Global Monitoring Report on Non-Bank Financial Intermediation

2024

16 December 2024

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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 2023. It presents the results of the 14th annual FSB global monitoring exercise, covering 29 jurisdictions that account for around 88% of global GDP. It describes broad trends in financial intermediation and reviews key areas of NBFI monitoring, 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 2023, during which most economies' central banks continued to raise interest rates in response to inflationary pressures. However, the pace of these interest rate increases was slower than in 2022 and market participants' expectations of normalising financial market conditions increased, leading to higher asset valuations.

In 2023, the size of the NBFI sector increased 8.5%, more than double the pace of banking sector growth (3.3%), raising the NBFI share of total global financial assets to 49.1%. The growth of the NBFI sector was largely attributed to higher valuations for mark-to-market instruments, which rebounded after a significant decrease in 2022. Investor inflows to NBFI entities also contributed to the increase. At the jurisdictional level, increases in the NBFI sector of above 10% occurred in Brazil, the Cayman Islands, Japan, Mexico, and the United States. For most advanced economies (AEs) and emerging market economies (EMEs), the share of the NBFI sector was broadly stable year-on-year. Graph 0-1 provides the definitions and size of the main monitoring aggregates.

All NBFI subsectors grew at rates around two times their five-year average in 2023. Other financial intermediary (OFI) assets increased 9.4%, followed by insurance corporation and pension fund assets which increased 6.8% and 6.7%, respectively. Within the OFI sector, the assets of almost all entity types increased, with investment funds continuing to drive changes in the asset levels of OFI, and the broader NBFI sector. Money market fund (MMF) assets grew in the majority of AEs and EMEs, driven primarily by increased flows as a result of higher MMF yields relative to bank deposits as well as, in part, by the March 2023 banking turmoil in the United States and Switzerland.

The financial assets of entities classified in the FSB's narrow measure increased 9.8% – somewhat higher than the broader NBFI sector growth – to reach $70.2 trillion, the highest level ever recorded in this exercise (Table 0-1). The narrow measure consists of NBFI entities involved in credit intermediation activities that could give rise to bank-like vulnerabilities because they involve liquidity/maturity transformation or use of leverage. The narrow measure, which comprises five economic functions (EFs), represented 29.5% of total NBFI assets and 14.6% of total global financial assets. All but two jurisdictions (India and Saudi Arabia) participating in the exercise experienced growth in their narrow measure, with the increase in AEs and EMEs 10.8% and 5.7%, respectively.

All economic functions grew in 2023, albeit at different paces. The most significant growth, of 16.2%, was experienced by entities classified in EF3 (intermediation activities dependent on short-term funding, predominantly broker-dealers). This growth rate was over three times the 5-year average annual growth rate, albeit from a low base, as intermediation activity grew amid rising interest rates. EF3 growth occurred at a similar pace in AEs and EMEs (16.4% and 15.0%,

respectively), and was experienced in the majority of jurisdictions. However, the growth was largely driven by Japan, where domestically EF3 constituted the largest EF and grew 21.3%. EF3, as well as EF1, increased its share of the narrow measure year-on-year. EF1 (collective investment vehicles with features that make them susceptible to runs; for example, MMFs and investment funds) continued to represent the largest share of the narrow measure, at over 70%.

OFIs' use of wholesale funding, which tends to be short-term and less stable, remained significant in 2023, at about 20% of total assets, in line with the average of the last 5 years. Taken together, short-term wholesale funding (which has a residual maturity of less than 12 months) and repo funding amounted to 7.3% of OFI total assets and was particularly pronounced for structured finance vehicles and broker-dealers. MMFs and broker-dealers remained the entity types most involved in repo transactions.

Financial institutions' borrowings continued to increase in 2023, despite the higher interest rate environment. Borrowings from the NBFI sector increased at a slightly faster pace than that of banks (4.1% compared to 3.4%, respectively). Captive financial institutions and broker-dealers were the entity types among the NBFI sector with the largest amount of total borrowings, both at around $6.3 trillion. Real estate investment trusts (REITs), finance companies, broker-dealers, and structured finance vehicles were the OFI entity types with the largest levels of financial leverage.

Domestic linkages between the banking and NBFI sectors increased for the banking sector, but decreased for the NBFI sector, relative to their respective sizes. That is, banks' funding from NBFI entities measured as a proportion of banks' assets partially reversed its three-year decline in 2023. Meanwhile, OFIs' use of funding from banks measured as a proportion of OFIs' assets decreased marginally year-on-year. Cross-border linkages were little changed year-on-year and continued to represent over 30% of OFI assets in three jurisdictions.

Most NBFI vulnerability metrics remained stable over the past year, with fixed income and mixed funds showing high degrees of liquidity transformation, while finance companies, broker-dealers, and SFVs displayed large levels of leverage. For EF1 entities (collective investment vehicles with features that make them susceptible to runs), the percentile data show that for the majority of jurisdictions, maturity and liquidity transformation in fixed income funds was high. Liquidity transformation was also high in the case of mixed funds and MMFs in some jurisdictions. The majority of jurisdictions reported relatively low financial leverage across all EF1 entity types; however, a few jurisdictions reported higher leverage levels for mixed funds. For EF2 entities (predominantly finance companies), financial leverage remained high in several jurisdictions and median maturity transformation slightly increased. For EF3 entities (predominantly broker-dealers), aggregate vulnerability metrics display little change in credit intermediation, maturity transformation and leverage but do show a negative trend in liquidity transformation. For EF5 entities (mainly structured finance vehicles), financial leverage remained elevated, and little changed year-on-year.

The FSB has also collected data from jurisdictions participating in this report on non-bank fintech lending, on a best-efforts basis. This addresses part of the third phase of the G20 Data Gaps Initiative, which includes a recommendation to close data gaps related to non-bank fintech lending. Ten jurisdictions provided data on outstanding amounts, with different levels of granularity. For these jurisdictions, the aggregate 2023 reported fintech lending assets (around $42 billion) represented 1% of the sum of their OFI loan assets.

Size of monitoring aggregates and composition of the narrow measure

At end-2023   **Graph 0-1**

Narrowing down to the narrow measure[1]

Total financial assets
$486.4 trn

NBFI
$238.8 trn

OFIs
$156.0 trn

Narrow measure
$70.2 trn
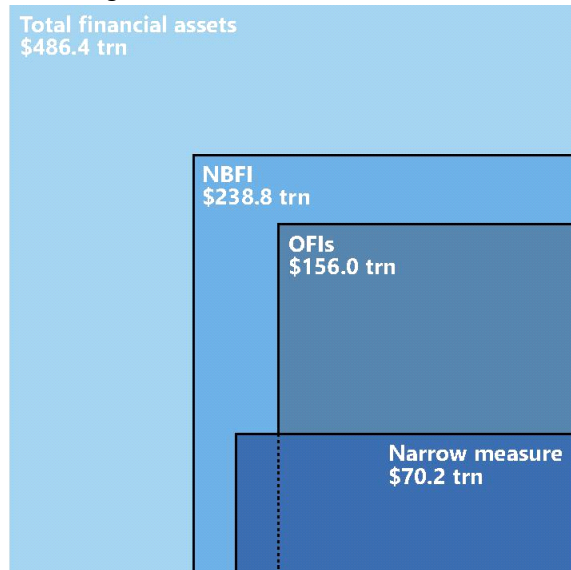
Monitoring aggregates

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' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Composition of the narrow measure

At end-2023   **Table 0-1**

Economic Functions	Typical entity types[1]	Size[2] (USD trn)	Share (%)	Change in 2023 (%)
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	52.0	74.1	10.1
EF2 (lending dependent on short-term funding)	Finance companies, leasing/factoring companies, consumer credit companies	6.0	8.5	7.6
EF3 (market intermediation dependent on short-term funding)	Broker-dealers, custodial accounts, securities finance companies	4.9	7.0	16.2
EF4 (facilitation of credit intermediation)	Credit insurance companies, financial guarantors, monoline insurers	0.1	0.2	0.2
EF5 (securitisation-based credit intermediation)	Securitisation vehicles, structured finance vehicles, asset-backed securities	5.3	7.5	3.8
Unallocated	Other financial auxiliaries	1.9	2.6	10.3
Total		**70.2**	**100**	**9.8**

[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.
Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Introduction

The comprehensive monitoring of global trends, vulnerabilities, and innovations of the NBFI sector is a key part of the FSB's ongoing efforts to enhance financial system resilience. The FSB's annual global monitoring exercise uses sectoral balance sheet data from national financial accounts statistics ("flow of funds"), complemented with supervisory and publicly available data.[1] This year's edition mostly uses data as of end-2023 and primarily discusses developments related to the NBFI sector up until that date.

The monitoring exercise adopts a two-step approach.[2] 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. 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 3).[3] 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 gives rise to financial stability risks, given that existing policy measures, risk management tools, or structural features may significantly reduce or address 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) non-bank fintech lending data in light of the G20 Data Gaps Initiative, collected on a best-efforts basis[4]; and (ii) the data to assess the distribution of the vulnerability metric values per jurisdiction to include EF2 and EF3 entities. This report also discusses the availability of policy tools for both loan provision that is dependent on short-term funding (EF2), mostly finance companies, and intermediation activities dependent on short-term funding (EF3), predominantly broker-dealers.

This report is structured into three sections. Section 1 provides an overview of the NBFI sector including the main drivers of growth, and it highlights the main developments for the subset of NBFI activities that may be more likely to give rise to vulnerabilities linked to credit intermediation (narrow measure). Section 2 focuses on developments in key areas of monitoring for the NBFI sector: credit intermediation, wholesale funding and repurchase agreements,

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[1] 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.

[2] 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.

[3] 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").

[4] See the IMF website on the G20 Data Gaps Initiative.

financial leverage, and interconnectedness. Section 3 covers vulnerabilities within the narrow measure, on an individual economic function basis.[5]

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 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 20-member euro area as a whole, as opposed to only eight individual euro area jurisdictions in the *29-Group* sample.[6] The *21+EA-Group* sample is used in parts of Sections 1 and 2, where it provides wider jurisdictional coverage, though it is not as comprehensive in its coverage of financial sectors. The *29-Group* is used in parts of all three sections because of better coverage of NBFI sub-sectors.[7]

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 the period 2021-23, 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.

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[5] Measures of growth and results throughout this report are mainly based on either annual historical data covering end-2002 to end-2023 or cross-sectional data as of end-2023. Some exchange rate effects have been corrected when presenting growth rates by applying a constant end-2023 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.

[6] The European Central Bank (ECB) provided the euro area aggregated data. The euro area data in this report cover the following 20 jurisdictions: Austria, Belgium, Croatia, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

[7] 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 NBFI sector – which includes insurance corporations, pension funds, other financial intermediaries (OFIs) and financial auxiliaries – with respect to the global financial system. Section 1.2 focuses on trends and the main drivers of growth in the NBFI sector. Section 1.3 highlights developments for the subset of NBFI activities that may be more likely to give rise to vulnerabilities linked to credit intermediation (the narrow measure).

1.1.   Macro Developments in 2023

The value of total global financial assets increased 5.2% in 2023, more than reversing the 0.6% decrease in 2022, to reach their highest level recorded in this monitoring exercise (Graph 1-1). This increase was mainly driven by the NBFI sector, where total financial assets increased 8.5% year-on-year, more than the decrease experienced in 2022. In comparison, financial assets held by banks increased 3.3% compared to 2022. While financial conditions broadly remained tight globally, with central bank balance sheets decreasing (-3.4%),[8] the pace of increases in policy rates was slower than in 2022 and market expectations of normalising market conditions increased. Overall, this supported asset valuations and investor inflows into investment funds.

