysis, will be able to classify them into one of the five economic functions or exclude them from the narrow measure. In some cases, however, the entities or activities will remain in the unallocated category, as they are assessed to be involved in credit intermediation but do not fit into one of the economic functions.

- **Trust companies** exist in several jurisdictions. In Singapore and South Africa, they provide a range of administrative and advisory services to individual clients but are not CIVs. Korean trust accounts are separately managed (not via collective investment vehicles) and closed-end with limited leverage. Mexican trust companies that were not classified in the narrow measure invest mainly in equities of non-listed companies and infrastructure projects. Several types of Chinese trusts were excluded from the narrow measure including property trusts (which can invest only in non-financial assets), some non-bank-affiliated single money trusts and collective investment trusts (unleveraged, closed-end and/or invest primarily in equity assets).

- **Equity REITs** and real estate funds that invest in equities or directly in real estate have been excluded from the narrow measure as they do not engage in credit intermediation (in contrast with mortgage REITs).

- **Others** consist of relatively small OFI entity types, including non-securitisation or publicly issued SPVs (Brazil, Ireland and Korea), microfinance entities and peer-to-peer lenders (China); venture capital and private equity entities that are not, or are only marginally, engaged in credit intermediation (Belgium, Indonesia, Italy, Mexico, Spain and Türkiye); central mortgage bond institution (Switzerland); Brazilian raffle savings companies; Indian self-help group loans; and Stokvels (informal savings clubs in South Africa).

- **Mixed/other funds** in Brazil, Hong Kong, India, Ireland, Korea, Luxembourg, the Netherlands and Türkiye were assessed to be either not engaged in material credit intermediation, or presenting only negligible liquidity and maturity transformation risks and with immaterial leverage, or are not collective investment vehicles. For example, Discretionary Funds in Indonesia have been assessed not to be collective investment vehicles as they are separately managed and invest mostly in equities. South Africa did not classify fund of funds that invest in only equity or real-estate funds in the narrow measure.

- **CCPs** were excluded from the narrow measure because of the absence of credit intermediation. With both sides of the balance sheet typically matched, CCPs are not engaged in bank-like activities such as leverage or liquidity/maturity transformation. However, their collateral management activities may involve elements of liquidity/ maturity transformation.

- **Closed-end funds** with limited maturity/liquidity transformation, and that are not leveraged, are not considered susceptible to runs in the same way that open-ended funds are, and have generally not been classified in the narrow measure unless a jurisdiction chose to include them following a conservative approach.

- Certain **broker-dealers** in some jurisdictions (Belgium, Hong Kong, Indonesia, Ireland, and the Netherlands) were excluded from the narrow measure as these entities are not engaged in credit intermediation (i.e. they act as “pure” brokers/agents for clients).

- **Finance companies** in India and the Netherlands whose short-term funding is less than 10% of overall assets, as well as finance companies in China that provide internal

financing and serve more as a treasury function, were not classified in the narrow measure.

- Certain **hedge funds**, in Canada, India, Ireland, Luxembourg, and the Netherlands, that largely do not engage in credit intermediation are excluded from the narrow measure. A small portion of hedge funds in Luxembourg and the Netherlands was excluded from the narrow measure as they are closed-ended and do not employ leverage and thus were assessed to not pose significant financial stability risks.

The inclusion of NBFI entities or activities in the narrow measure is based on a conservative (inclusive) assessment of the vulnerabilities associated with credit intermediation. The conservative assessment has two features:

(i) Authorities classify entities on a pre-mitigant basis – that is, authorities assume a scenario in which policy measures have not been adopted or risk management tools are not exercised. Classification into an EF does not constitute a judgement that potential policy measures to address vulnerabilities of NBFI entities and activities are inadequate or ineffective, nor does it necessarily reflect a judgement that credit intermediation outside of the banking system represents arbitrage that undermines existing regulation.

(ii) Authorities may exclude NBFI entities from the narrow measure if data are available and the analysis of the data and rationales for exclusion provide sufficient grounds for exclusion by participating jurisdictions, in light of the methodology and classification guidance used in the FSB's annual monitoring exercise.

The conservative (inclusive), pre-mitigant approach helps improve data consistency across jurisdictions and facilitates construction of global measures of intermediation activity. However, the narrow measure may overestimate the degree to which NBFI currently gives rise to post-mitigant financial stability risks, given that existing policy measures, risk management tools, or structural features of these activities may have significantly reduced or addressed these financial stability risks.[94] Box 2-1 provides an overview of the policy tools.

[94] For example, the narrow measure currently includes certain types of investment funds, such as certain MMFs and fixed income funds, with specific structural features that may mitigate risks (such as asset allocation requirements, liquidity risk management requirements, limits on leverage, prohibitions on loan origination, and investment restrictions).