Significant events took place for the banking sector in the first quarter of 2023, as a number of deposit runs took place over this period. This represented the most serious disruption to the banking sector in more than a decade. In the United States, bank runs caused the failure of three regional and mid-size banks in close succession (Silicon Valley Bank (SVB), Signature, and First Republic), and the voluntary liquidation of another bank (Silvergate).[9] In Switzerland, the runs were the proximate cause of the failure of Credit Suisse, a global systemically important bank, leading to its acquisition by UBS. While the March 2023 turmoil was generally limited to banks, it may have contributed to inflows into the MMF sector, alongside other factors, particularly the higher interest rate environment. See section 1.2 for more details.

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[8]   The Bank of England, the Eurosystem, and U.S. Federal Reserve conducted quantitative tightening of £98.5 billion, €243 billion, and $923.8 billion, respectively. See Bank of England (2024), *Bank of England Weekly Report*; ECB (2024), *Financial statements of the ECB for 2023*, February; FRB (2024), *Federal Reserve Banks Combined Financial Statements as of and for the Years Ended December 31, 2023 and 2022 and Independent Auditors' Report*, March.
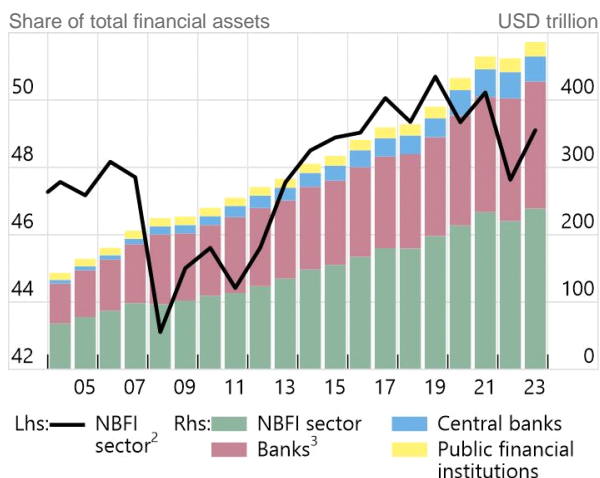
[9]   See FSB (2024), Depositor Behaviour and Interest Rate and Liquidity Risks in the Financial System: Lessons from the March 2023 banking turmoil, October, for more details.

NBFI as a share of total global financial assets increased in 2023

21+EA-Group

Graph 1-1

Total global financial assets[1]

Share of total financial assets ... USD trillion

Lhs: ■—■ NBFI sector[2] Rhs: ▉ NBFI sector ▉ Central banks ▉ Banks[3] ▉ Public financial institutions

Composition of the global financial system[4]

	Total global financial assets	Central banks	Banks[3]	PFIs[5]	NBFI sector
Size at end-2023 (USD trillion)	486.4	37.5	188.7	21.4	238.8
Share of total global financial assets (%)	100.0	7.7	38.8	4.4	49.1
Growth in 2023 (year-over-year, %)	5.2	-3.4	3.3	3.5	8.5
Growth 2017–22 (annualised growth, %)	5.3	7.8	6.2	5.2	4.2

[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.
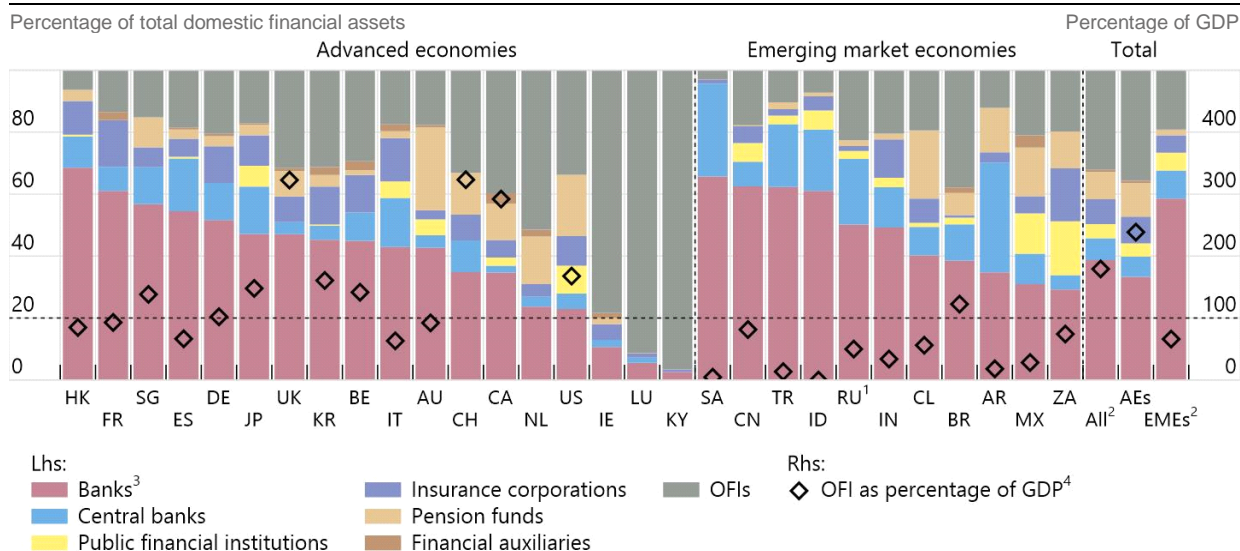
Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

Banks continued to be the largest entity type in most jurisdictions (Graph 1-2). This was particularly the case in EMEs, where banks represented 58.6% of total financial assets, while they represented 33.3% in AEs. The OFI sector was the largest sector in the Cayman Islands, Luxembourg, Ireland, the Netherlands, Canada, and the United States. The composition of the financial system remained broadly stable across jurisdictions year-on-year.

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

29-Group at end-2023   **Graph 1-2**

Percentage of total domestic financial assets   Percentage of GDP

[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 percentage of OFI assets to GDP for the Cayman Islands (296,237), Luxembourg (19,248), Ireland (1,204) and the Netherlands (567) are not shown since they are particularly high compared to the rest of the jurisdictions.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

1.2.   NBFI Sector Developments

The composition of the NBFI sector globally remained stable year-on-year. All NBFI sectors grew quite significantly in 2023: OFI assets increased 9.4%, insurance corporation and pension fund assets increased 6.8% and 6.7%, respectively (Graph 1-3, middle panel). Thus, the composition of the NBFI sector globally remained relatively stable year-on-year (Graph 1-3, RHS). Graph A1-1 in Annex 1 provides an overview of the size and growth of the major NBFI subsectors.

The relative importance of the NBFI sector varied between AEs and EMEs. Over the previous five years, the relative importance of the NBFI sector remained broadly stable in both AEs and EMEs, with an increase observed in just over half of EMEs (see Annex 1, Graph A1-2).

At a global level, OFI assets increased in all but one jurisdiction (France). OFI growth rates of above 10% were experienced amongst AEs – Japan, the United States, Germany, and the Cayman Islands – as well as EMEs – Mexico, South Africa, and Brazil (see Annex 1, Graph A1-3 for an overview). France reported a decrease in OFI assets due to a change in categorisation of one entity.[10]

Within the OFI sector, almost all entity types' assets increased, and it was investment funds that continued to drive growth in OFI, and broader NBFI, asset levels. Other investment fund (OIF — that is, funds excluding MMFs, REITs, and hedge funds) assets

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[10]   One entity received a banking license and hence moved from being a broker-dealer to a credit institution, and therefore outside the NBFI sector.

increased 11.2%. As OIFs accounted for the largest share of the NBFI sector (26.3%), they contributed most to the increase in the NBFI sector in 2023, as has been the case since 2017 (Graph 1-3, LHS). In particular, OIF growth was driven by equity funds which accounted for over half of OIF assets, and therefore over 13% of the NBFI sector, and grew 16.2%. MMFs meanwhile experienced the largest increase within the OFI sector, growing 17.9% compared to 2022, but accounted for only 4.5% of the NBFI sector. CCPs were the only OFI entity type to experience a decline; the large decrease was mainly attributable to the United Kingdom (Graph 1-3, middle panel).[11] OIFs increased in all but the Cayman Islands (Annex 1, Graph A1-4, 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 increase. The United States experienced growth of 16.1%, which was driven primarily by equity funds increasing 20.1% or $3.3 trillion. In the euro area, the growth rate was 9.1%, of which approximately half, or $0.7 trillion, was due to equity funds. Singapore, Japan, and Korea also experienced growth rates of over 15% in OIFs (Annex 1, Graph A1-4, LHS). The increase in Japan was attributed to inflows from retail investors amid rising inflation, and in Korea it was due to both the recovery in asset prices and inflows to funds. Whereas in Singapore, the increase reflected enhanced data coverage.[12] In EMEs, Saudi Arabia and Mexico both experienced growth in OIF assets in excess of 20% (Annex 1, Graph A1-4, middle panel). In Mexico, high real interest rates and inflation-linked securities offered by fixed income funds attracted investors, contributing to the OIF growth.
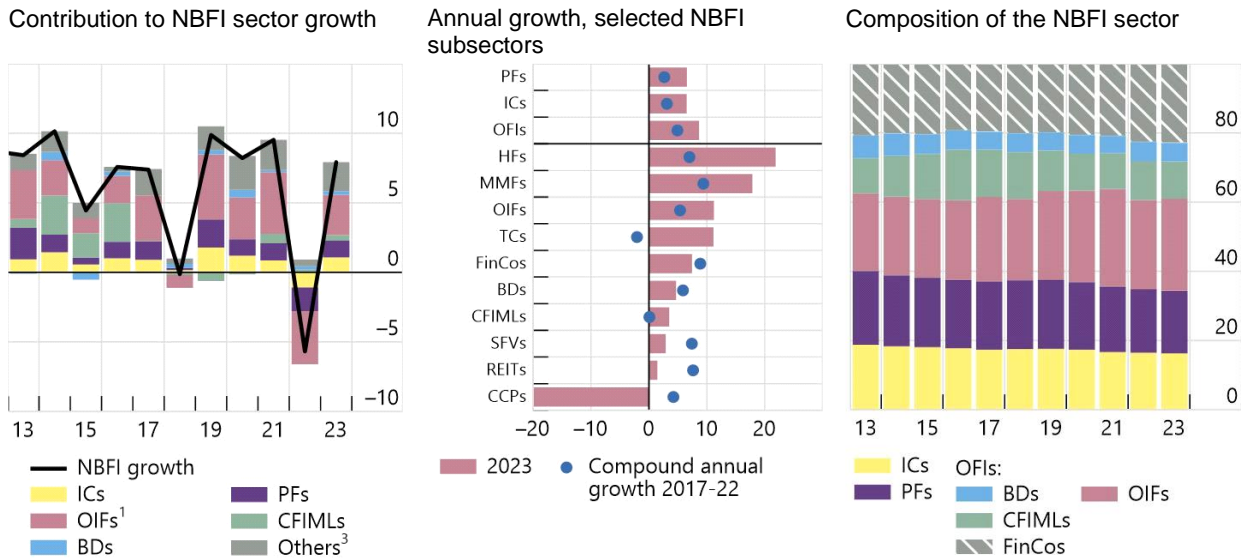
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[11] The fall in CCP assets in the United Kingdom was attributed to a couple of factors, including a decrease in balances with clearing members with respect to fixed income transactions as well as a decrease in margin requirements due to a reduction in commodity market volatility.

[12] The enhanced data collection in Singapore means that assets of Restricted collective investment schemes (CIS) incorporated in Singapore are now included, whereas previously only assets of Authorised CIS incorporated in Singapore were reported. Without this change, there would have been a decrease of 5.4% in OIFs in Singapore.

OIFs[1] were the largest contributor to the increase of NBFI assets in 2023[2]

In per cent, 29-Group

Graph 1-3

Contribution to NBFI sector growth

Annual growth, selected NBFI subsectors

Composition of the NBFI sector

BDs = broker-dealers; CCPs = central counterparties; CFIMLs = captive financial institutions and money lenders; FinCos = finance companies; HFs = hedge funds; ICs = insurance corporations; 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 investment 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 include CCPs, FinCos, HFs, MMFs, REITs, SFVs, TCs, Others identified and Others unidentified. Others identified comprise a variety of jurisdiction-specific entities that do not fit any of the explicit categories included in the monitoring exercise.
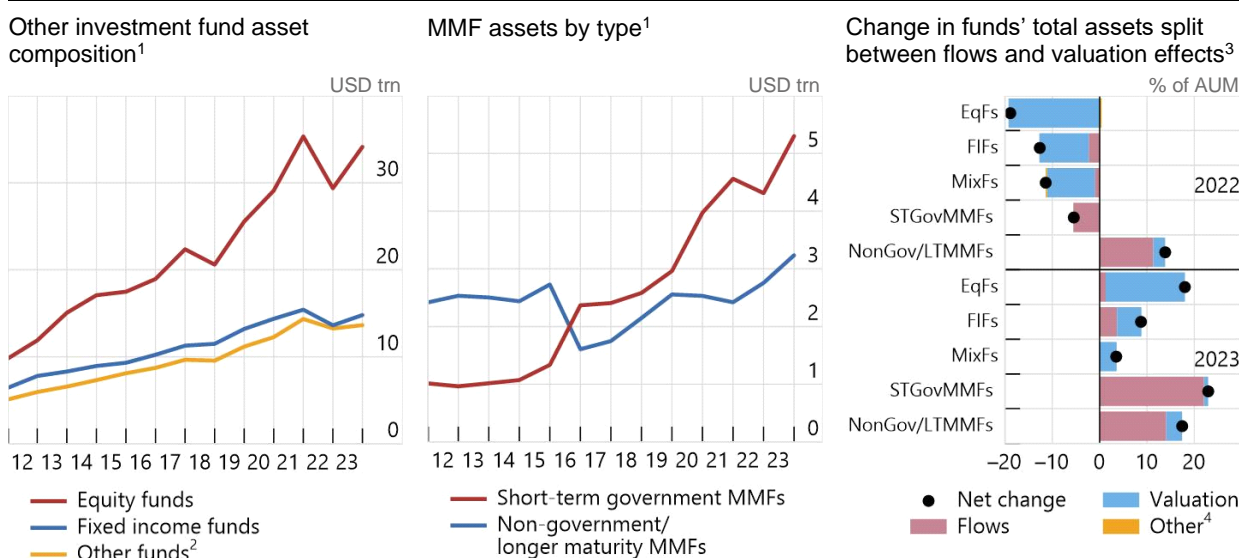
Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations

Market participants' expectations of normalising market conditions supported asset valuations and investor inflows, which led to increased AUM for all types of investment fund in 2023 (Graph 1-4). The valuation effect was particularly pronounced in the case of equity funds where it accounted for 93.1% of the increase in AUM. In the case of MMFs, the change in assets was driven by inflows.[13]

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[13]   Given that MMFs typically invest in short-term assets, changes in AUM are usually driven more by flows than by changes in valuations.

AUM increased in 2023 for most types of investment fund

Graph 1-4

Other investment fund asset composition[1]

MMF assets by type[1]

Change in funds' total assets split between flows and valuation effects[3]

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 2023 the breakdown of changes of total assets into flow and valuation effects of equity funds, fixed income funds and other funds, was available for 82.5%, 92.1% and 65.5% 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' 2024 submissions (national sector balance sheet and other data); FSB calculations.

MMF growth was widespread – it occurred in the majority of AEs and EMEs, and across all MMF types (Graph 1-5). Although the definition and scope of MMFs varies across jurisdictions, there are typically two broad ways to categorise MMF types, either by Net Asset Value (NAV) type, or by investment/maturity type.[14] Across all types, MMFs experienced growth in 2023. Short-term government MMFs grew 22.9% and non-government or longer-maturity MMFs grew 17.4%. On a NAV basis, CNAV MMFs grew 19.8% and VNAV MMFs grew 9.1%.

Short-term government MMFs experienced higher growth rates than non-government or longer-maturity MMFs in 2023. Flows into non-government or longer-term MMFs in Q1 2023 were about a quarter of the size of those into short-term MMFs. Inflows accounted for 96% and 80.7% of the increase in AUM for short-term government MMFs and non-government or longer maturity MMFs, respectively. Some jurisdictions were able to report the split of short-term government MMFs and non-government or longer-term MMFs, covering 80.5% of MMF assets. Other jurisdictions reported data for these two MMF types combined, equating to 19.5% of MMF assets. Where data were available, short-term government MMFs continued to represent the largest share of MMFs globally at 49.8%, and non-government or longer-term MMFs accounted for 30.7% (Annex 1, Graph A1-5, LHS). On a NAV basis, CNAV assets accounted for 83.5% of MMF assets, and VNAV MMFs had a 16.5% share (Annex 1, Graph A1-5, RHS).
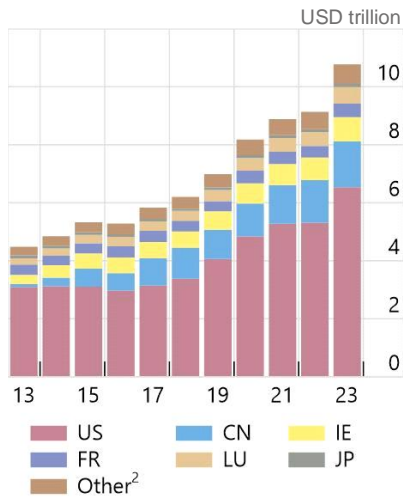
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[14] Under the NAV categorisation, MMFs can be considered Constant/Low Volatility NAV (CNAV/LVNAV) or Variable NAV (VNAV). Under the investment/maturity categorisation, MMFs can be considered short-term government MMFs or non-government/longer maturity MMFs. CNAV MMFs are typically short-term MMFs, LVNAV are typically non-government MMFs, and VNAV MMFs may be short-term or longer maturity ("standard") MMFs. For further information on cross-jurisdictional differences see also FSB (2024), *Thematic Review on Money Market Fund Reforms: Peer review report*, February.
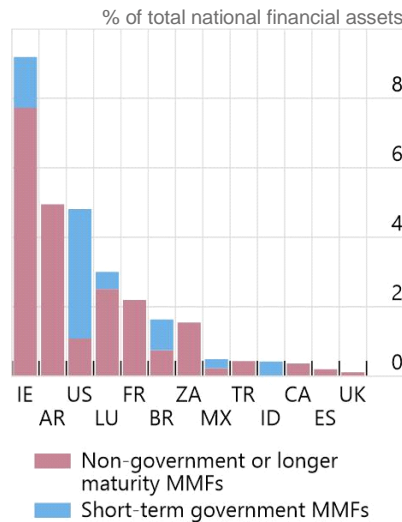
MMF trends across jurisdictions
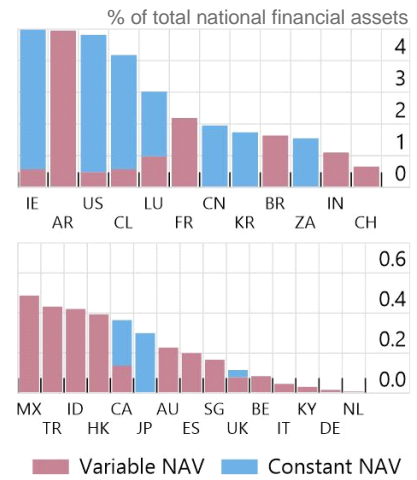29-Group   **Graph 1-5**

By jurisdiction[1]   By type and jurisdiction, at end-2023[3]   By type and jurisdiction, at end-2023[4]

MMF growth was driven by the United States, where CNAV MMFs increased 26.2% to $5.9 trillion. Inflows were also notable in the euro area (particularly U.S. dollar-denominated LVNAV funds) and Hong Kong; graph 1-6 illustrates the extent of the inflows on a quarterly basis. The higher interest rate environment, and the relative attractiveness of MMF returns compared to those of other financial products, such as bank deposits, were likely important reasons for these inflows. The events that took place in four regional and mid-size banks in the United States also contributed to an increase in MMF assets in the United States; MMF assets had increased in Switzerland in Q4 2022 and Q1 2023, one of the contributing factors possibly being the tensions which Credit Suisse had experienced at the same time. The September 2022 dislocation in the UK gilt market has been partially linked to the increase in inflows to MMFs in Ireland in Q4 2022.[15]

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[15]   See Central Bank of Ireland (2023) *Market Based Finance Monitor 2023*, December, FSB (2024) *Thematic Review of Money Market Funds Reforms: Peer review report*, February, and FSB (2024), *Depositor Behaviour and Interest Rate and Liquidity Risks in the Financial System: Lessons from the March 2023 banking turmoil*, October.
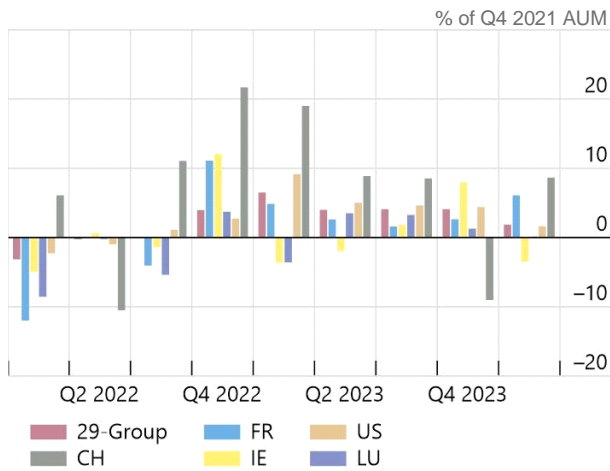
Quarterly MMF fund flows for selected jurisdictions[1]

29-Group
Graph 1-6

By jurisdiction

The five jurisdictions that experienced the largest quarterly inflows[2]

% of Q4 2021 AUM

Legend: 29-Group, CH, FR, IE, US, LU

	Q4 2022		Q1 2023	
Jurisdiction	Inflow	Jurisdiction	Inflow
IT	43.6%	HK	38.4%
HK	40.7%	CH	19.0%
AR	23.7%	CA	18.5%
ES	21.9%	AR	18.0%
CH	21.7%	ES	14.2%

[1] Flows calculated as a percentage of Q4 2021 AUM [2] Number of MMFs per jurisdiction ranges from 3 to at least 64.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

MMF assets were quite concentrated in 2023. Eight out of fourteen jurisdictions reported that the five largest MMFs accounted for at least 50% of total MMF assets.[16] (See Annex 1, Graph A1-6 for figures on concentration in MMFs and fixed income funds).