Annex 5: Vulnerability metrics

Box A4-1: Vulnerability metrics

On- and off-balance sheet items and vulnerability metrics*

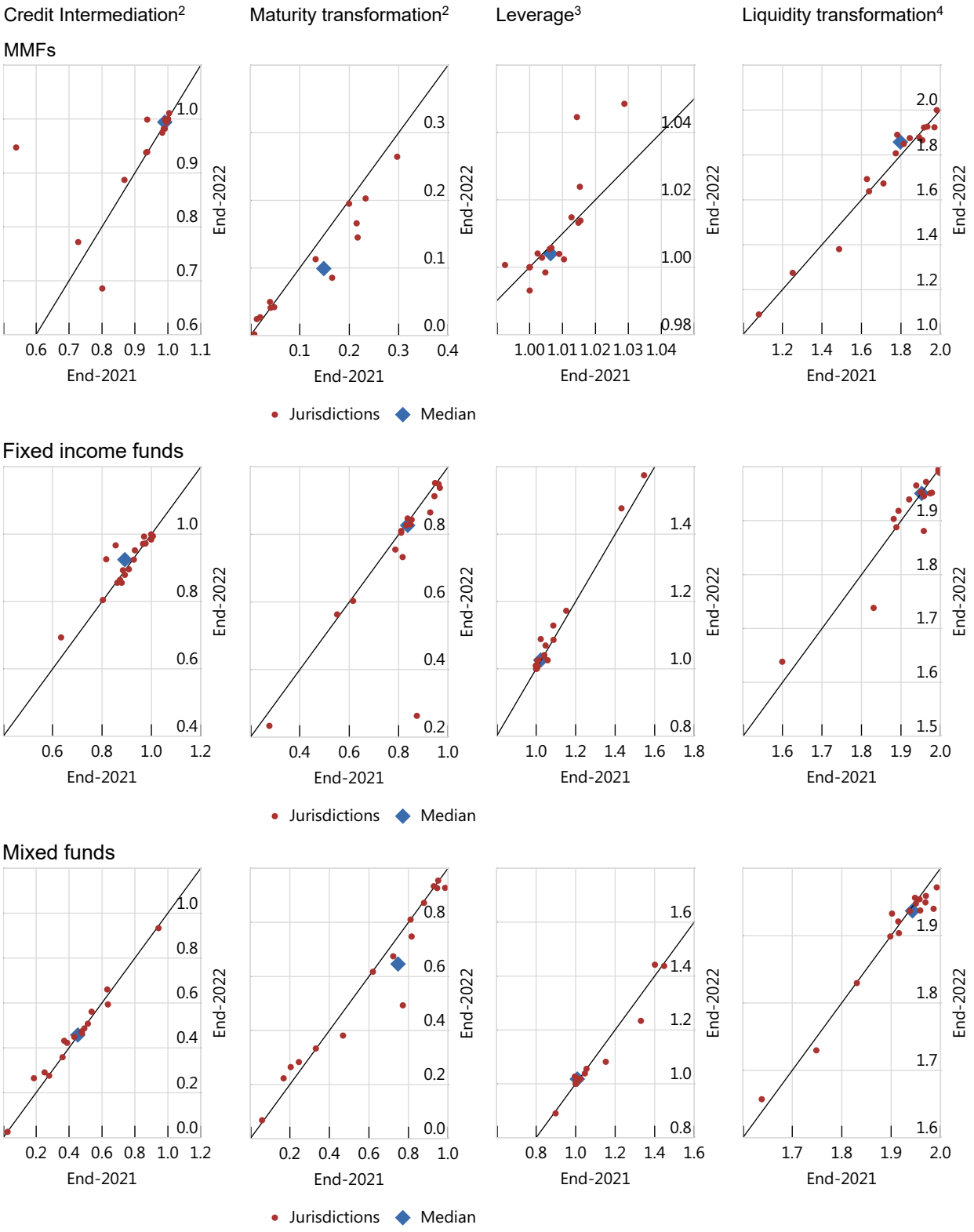
Examples of vulnerability metrics	Definition and range
Credit intermediation (CI) $\text{CI1} = \frac{\text{credit assets}}{\text{total financial assets}}$	These metrics compare the amount of credit assets and loans held by a particular entity type to its total assets (**CI1** and **CI2**, respectively). As loan assets are part of wider credit assets, CI2 can be viewed as a sub-set of CI1.
$\text{CI2} = \frac{\text{loans}}{\text{total financial assets}}$	These metrics fall between 0 and 1, with higher values showing more involvement in credit intermediation while "0" indicating no involvement in credit intermediation.
Maturity transformation (MT) $\text{MT1} = \frac{\left(\begin{matrix}\text{long-term assets} - \text{equity} \\ - \text{long-term liabilities}\end{matrix}\right)}{\text{total financial assets}}$	**MT1** is the portion of long-term assets (>12 month maturity) funded by short-term liabilities (≤ 30 days) (i.e. not funded by equity or long-term liabilities or, in the case of EF1 entities, by non-redeemable equity), scaled by the entity type's total financial assets. It falls between −1 and +1, with 0 indicating no maturity transformation, and negative values implying negative maturity transformation.
$\text{MT2} = \frac{\text{short-term liabilities}}{\text{short-term assets}}$	**MT2** is the ratio of short-term liabilities (plus redeemable equity in the case of EF1 entities) to short-term assets. A value of 1 indicates that short-term liabilities (plus redeemable equity for EF1) are fully covered with short-term assets. Above 1, increases in the ratio indicate that there could be short-term funding dependence. Ratios from 0 to 1 indicate negative maturity transformation.
Liquidity transformation (LT) $\text{LT1} = \frac{\left(\begin{matrix}\text{total financial assets} - \text{liquid assets (narrow)} \\ + \text{short-term liabilities}\end{matrix}\right)}{\text{total financial assets}}$	**LT** measures the amount of less-liquid assets (total financial assets minus liquid assets) funded by short-term liabilities (and/or shares redeemable for cash or underlying assets in the case of EF1 entities), approximated by short-term liabilities minus liquid assets (under a narrow definition for **LT1** and a broad definition for **LT2**).** Total financial assets are also added to the numerator to obtain interpretable results, with a value of "1" indicating no liquidity transformation (i.e. all near-term demands on liquidity are supported by liquid assets) and "2" indicating that assets are less liquid and are funded by short-term liabilities, including redeemable equity.
$\text{LT2} = \frac{\left(\begin{matrix}\text{total financial assets} - \text{liquid assets (broad)} \\ + \text{short-term liabilities}\end{matrix}\right)}{\text{total financial assets}}$	
Leverage (L) $\text{L1} = \frac{\text{total financial assets}}{\text{equity}}$	**L1** is the ratio of total financial assets to equity (or AUM to NAV in the case of CIVs). The results can be interpreted as a financial leverage ratio or equity multiplier; however, these are not risk-based measures. Although this measure enables comparisons across entity types, **L2** tries to take into account non-bank financial entities' leveraging or de-leveraging through the use of derivatives and other off-balance sheet transactions (i.e. synthetic leverage). Additional measures for leverage were considered on the basis of data availability. For example, a non-equity ratio (**L5**) was used for SFVs instead.
$\text{L2} = \frac{\text{total financial assets} + \text{total off balance sheet exposures}}{\text{equity}}$	
$\text{L3} = \frac{\text{gross notional exposure (GNE)}}{\textit{net asset value (NAV)}}$	
$\text{L4} = \frac{\text{total liabilities}}{\textit{equity}}$	
$\text{L5} = \frac{(\text{total financial assets} - \text{equity})}{\textit{total financial assets}}$	