1.3.   Narrow Measure Developments

The narrow measure consists of NBFI entities involved in credit intermediation activities that could give rise to bank-like vulnerabilities. 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 or use of leverage (see Annex 6). This section provides an overview of the main trends, while Section 3 contains more detail on developments across economic functions, including vulnerability metrics.

Total financial assets of entities in the narrow measure increased 9.8% – somewhat higher than the broader NBFI sector growth – to reach $70.2 trillion, the highest level ever recorded in this exercise (Graph 1-7). The narrow measure increased in AEs and EMEs by 10.8% and 5.7%, respectively (Annex 1, Graph A1-7). The only jurisdictions not to have experienced growth in their narrow measure were India and Saudi Arabia. All economic functions grew in 2023; notably EF3 experienced the most significant growth, 16.2% – over three times the 5-year average annual growth rate. EF3, as well as EF1, increased its share of the narrow measure year-on-year. EF1 continued to account for over 70% of the narrow measure.
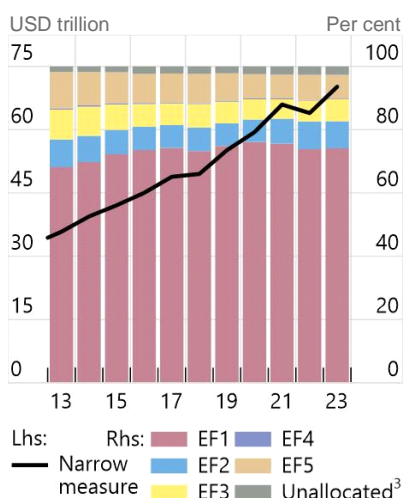
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[16]   This includes Italy and Spain where there were only three MMFs.

EF3 experienced the largest increase of the economic functions[1]

29-Group

Graph 1-7

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

The narrow measure by economic function[4]

	Narrow measure	EF1	EF2	EF3	EF4	EF5	Unallocated[3]
Size at end-2023 (USD trillion)	70.2	52.0	6.0	4.9	0.1	5.3	1.9
Share of narrow measure (%)	100.0	74.1	8.5	7.0	0.2	7.5	2.6
Growth in 2023 (year-over-year, %)	9.8	10.1	7.6	16.2	0.2	3.8	10.3
Growth 2017–22 (annualised growth, %)	5.6	5.4	9.9	4.8	0.2	2.6	9.1
Share of total financial assets (%)	14.7	10.9	1.3	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' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

Collective investment vehicles with features that make them susceptible to runs (EF1) increased 10.1% in 2023 and represented 74.1% of the narrow measure globally (Graph 1-7). The largest contribution to EF1 growth came from government MMFs, which is consistent with the aforementioned inflows into CNAV MMFs in the United States.[17] At a jurisdictional level, EF1 constituted the largest EF in 24 jurisdictions (Annex 1, Graph A1-8). Singapore recorded an increase in EF1 of 92.5% which contributed to a 57.7% growth in its narrow measure. This was due to the enhanced data coverage in Singapore as mentioned in section 1.2 (Annex 1, Graph A1-7).

Loan provision that is typically dependent on short-term funding (EF2) grew 7.6% in 2023 – a pace slightly below the overall narrow measure – and represented 8.5% of the narrow measure globally (Graph 1-7). The United States contributed to around half of the global EF2 asset growth, followed by the United Kingdom, Japan, and China. The 8.8% increase in EF2 in the United States reflected finance companies' continued credit extension over a period of rising interest rates. EF2 constituted the largest EF in Indonesia and India, accounting for 61.9% and 79.7%, respectively, and jurisdictional shares remained stable (Annex 1, Graph A1-8; Graph 3-3).

Intermediation of market activities dependent on short-term funding (EF3) grew 16.2% in 2023 and represented 7.0% of the narrow measure (Graph 1-7). This growth was largely driven by Japan, where domestically EF3 constituted the largest EF and grew 21.3%. Japan therefore increased its share of global EF3 assets to 32.3%, while shares for the United States, China, and Korea decreased (Graph 3-5, RHS). These four countries account for 90.4% of EF3

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[17] In the United States, short-term government MMFs amounted to $5.1 trillion – ~78% of United States MMF assets.

assets. The growth in Japan was due to an increase in repo transactions and in arbitrage transactions between short-term money market transactions and Bank of Japan current account deposits, both intermediated by broker-dealers.

Insurance or guarantees of financial products (EF4) grew 0.2% in 2023, in line with its 5-year average annual growth rate, and represented 0.2% of the narrow measure (Graph 1-7). The split by both entity type and jurisdiction remained fairly stable in 2023, with insurance corporations and mortgage insurers being the largest entity types (Graph 3-7, LHS and RHS).

Securitisation-based credit intermediation (EF5) grew 3.8% in 2023 and represented 7.5% of the narrow measure globally (Graph 1-7). Structured finance vehicles continued to be the main entity type in EF5 accounting for $5.1 trillion (95.8% of EF5 assets), and drove the growth in 2023 (Graph 3-8, LHS). The share across jurisdictions remained fairly stable, with the United States and Cayman Islands together accounting for 45.0% of EF5 assets (Graph 3-8, RHS).

2. Key Areas of Monitoring

2.1. Credit Intermediation

The credit activities of the NBFI sector are of particular importance to financial stability. NBFI entities can be an important source of credit, competition, and innovation within financial systems. On the other hand, NBFI entities that are not sufficiently resilient to shocks could slow the flow of credit to the wider economy, especially during downturns. Credit assets assessed in this section include loan assets,[18] debt securities,[19] and cash on deposit ("deposit assets").[20]

While banks still held almost two-thirds of total credit assets in 2023, the growth of the NBFI sector outpaced that of banks. Banks held 81.7% of total loan assets, while the NBFI sector held 36.1% of total credit assets (Graph 2-1. LHS). For the NBFI sector, credit asset growth was primarily driven by MMFs (for the reasons explained in section 1.1, i.e. inflows to MMFs in the United States and euro area given their relative attractiveness), hedge funds, broker-dealers (for the reasons explained in section 1.3, notably in Japan), and pension funds. Growth in hedge funds' credit assets was predominantly driven by the Cayman Islands. This was mainly due to inflows to longer maturity bonds, which became relatively more attractive given the higher interest rate environment globally. Growth in pension funds' credit assets was mainly driven by the United States, followed by the Netherlands and Canada. In the Netherlands, the $98.6 billion increase in pension fund credit assets was largely driven by portfolio rebalancing due to higher equity prices and higher interest rates, but also in view of holding a larger amount of liquid assets to meet collateral requirements on derivative contracts. In Canada, the $75.5 billion increase in pension fund credit assets was driven by an increase in debt securities. Pension funds, along with hedge funds, experienced the largest year-on-year growth for loan assets.

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[18]   Include overdrafts, instalment loans, hire-purchase credits, and loans to finance trade credit.
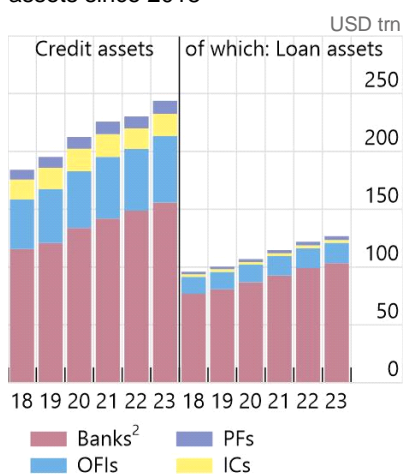
[19]   Such as bills, bonds, or commercial papers.

[20]   Other instruments may affect the exposure to credit assets, such as derivatives which are not included here.
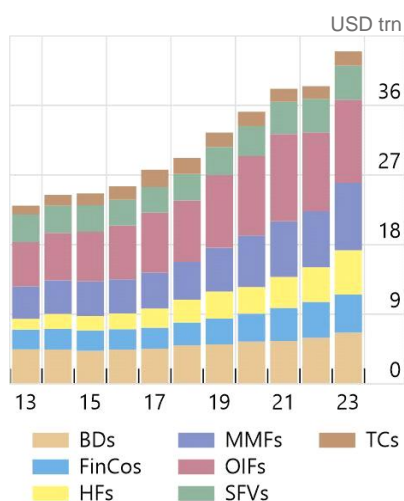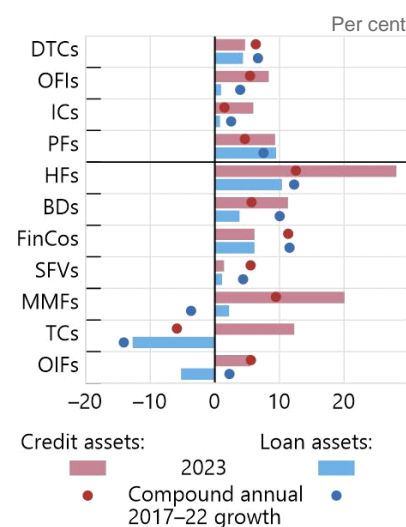
Credit and lending assets

Graph 2-1

Composition and evolution of credit assets since 2018[1]

Credit assets held by selected OFIs

Growth of credit and loan assets

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

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

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

Box 2-1: Fintech lending

The third phase of the G20 Data Gaps Initiative (DGI-3)[21] includes a recommendation to close data gaps related to non-bank fintech lending. In 2024, the FSB started to collect these data from participating jurisdictions, on a best-effort basis.

For the purpose of this global monitoring exercise on NBFI, fintech lending was defined as "lending activity facilitated by electronic platforms that are not operated by commercial banks". Lending can be done either via a loan (secured or unsecured), the purchase of debt-based securities (a bond, debenture, or subordinated debt), or the purchase of invoices or receivables from a business. Deposit assets were excluded to focus on lending activities. The FSB's data collection focused on lending in fiat money only.

Fintech lending platforms can act as auxiliaries or intermediaries. As auxiliaries, they can be in the form of a "marketplace platform", which is an online market that allows lenders to trade directly with borrowers (peer-to-peer lending and crowdfunding platforms). Fintech lending platforms can act as intermediaries when they use their balance sheets to originate the lending. They may provide a guarantee on interest rates.[22]

The FSB collected the outstanding amount of fintech lending assets on intermediaries' balance-sheets at year-ends, as well as the sum of all loans provided through auxiliary platforms annually (minus the

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[21] See the IMF website on the G20 Data Gaps Initiative.

[22] Examples of platforms that participating jurisdictions were encouraged to consider reporting are marketplace business/consumer lending platforms, business/consumer crowdfunding platforms, balance-sheet business/consumer lending platforms, debt-based securities platforms, invoice trading platforms, real estate crowdfunding platforms, and buy-now-pay-later lending platforms.

write-offs/write-downs). Data on the types of recipients and providers of fintech lending were also requested.

Seven jurisdictions (Argentina, Australia, Belgium, Brazil, Spain,[23] Hong Kong, and the Netherlands) provided data on outstanding amounts held by OFIs, with different levels of granularity. For these jurisdictions, the aggregate 2023 fintech lending assets ($38.5 billion) represented 1.1% of the sum of OFI loan assets for these jurisdictions. This varied significantly from one jurisdiction to another – from less than 1% to 31%. The main types of fintech intermediaries were structured finance vehicles (45% of total fintech lending assets), finance companies (28%), and non-bank deposit-taking corporations (22%). Spain and the Netherlands also reported fintech lending assets held by non-financial corporations (respectively 6% and 11% of total fintech lending assets by intermediaries in these two jurisdictions).