* For EF1 entities, the collected balance sheet data and calculated vulnerability metrics were expanded to also include assets under management (AUM) instead of total financial assets, Gross Notional Exposure and Net Asset Value (to calculate leverage ratios), and non-/redeemable equity (as a form of long-/short-term liability). Ratios related to imperfect credit risk transfer were also considered in past monitoring exercises. However, collected data were not sufficient to allow any meaningful conclusions. In particular, off-balance sheet data items such as off-balance sheet credit exposures were often not available across jurisdictions.

** Liquid assets are difficult to measure as the liquidity of an asset at any given time is contingent on a number of external factors. For the purposes of the FSB's monitoring exercise, liquid assets are considered to be all assets that can be easily and immediately converted into cash at little or no loss of value during a time of stress (see also characteristics and definition of High Quality Liquid Assets (HQLAs) in Part 1, Section II.A in BCBS (2013). Two definitions of liquid assets are used in this exercise: in the narrow definition, liquid assets include only cash and cash equivalents; in the broad definition, liquid assets include HQLAs, which can include cash and cash equivalents, but also certain debt and equity instruments that meet certain liquidity characteristics (subject to concentration limits and haircuts).

EF1: Focus on selected vulnerability metrics for investment funds in 2021 and 2022 across jurisdictions[1]

End-2022 versus end-2021 **Graph A5-1**

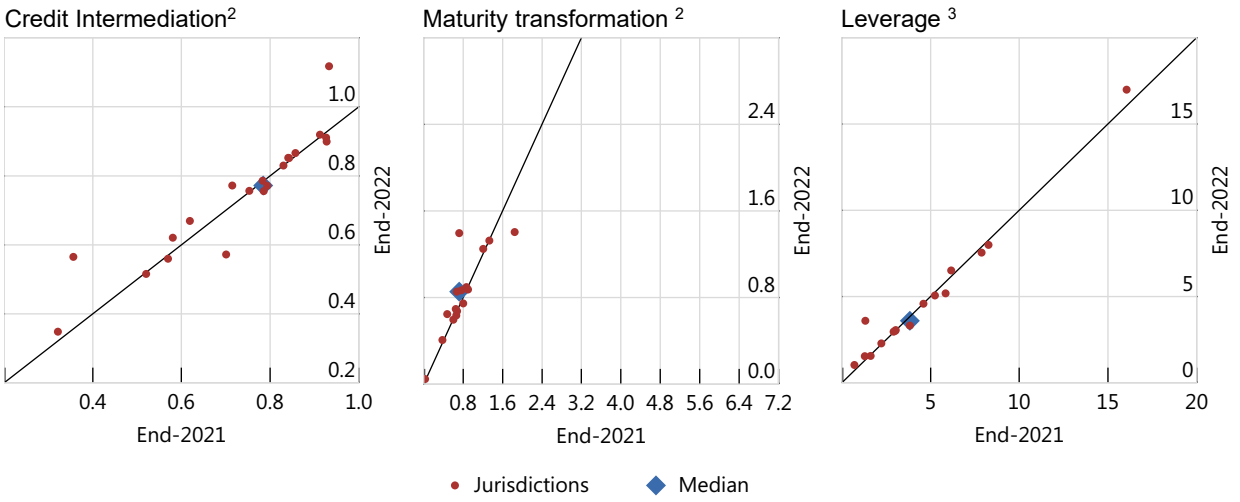


[1] Does not include data for Russia. [2] Credit assets / AUM (CI1). [3] (Long-term assets – non-redeemable equity – long-term liabilities) / AUM (MT1). [4] AUM / net asset value (leverage 1). [5] AUM – liquid assets (narrow) + short-term liabilities + redeemable equity) / AUM (LT1).

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

EF2: Focus on selected vulnerability metrics for finance companies in 2021 and 2022 across jurisdictions[1]

End-2022 versus end-2021 **Graph A5-2**

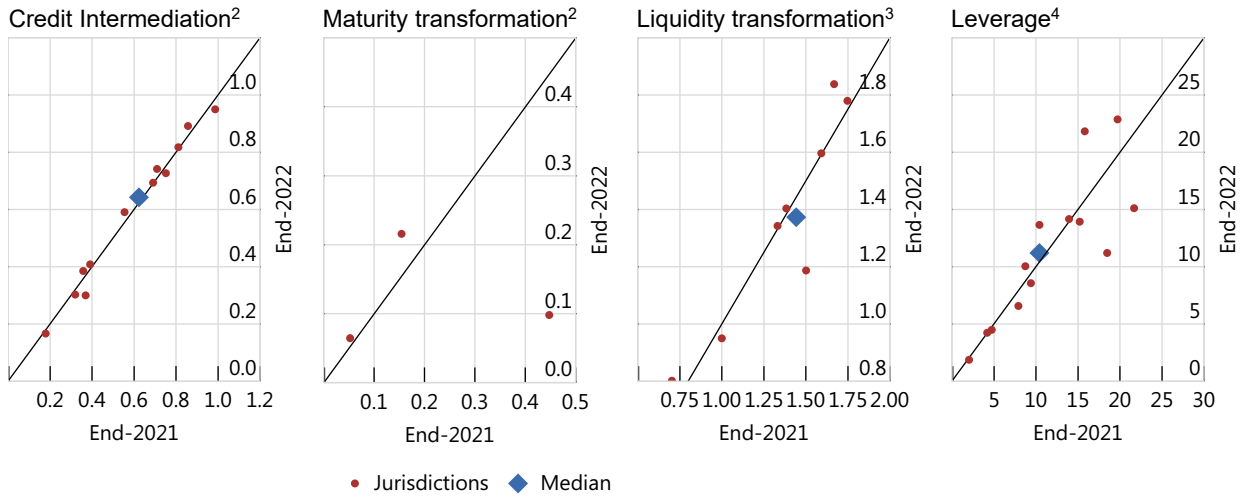


[1] Does not include data for Russia. [2] Loans / total financial assets (CI2). [3] Short-term liabilities / short-term assets (MT2). [4] Total liabilities / equity (L4).

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

EF3: Focus on selected vulnerability metrics for broker-dealers in 2021 and 2022 across jurisdictions[1]

End-2022 versus end-2021 **Graph A5-3**



[1] Does not include data for Russia. [2] Credit assets / total financial assets (CI1). [3] (Long-term assets – equity – long-term liabilities) / total financial assets (MT1). [4] (Total financial assets – liquid assets (narrow) + short-term liabilities) / total financial assets (LT1). [5] Total financial assets / equity (L1).