Five jurisdictions (Brazil, India, Mexico, the Netherlands, and Singapore) reported data for fintech lending activities performed by auxiliaries, for a total of $3.7 billion in 2023. These assets corresponded to the usage of platforms connecting borrowers with lenders, such as peer-to-peer lending platforms and debt securities crowdfunding platforms.

In terms of linkages, there are still significant data gaps and only four jurisdictions were able to provide some data. Jurisdictions generally reported that fintech lending was primarily for small and medium sized companies – mostly focusing on project financing, debt rescheduling or short-term loans for liquidity management; for real estate financing; and for consumer loans. Jurisdictions also reported the use of e-commerce platforms providing 'buy-now pay-later' services.

Most participating jurisdictions also provided qualitative information on fintech lending in their jurisdictions. Seven jurisdictions[24] reported that fintech lending platforms were sometimes operated by banking groups (fintech lending by banks was excluded from the scope of the quantitative data collection). In five jurisdictions,[25] banks supported fintech lending entities by providing operational services, such as payment services or by referring customers to the platform. Nine jurisdictions[26] noted that fintech loans (in fiat money) could sometimes be collateralised with crypto-assets; however, they all explained that these were small amounts. Two jurisdictions[27] reported data for non-financial corporations engaging in fintech lending as a secondary activity, and four more[28] observed such activity but were not able to provide data. Corporations engaging in fintech lending were typically consumer goods retailers, consumer service companies, e-commerce companies, or firms specialised in IT services.

Fintech lending will continue to form part of the FSB's global monitoring exercise as jurisdictions continue to develop their data collection and monitoring in this area.

2.2.   Wholesale Funding and Repurchase Agreements

Wholesale funding instruments – including repurchase agreements (or repos) – can be used by NBFI entities to create short-term liabilities and increase leverage. This facilitates credit growth and maturity/liquidity transformation outside the banking system. Wholesale funding and repos also increase interconnectedness among financial institutions, and although

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[23]   For the year 2022 and before, but not for 2023.

[24]   Argentina, Belgium, Canada, France, Ireland, the Netherlands, and Switzerland.

[25]   Indonesia, Italy, Japan, Mexico, and Switzerland.

[26]   Brazil, Canada, Spain, France, Japan, South Africa, Switzerland, the United Kingdom, and the United States.

[27]   The Netherlands and Spain.

[28]   Argentina, Brazil, Italy, and Mexico

this may support efficient risk sharing in the financial system, in periods of stress it may also spread shocks and contribute to procyclicality, with these short-term liabilities presenting run risks.

**OFIs' use of wholesale funding remained significant in 2023, at about 20% of total assets.** Taken together, short-term wholesale funding (i.e. which has a residual maturity of less than 12 months) and repo funding amounted to 7.3% of OFI total assets. Wholesale funding (including repo liabilities) was particularly pronounced for SFVs (47.2% of their total assets) and broker-dealers (40.3%). Graph A1-9 in Annex 1 provides an overview of wholesale funding for the main entity types, as well as their net repo positions.

Short-term liabilities can be compared with cash positions, as a proxy for measuring rollover risk (Graph 2-2). This ratio may appear high for OIFs because jurisdictions are requested to include the investment fund shares held by institutional investor clients when reporting wholesale funding. However, OIFs typically do not rely only on cash but also on other assets to meet redemptions. The metric more than doubled for hedge funds since 2019, indicating hedge funds' increasing reliance on short-term funding. The increase in hedge fund borrowing in repo over 2023 is likely associated with increased activity in the cash-futures basis trade.[29] The metric was also more elevated for broker-dealers than other entity types, reflecting their business model and use of short-term assets and liabilities to intermediate market participants' transactions.

Short-term wholesale funding against deposits held[1]

Ratio, 29-Group
Graph 2-2
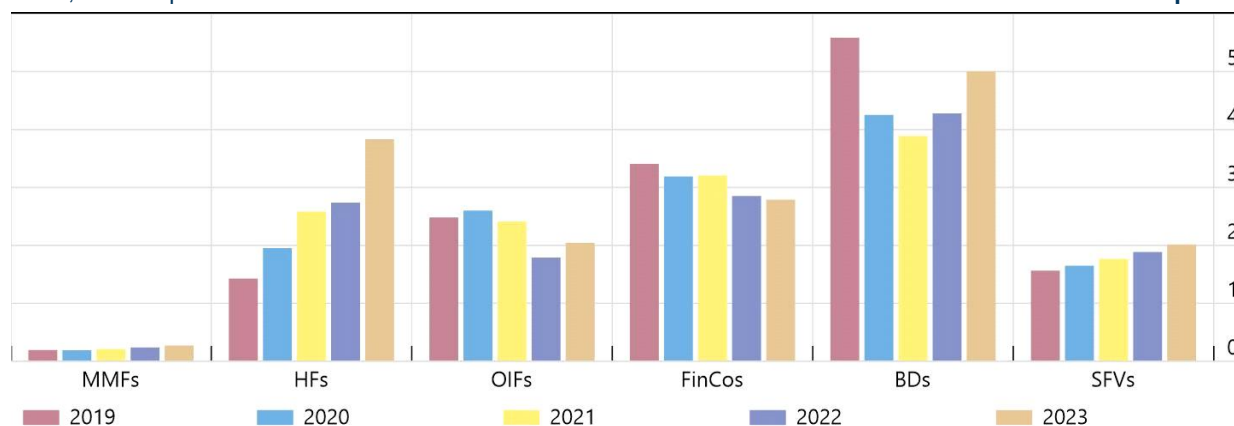
[1] This ratio is calculated by dividing short-term wholesale funding with deposit assets; the absolute value of the net repo position (repo assets less repo liabilities) is considered a source of liquidity if positive (i.e. is added to the denominator) or increases liquidity demand if negative (i.e. is added to the numerator). Wholesale funding includes all non-deposit on- and off-balance sheet funding sources, particularly market funding, but excluding equity. The wholesale funding of investment funds includes institutional client investments.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

MMFs and broker-dealers remained the entity types most involved in repo transactions (Graph 2-3 and Annex 1, Graph A1-10). However, while the net repo position of broker-dealers was close to zero, reflecting their use of both sides of their balance sheet to intermediate transactions, MMFs were almost exclusively net cash providers through repo transactions. MMFs' net repo position decreased in 2023, consistent with U.S. MMFs' decreased usage of the

[29] See Board of Governors of the Federal Reserve System (2024), *Financial Stability Report*, April; Bank of England (2024), *Financial Stability Report*, June.

Federal Reserve's overnight reverse repo facility (down from a record-high at the end of 2022).[30] The other notable development was the continuation of OIFs' increasing net positions – although repo asset and liability levels remained much lower than that of MMFs and broker-dealers.

MMFs' net repo positions declined in 2023

21+EA-Group **Graph 2-3**
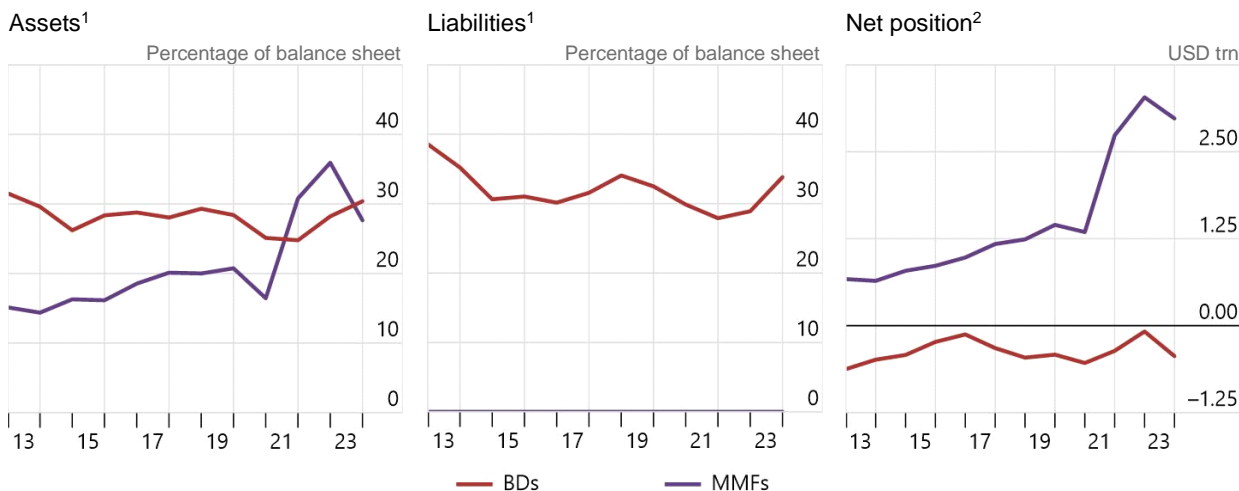
[1] Assets related to repo transactions on the buyer's (collateral-taker, cash-provider) balance sheet. Liabilities related to repo transactions on the seller's (collateral-provider, cash-taker) balance sheet. Does not include data for Russia. MMF repo liabilities were slightly above zero and therefore not visible in the upper-middle panel. [2] Repo assets less repo liabilities. Does not include data for Russia.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

2.3. Financial Leverage

If not properly managed, leverage creates a vulnerability that can propagate strains through the financial system, amplify stress, and lead to systemic disruption.[31] Leverage can be used to increase exposures and boost returns, but it also has the potential to amplify losses through the combination of position liquidations and counterparty defaults. Systemic disruption as a result of leverage has been demonstrated by a series of financial incidents, including *inter alia* the March 2020 market turmoil, the 2021 Archegos failure, and the September 2022 dislocation in the UK gilt market. Financial leverage – the subject of monitoring in this report – consists of borrowing through loans, bonds, repo, and other securities financing transactions (SFTs).

Financial institutions' borrowings continued to increase in 2023, despite the higher interest rate environment. Borrowings from the NBFI sector increased at a slightly faster pace than that of banks (4.1% compared to 3.4%, respectively). Captive financial institutions and broker-dealers had the largest levels of gross borrowings among the NBFI sector, at around $6.3 trillion each (Graph 2-4, LHS). In terms of financial leverage – measured via the debt-to-assets ratio – the picture did not change much compared to that of last year, only broker-dealers, REITs, and trust companies increased their leverage slightly (Graph 2-4, middle panel). REITs and finance

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[30] See FSB (2023), *Global Monitoring Report on Non-bank Financial Intermediation 2023*, December.

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

companies were the OFI entity types with the largest debt-to-assets ratio, at 54.2% and 53.2%, respectively, followed by broker-dealers and structured finance vehicles (Graph 2-4, RHS).