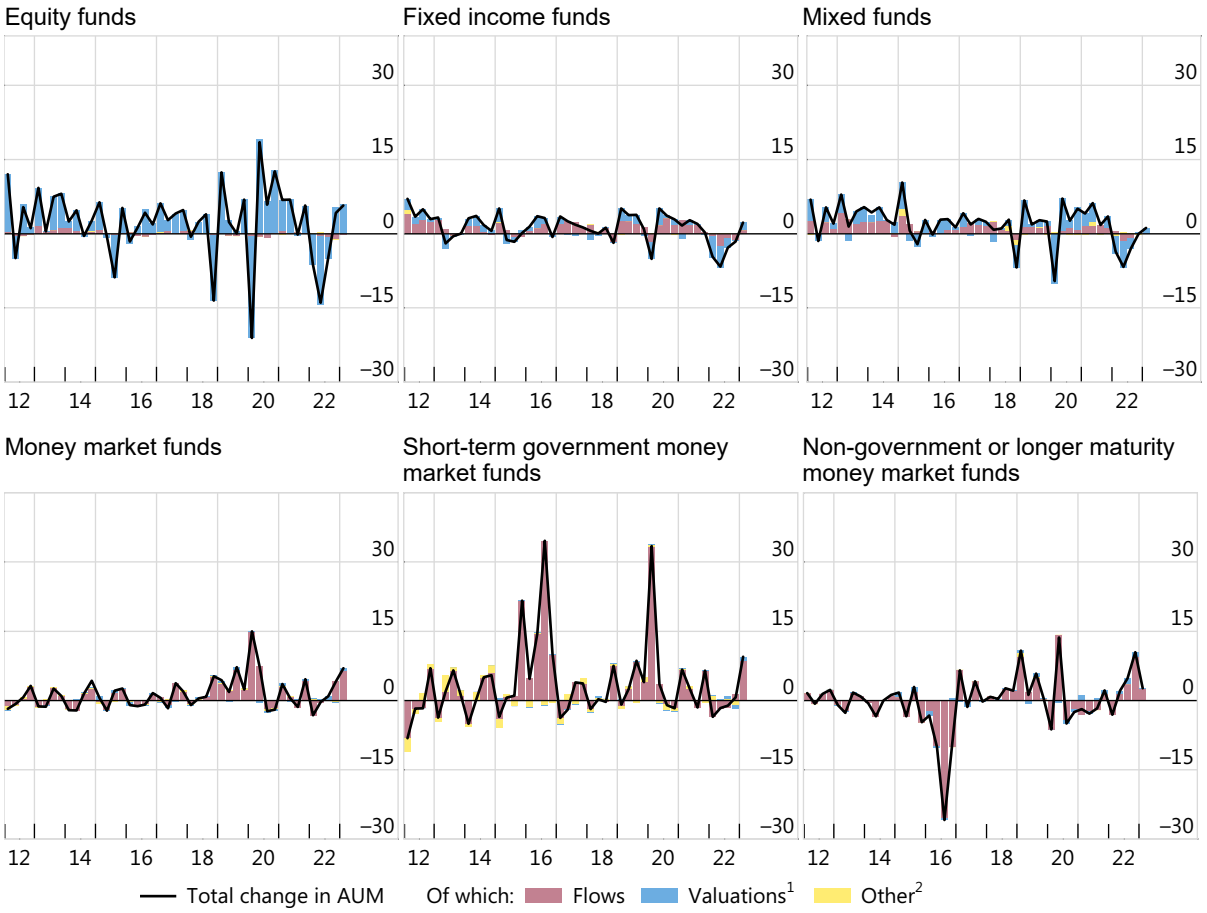
Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Annex 6: Additional statistics

Flow versus valuation effects

Changes in AUM: Valuation vs flows by entity type

% of AUM; 29-Group **Graph A6-1**



[1] Quarterly data up to Q1 2023. [2] Other represents change attributable to factors other than fund flows and valuation (e.g. changes in leverage and sample adjustments).

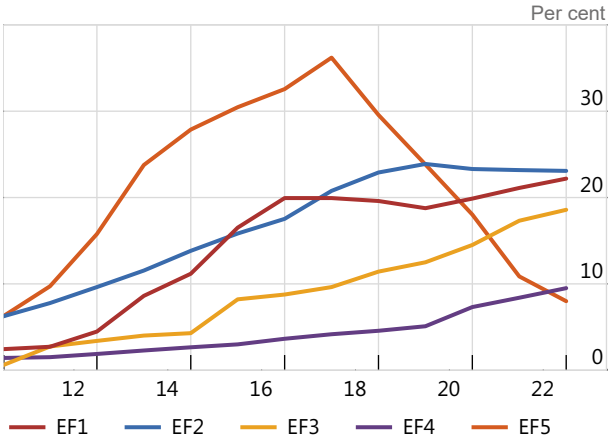
Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Narrow measure in EMEs

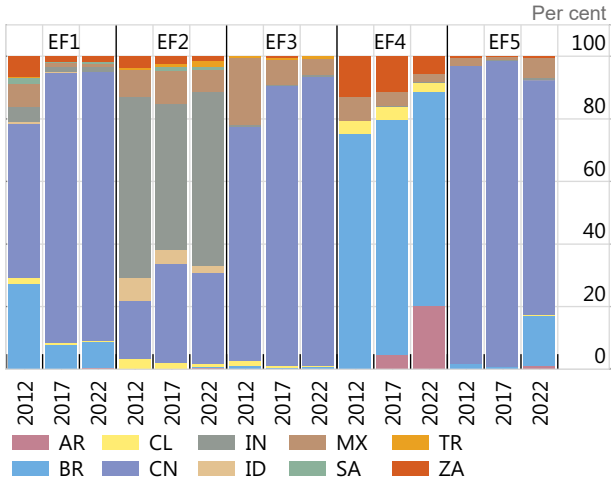
The share of the narrow measure assets held by EMEs has picked up since 2013

29-Group **Graph A6-2**

EMEs' share of global EF assets[1]



Breakdown per EF in EMEs by jurisdiction



[1] Includes data for Russia up until 2020.