OFI borrowings and leverage

29-Group   **Graph 2-4**

Total borrowings[1]   Debt-to-assets   Borrowings vs leverage in 2023
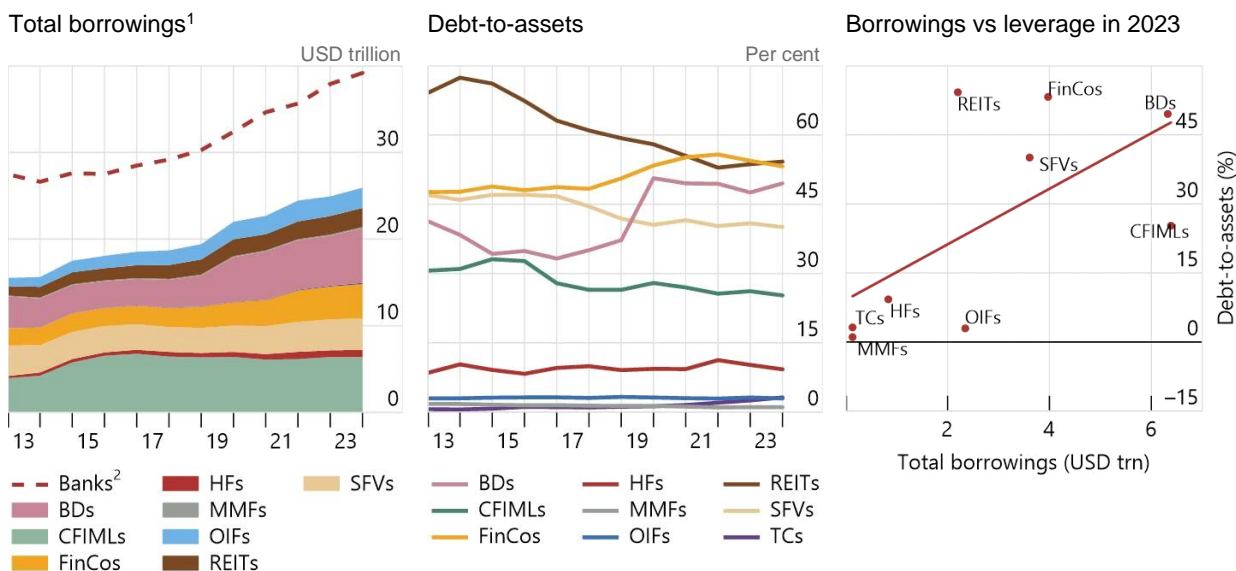
[1] Borrowings include debt securities, loans, and repos on the liability side of the balance sheet.   [2] All deposit-taking corporations. For these entities, borrowings do not include deposits on the liability side of the balance sheet.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

2.4.   Interconnectedness

Financial interconnectedness may help share risk across financial sectors but may also serve as a channel for risk transmission. Therefore, measures of interconnectedness can serve as important indicators of potential contagion, within and across sectors and borders. This section covers direct domestic and cross-border balance sheet interconnectedness between banks, insurance corporations, pension funds, and OFIs, as well as on an OFI-entity basis. To measure direct interconnectedness, such as direct borrowing and lending, or investment exposures between two counterparties, participating jurisdictions 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.

2.4.1.   Aggregate linkages

Despite last year's improvements to fill in data gaps, unspecified linkages remained a significant gap in global data reporting. Nonetheless, available data were still useful to assess linkages between high-level sectors, including with the non-financial sectors, and further improvements have occurred in entity-type level data (in particular, finance companies; see section 2.4.3). The text below focuses on linkages that were identified.

Cross-border linkages were highest for OFIs (Graph 2-5, LHS). 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 (Graph 2-5, LHS). The rest of the world (RoW) was also the main counterpart for banks' claims. Pension funds, as well as

insurance corporations and entities within the OFI sector, continued to use investment funds to manage some of their assets, and this is reflected in the data by the relatively large claims of pension funds, insurance corporations, and OFIs on OFIs.

Cross-border linkages per jurisdiction were little changed year-on-year and continued to represent a large share of OFI assets. Funding from and exposures to the rest of the world were larger than 30% of OFI assets in Luxembourg, Belgium, and the Netherlands. 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 – for example, captive financial institutions or 'conduit companies', which may be part of large multinational corporations and are used for intra-group/international transactions. Cross-border interlinkage was particularly relevant for investment funds where cross-border activities, for instance those linked to portfolio diversification, tend to play an important role. It was reflected at aggregate level with OIFs accounting for more than 40% of OFIs' linkages with the rest of the world. Graph A1-11 in Annex 1 provides detailed figures on cross-border linkages per jurisdiction.

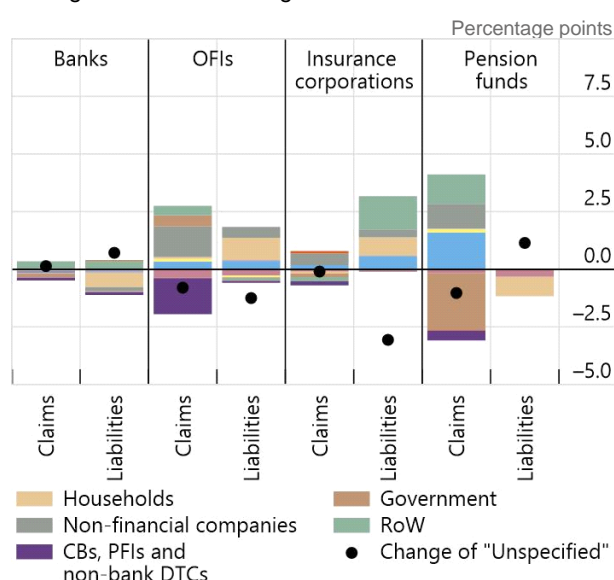**Aggregate linkages, measured as a percentage of financial assets**

29-Group   **Graph 2-5**
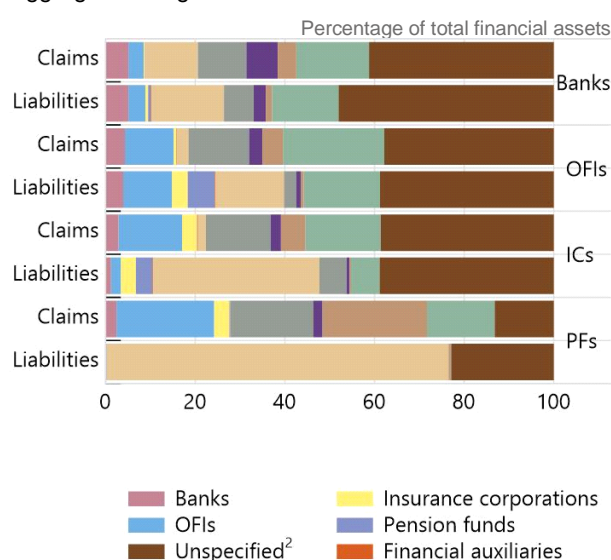
[1] The total reported linkages of all participating jurisdictions as a percentage of total claims and liabilities of each sector. The computed measures do not capture risks from indirect interconnectedness and do not take into account important qualitative aspects, such as the difference between secured and unsecured liabilities.   [2] "Unspecified" indicates linkages to other sectors not identified by jurisdiction or not covered in this report. [3] Chart shows difference between Graph 2-5 LHS in this year's report, and the equivalent graph (Graph 1-13, LHS) in last year's report.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

2.4.2.   Domestic 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.

There were no significant changes in the domestic linkages between the banking and NBFI sectors this year. Banks continued to be net recipients of funding from NBFI entities, and while this funding as a proportion of banks' assets has trended downwards since 2013, the steady decline of the previous three years was partially reversed in 2023. The funding that NBFI entities received from banks also increased in absolute terms; however, OFIs' use of funding from banks measured as a proportion of OFI assets decreased marginally year-on-year (Annex 1, Graph A1-12, RHS). Overall, OFI entity types' deposits in banks were broadly stable, with MMFs and finance companies the only OFI subsectors to increase deposits in banks. OFIs' funding from the NBFI sector was also fairly stable (Annex 1, Graph A1-14 provides more details on deposit trends and OFIs' use of funding from the NBFI sector).

Use of funding between banks and NBFI sectors has also not changed significantly year-on-year across jurisdictions. With respect to banks' overall use of funding from NBFI entities, in four jurisdictions banks' use of funding from NBFI entities exceeded 20% of banks' assets (Annex 1, Graph A1-13, LHS). For OFIs, funding from banks exceeded 20% of OFIs' assets in two jurisdictions. For most jurisdictions, finance companies and 'other OFIs' (comprising CCPs, hedge funds, trust companies, and unidentified OFIs) remained the OFI entity types that most commonly used bank funding (Annex 1, Graph A1-13, RHS). OFI funding sources continued to vary across jurisdictions (Annex 1, Graph A1-15).

2.4.3. *Interconnectedness by OFI entity type*

Graph 2-6 presents NBFI linkages with other financial market participants and highlights the diverse linkages. The key observations are:

- **MMFs:** Households invest directly in MMFs in some jurisdictions – in particular the United States – and this shows at aggregate levels.[32]

- **Hedge funds:** Of the identified linkages, the most notable change was hedge funds' increased exposure to the RoW. In the case of hedge funds' liabilities, the increased exposures to the RoW largely took the place of banks. The RoW has historically been the largest investor in hedge funds as they are mostly domiciled in financial centres.

- **OIFs:** The largest share of identified claims of OIFs was on the RoW, followed by non-financial corporations. OIFs had large exposures to households on the liabilities side, reflecting their role as popular investment vehicles for retail investors in some jurisdictions.

- **Finance companies:** Across entity types, finance companies had the largest share of total unspecified linkages, despite the aforementioned year-on-year improvements. Of their identified claims, the largest share was on households (close to one fifth of their assets). Banks were the main counterparts on the liability side, highlighting the funding they provide to finance companies.[33]

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[32] Data did not allow distinguishing between different MMF types, which are expected to have different linkages.

[33] In some cases, finance companies belong to banking groups.

- **Broker-dealers:** Like finance companies, they had a large share of unspecified linkages, and the highest unspecified share of 'claims on' of all entity types. Their main (specified) counterparts on both the asset and liability side were OFIs (close to one fourth of their assets in both cases).

- **SFVs:** Institutional investors typically hold securitised assets issued by SFVs, and this showed on their liability side (via banks, insurance companies, pension funds, but most notably the RoW). On the asset side, households and non-financial corporates made up a significant share of their counterparts, reflecting loans that SFVs securitise. Claims on OFIs more than doubled but still accounted for only a small share of their assets (7.8%)**.**

Identified OFI linkages with other financial market participants[1]

In per cent of entity's total assets; 29-Group   **Graph 2-6**
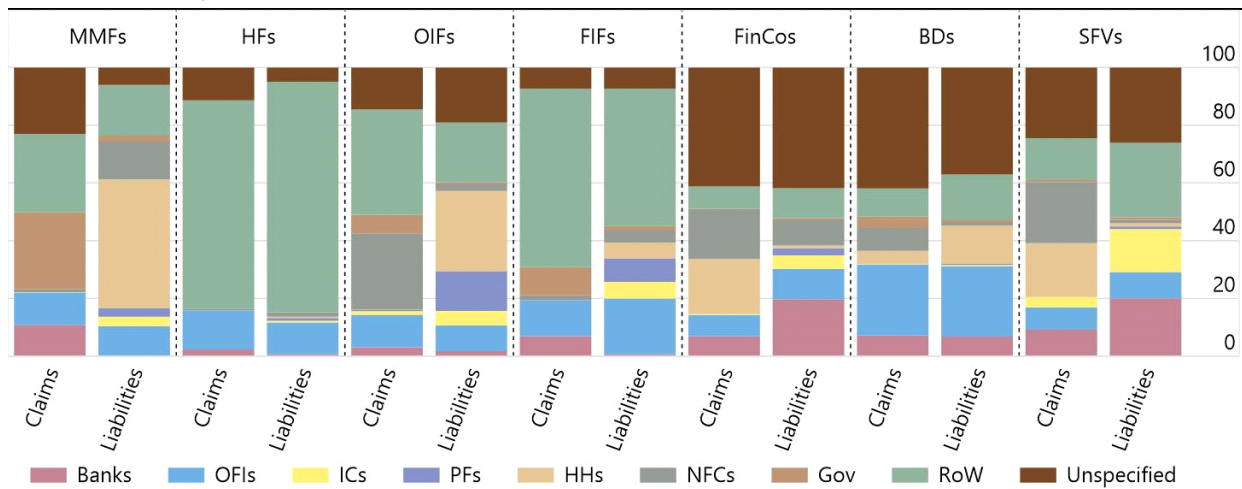
[1] Linkages as the amount of total claims on/liabilities to given entities as a share of their assets. Graphs reflect the data of jurisdictions that reported linkages to the relevant entity.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

3.   The Narrow Measure of NBFI

This section explores the narrow measure of NBFI in greater detail. It presents trends and vulnerability metrics for each of the five EFs (see Annex 6 for a description of the metrics). Each EF contains multiple entity types and, where data permits, this section explains business model and vulnerability specificities (see also Graph 1-7, RHS, in section 1.3). This year's report also includes information on policy tools for EF2 and EF3 (see Box 3-1).