Sources: Jurisdictions' 2023 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

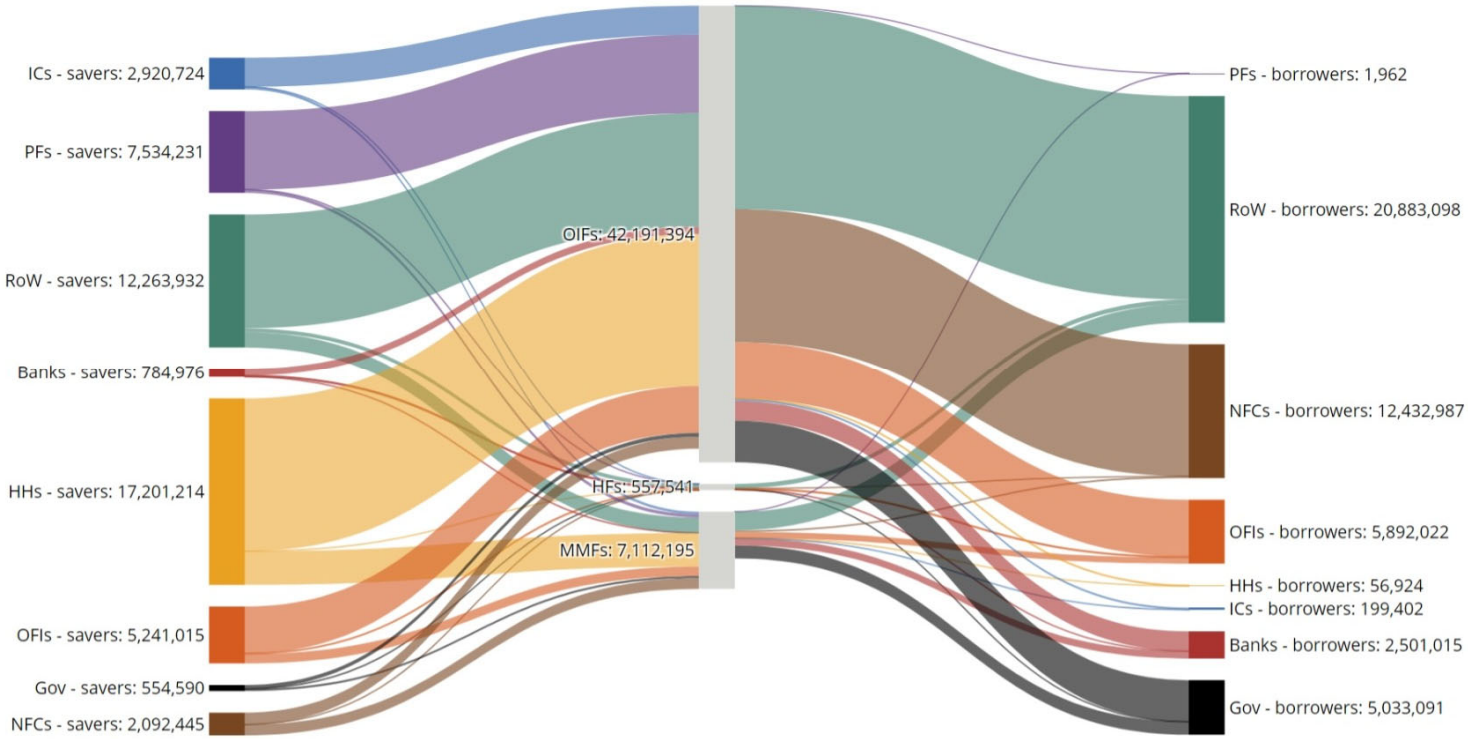
Annex 7: Sankey charts

Investment funds' identified linkages with ultimate savers and borrowers

29-Group

Graph A7-1

USD million



Only the data of jurisdictions that reported linkages to investment funds are reflected. Does not include data for Russia. Data for OIFs include data for REITs, fixed income funds and mixed funds, as well as for investment funds that were not classified in EF1. The size of OIFs', HFs' and MMFs' balance sheet was estimated by taking the maximum of savings from all ultimate savers and borrowings from all ultimate borrowers.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Finance companies' identified linkages with ultimate savers and borrowers

29-Group

Graph A7-2

USD million

Does not include data for Russia. The size of FinCos balance sheet was estimated by taking the maximum of savings and borrowings.