3.1.   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 (in particular fixed income funds,[34] mixed funds,[35] short-term government MMFs, non-government/longer maturity MMFs, credit hedge funds, and mortgage REITs). Collective investment vehicles 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 distributing losses from a stress event across several 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.[36] In many jurisdictions, structural features of EF1 entities help 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.[37] The FSB's approach in this report is, however, to look at vulnerabilities on a pre-mitigant basis to maximise comparability across jurisdictions.

3.1.1.   Economic function 1 entity types experienced broad-based growth

While government MMFs primarily drove overall EF1 growth, all entity types grew in 2023 except consigned financial planning in China and, to a lesser extent, mixed funds (Graph 3-1, LHS and middle panel). Fixed income funds continued to account for the largest proportion of EF1 (24.3%), followed by MMFs (government, non-government, and undefined, 9.9%, 3.8% and 6.9%, respectively, for a total of 20.6%), hedge funds (16.3%), and mixed funds (16.0%). Consigned financial planning entities are found only in China, where they represented the main EF1 entity type (44.2% of Chinese EF1 assets) and experienced a 2.8% decrease.[38]

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

35   Including mixed ETFs.

36   See FSB (2024), _Enhancing the Resilience of Non-Bank Financial Intermediation: Progress report_, July.

37   See Box 2-1 in FSB (2023), _Global Monitoring Report on Non-bank Financial Intermediation 2023_, December.

38   'Consigned Financial Planning' is a product offered by commercial banks to their customers. The product's assets are managed by the bank or an asset management subsidiary. Since these assets do not contribute to the banks' capital requirements, consigned financial plannings are classified in the narrow measure conservatively, in agreement with Chinese authorities.
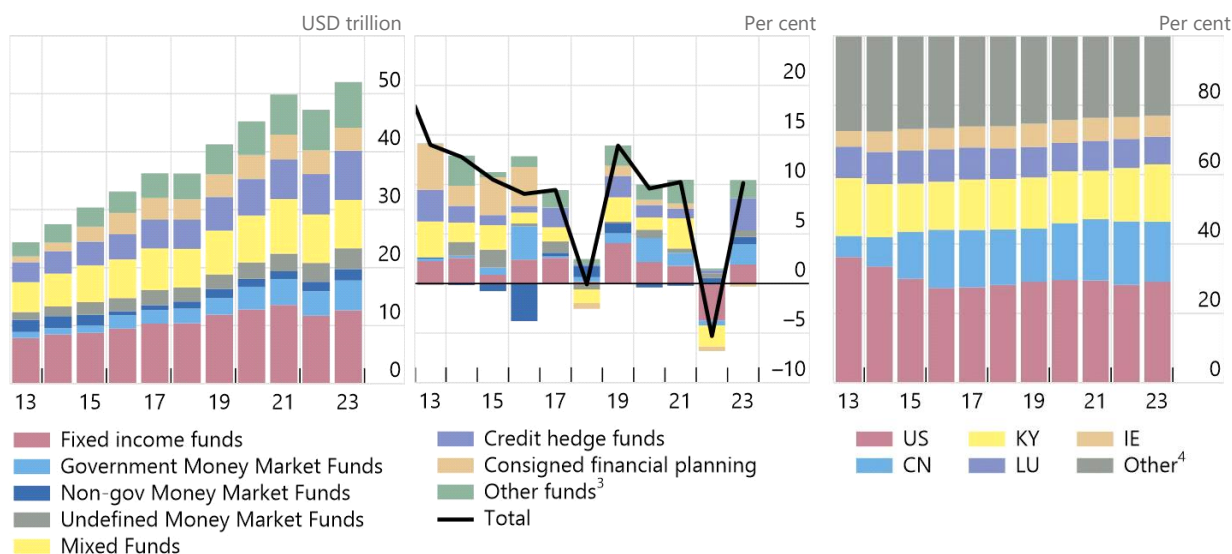
EF1 by entity type[1]

Contributions to EF1 growth[2]

EF1 by jurisdiction[2]

Legend (EF1 by entity type):
- Fixed income funds
- Government Money Market Funds
- Non-gov Money Market Funds
- Undefined Money Market Funds
- Mixed Funds
- Credit hedge funds
- Consigned financial planning
- Other funds[3]
- —— Total

Legend (EF1 by jurisdiction):
- US
- CN
- KY
- LU
- IE
- Other[4]

[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.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

EF1 growth was also widespread, as all but three jurisdictions (Indonesia, India, and Saudi Arabia) experienced an increase.[39] EF1 growth rates above 20% were experienced in some advanced economies – in Singapore and Hong Kong – and some emerging market economies – in Chile and Mexico. Hong Kong's 21.4%, and Chile's 29.3% growth rates were both driven by MMF inflows because of the relative attractiveness of their returns compared to those of other financial products, such as bank deposits; Mexico's 24.9% growth was due to fixed income fund inflows arising from high real interest rates and inflation-linked securities in the funds' portfolios. The 92.5% increase in Singapore's EF1 reflected an enhanced scope of data collection. Graph A1-16 in Annex 1 provides an overview of EF1 growth across jurisdictions. The United States continued to account for the largest share of EF1, followed by China, the Cayman Islands, Luxembourg, and Ireland (Graph 3-1, RHS). The United States' and the Cayman Islands' shares of EF1 grew slightly in 2023.

3.1.2. *Several vulnerability metrics remained elevated for EF1*

Several vulnerability metrics remained elevated for MMFs, fixed income funds, and mixed funds. Measures of liquidity transformation remained elevated for mixed funds, government and non-government/longer maturity MMFs, and fixed income funds (Annex 1, Graphs A1-17 and A1-18). The latter three fund types do not invest in equity instruments and therefore also continued to have elevated levels of credit intermediation. Fixed income funds displayed higher levels of maturity and liquidity transformation than mixed funds and non-government/longer

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[39]   Indonesia and India are also the only two jurisdictions where EF2 accounts for the largest share of the narrow measure, as mentioned in section 1.1.3.

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. Balance sheet leverage remained relatively low for all EF1 fund types (Annex 1, Graph A1-17). Hedge funds' leverage metrics are published by the International Organization of Securities Commissions (IOSCO) on an annual basis.[40] Therefore, jurisdictions' 2024 submissions did not include vulnerability metrics for credit hedge funds in the narrow measure.

Distributional data for the metrics were reported by up to 15 jurisdictions, which helps assessing vulnerabilities in the tail. Graph 3-2 shows the distribution of each metric across jurisdictions. The main takeaways are as follows:
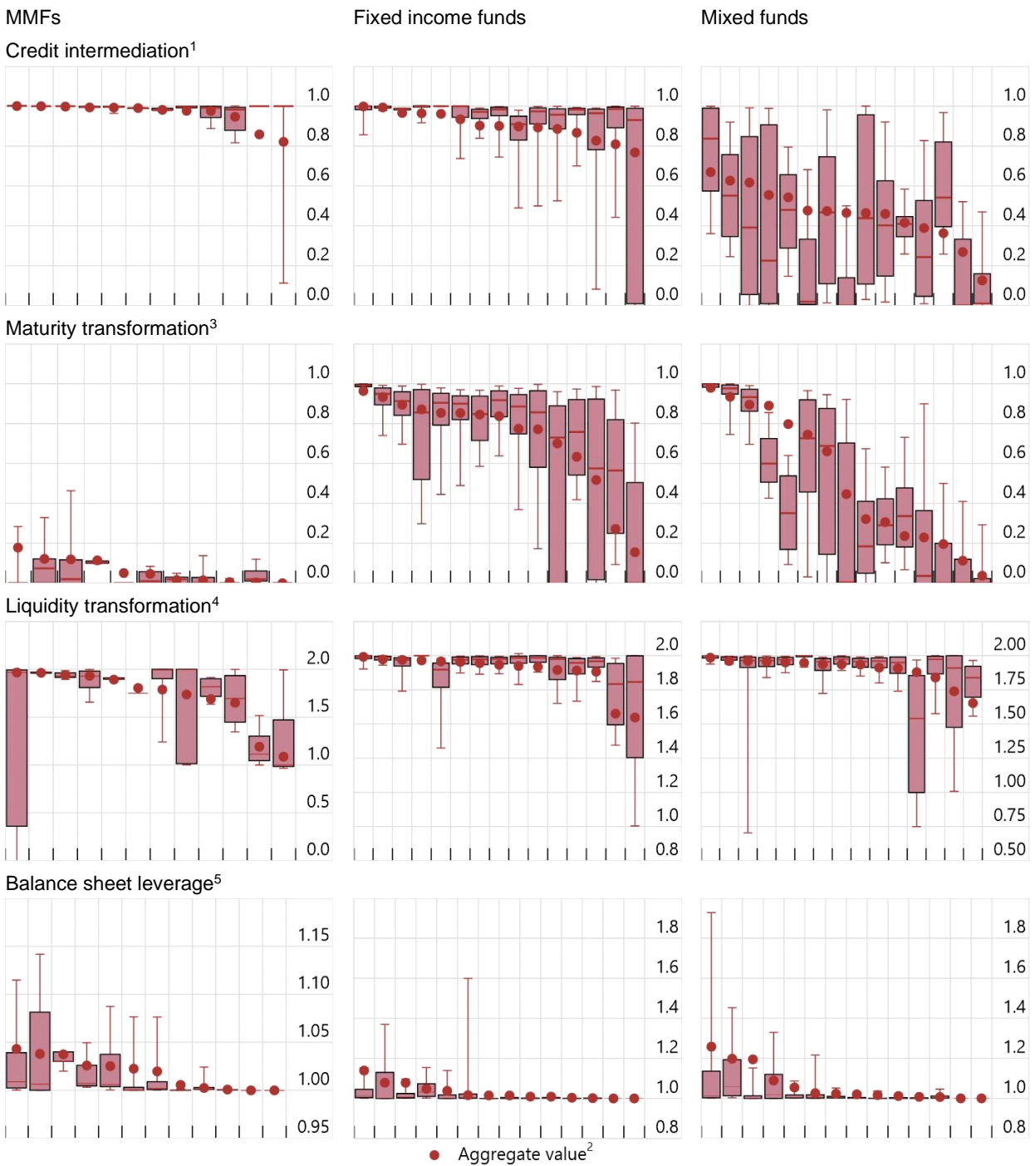
■ In almost all jurisdictions, credit intermediation was concentrated for MMFs and widely distributed for mixed funds.[41] In a few jurisdictions, fixed income funds' credit intermediation exhibited long tails, mostly because they invested indirectly in credit assets via other funds.

■ In most jurisdictions that reported data, maturity transformation in fixed income funds was high overall,[42] while that of mixed funds displayed dispersed levels.