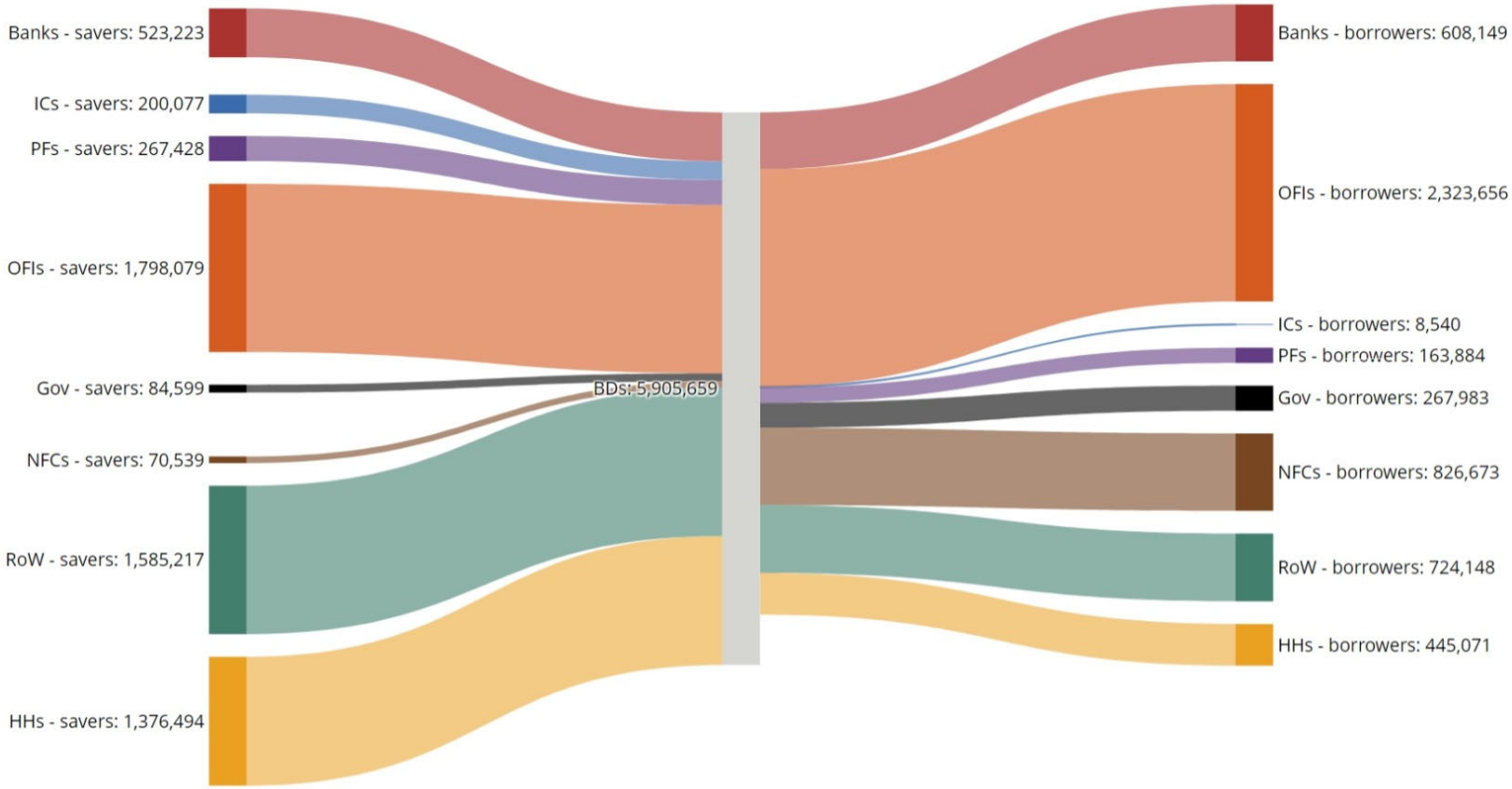
Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations

Broker-dealers' identified linkages with ultimate savers and borrowers

29-Group

Graph A7-3

USD million



Graph shows data from 17 participating jurisdictions that reported exposures of financial market participants to broker-dealers. Does not include data for Russia. The household sector appeared large because of the classification of hedge funds into this sector in the United States. The size of broker-dealers' balance sheet was estimated by taking the maximum of savings and borrowings

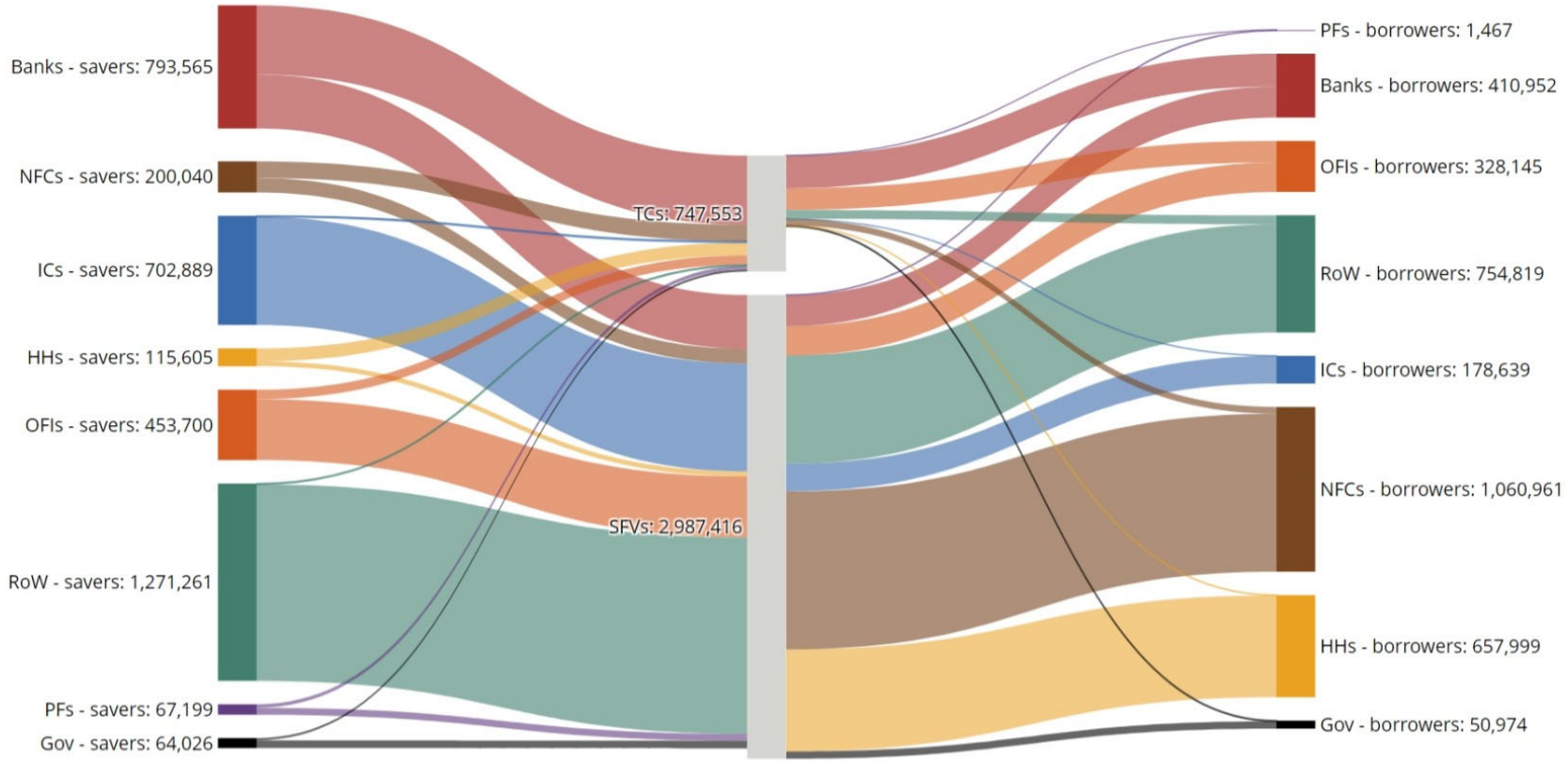
Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Trust companies' and structured finance vehicles' identified linkages with ultimate savers and borrowers

29-Group

Graph A7-4

USD million



Does not include data for Russia. The size of TCs' and SFVs' balance sheet was estimated by taking the maximum of savings and borrowings.

Source: Jurisdictions' 2023 submissions (national sector balance sheet and other data); FSB calculations.

Abbreviations

AEs	Advanced economies
AUM	Assets under management
BDs	Broker-dealers
CCPs	Central counterparties
CLOs	Collateralised loan obligations
EF1	Collective investment vehicles with features that make them susceptible to runs
EF2	Lending dependent on short-term funding
EF3	Market intermediation dependent on short-term funding
EF4	Facilitation of credit intermediation
EF5	Securitisation-based credit intermediation
EMEs	Emerging market economies
FIFs	Fixed income funds
FinCos	Finance companies
HFs	Hedge funds
ICs	Insurance corporations
ICPFs	Insurance corporations and pension funds
MMFs	Money market funds
NBFI	Non-bank financial intermediation
OFIs	Other financial intermediaries
OIFs	Other investment funds
PFs	Pension funds
P2P	Peer-to-peer
REITs	Real estate investment trusts and real estate funds
RoW	Rest of the world
SFVs	Structured finance vehicles
SPVs	Special purpose vehicles
TCs	Trust companies