■ MMFs' liquidity transformation risk metrics displayed a range of values across jurisdictions, and within jurisdictions the percentile metrics also displayed a range of values. This may indicate diversity among individual fund holdings. High-liquidity transformation for fixed income funds and mixed funds was present in most jurisdictions.

■ The majority of jurisdictions reported relatively low leverage across all EF1 entity types; however, there were a couple of outlier jurisdictions in the case of mixed funds.[43]

■ Some of the dispersion between jurisdictions may also reflect challenges faced by some participating authorities with respect to data quality and the application of definitions.

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[40] IOSCO (2023), *Investment Funds Statistics Report*, January 2024.

[41] Mixed funds are investment funds that invest in a mix of equity and fixed income instrument classes. Funds with at least 20% of AUM invested in credit assets are considered to perform sufficient credit intermediation to be considered for inclusion in the narrow measure.

[42] Fixed income funds making use of other funds to invest in credit assets exhibited lower levels of maturity transformation.

[43] Such cases may be due to reporting approaches: for instance, some jurisdictions include all EF1 funds that are not fixed income funds, MMFs, or hedge funds, in the mixed funds category, while others include only those funds corresponding to the mixed funds definition of their respective statistical reporting.

MMFs   Fixed income funds   Mixed funds

Credit intermediation[1]

Maturity transformation[3]

Liquidity transformation[4]

Balance sheet leverage[5]

● Aggregate value[2]

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

[1] Credit assets / total financial assets (CI1). Jurisdictions have been anonymised.   [2] Vulnerability metric calculated using a jurisdiction's aggregated balance sheet data.   [3] (Long-term assets – non-redeemable equity – long-term liabilities) / total financial assets (MT1).   [4] (Long-term assets – redeemable equity – long-term liabilities) / total financial assets (MT1).   [5] Total financial assets / equity (leverage 1).

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

3.2. 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 partly because of their expertise. As a result of such specialisation, 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. Where data permit, finance companies that are prudentially consolidated into banking groups are excluded from EF2.

3.2.1. EF2 assets grew in line with the narrow measure

Global EF2 assets grew in 2023 by 7.6% and reached $6.0 trillion (Graph 3-3, LHS). The United States contributed to around one half of the global EF2 asset growth, followed by the United Kingdom, Japan and China – reflecting the large share they held of EF2 assets (these four jurisdictions, together with India, held 82.2% of total EF2 assets). The positive trend was widespread globally; only three jurisdictions (Italy, India, and Chile), representing around 12% of global EF2 assets, reported a decline. In India, EF2 assets decreased by 2.3% following a change in categorisation of one entity.[44]

Finance companies continued to be the main contributor to EF2 asset growth
29-Group   Graph 3-3
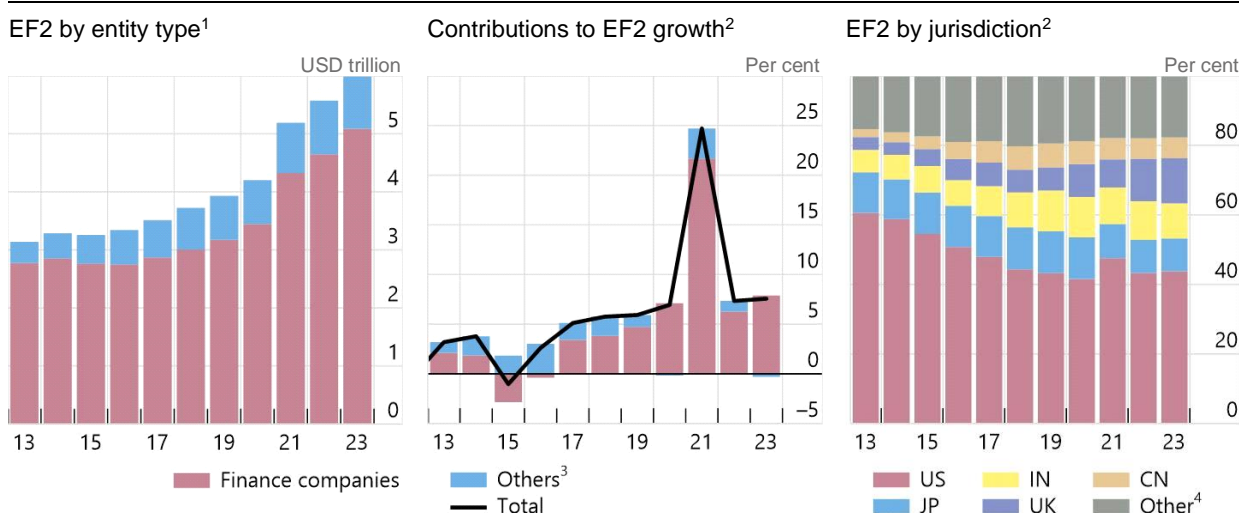
[1] Includes data for Russia up until 2020.   [2] Does not include data for Russia. The increase in 2021 reflects a structural break in the United States data as the approach here is to benchmark to a comprehensive 5-year survey; absent these structural changes, EF2 asset growth in the US in 2021 would have been roughly flat.   [3] Includes more granular finance company types, such as leasing companies or mortgage lending companies but only for a few jurisdictions, therefore grouped together.   [4] Other jurisdictions in 29-Group not displayed separately.   Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

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[44] One housing finance company merged into a banking institution, and therefore moved outside the NBFI sector.

Only a small number of jurisdictions were able to disaggregate finance companies into more granular entity types, such as leasing companies or real estate finance companies. A few examples are these: EF2 in Canada was composed of finance companies, mortgage investment corporations, mortgage finance companies, consumer and business transportation leasing companies, and other leasing companies. EF2 in Mexico was composed of regulated and non-regulated multiple purpose financial society (sofomes), cooperatives (socaps), microfinance companies (sofipos), credit unions, financial corporations, bonded warehouses, and non-bank credit card issuers. In the United States, finance companies represent an important source of debt and lead financing to consumers and businesses; while they hold only a modest share of mortgage credit in their portfolio, finance companies account for a significant share of residential mortgage originations. The portfolios they offer to businesses include credit and leases to finance inventory (including car dealers), accounts receivable, and the acquisition of motor vehicles and equipment. In Japan, EF2 comprises money lending companies, such as leasing and credit companies, the primary business of which is not related to construction and real estate.
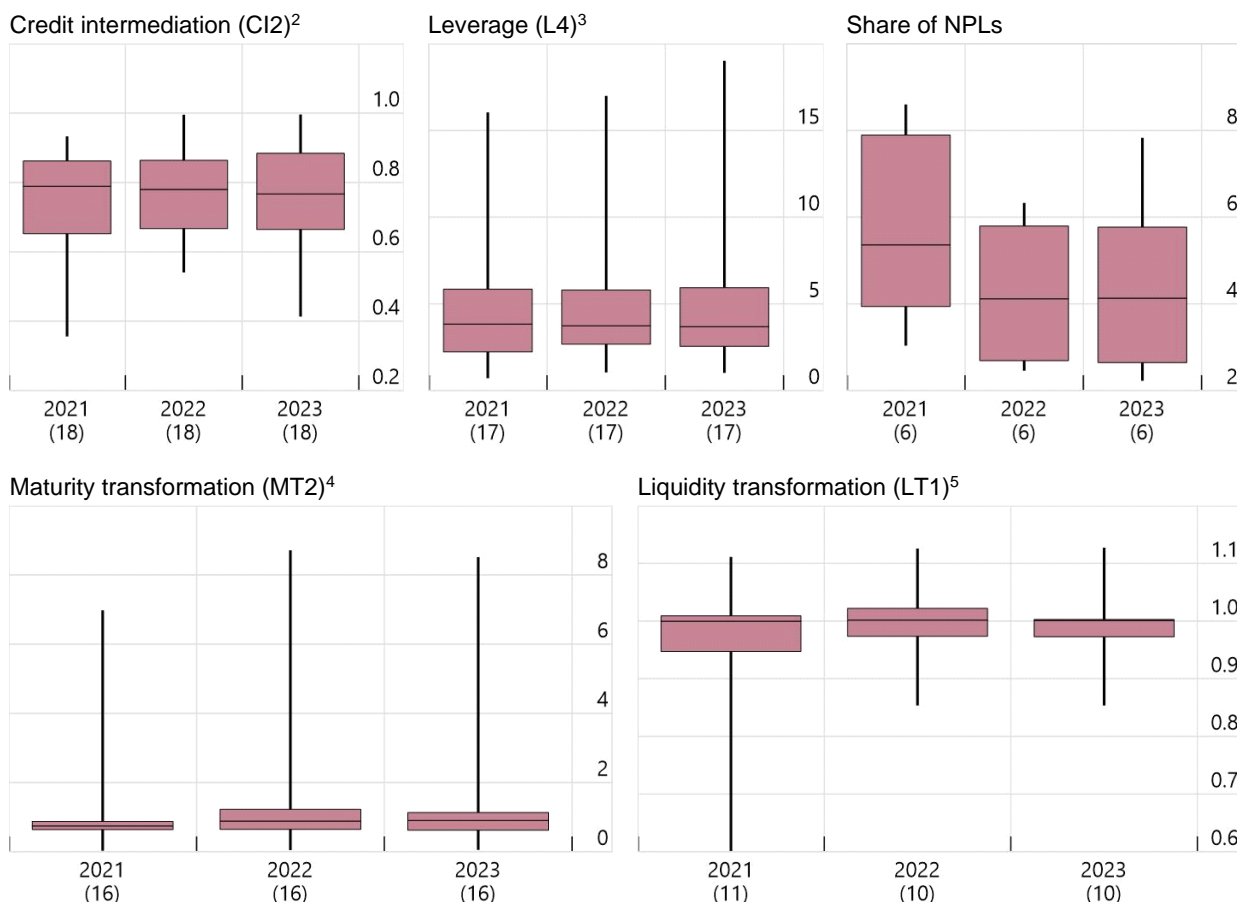
3.2.2. *Finance companies presented high levels of leverage in several jurisdictions*

Finance companies' leverage remained high in several jurisdictions (Graph 3-4). Across the jurisdictions which reported data, loans represented on average 71.7% of total finance companies' assets, reflecting their business models. Median maturity transformation slightly increased in 2023. At the same time, out of 16 reporting jurisdictions, eight exhibited decreases in this metric, including the jurisdiction with the highest level of maturity transformation in 2022. This reduced the range for the metric and highlights that finance companies possibly decreased the duration of the loans they issued. Leverage levels remained elevated globally, with large variations in the distribution, notably because of highly leveraged entities (among OFIs, finance companies also exhibited the second highest debt-to-asset ratio, Graph 2-4, RHS). In 11 jurisdictions out of the 17 which reported data, total liabilities were more than three times higher than equity. The jurisdiction which reported the highest leverage over the last three years experienced an 11.9% year-on-year increase in leverage. The level of liquidity transformation was close to one in most reporting jurisdictions and almost the same as the previous year across them, reflecting the fact that finance companies' assets are not liquid in most cases. Six jurisdictions also reported data on non-performing loans (NPLs) ratios. The effects of the Covid-19 pandemic on NPLs have been waning over the last two years – that is, NPL ratios have decreased – despite the rapid monetary policy tightening (Graph 3-4).

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

Ratios for the last three years
Graph 3-4

Credit intermediation (CI2)[2]

Leverage (L4)[3]

Share of NPLs

Maturity transformation (MT2)[4]

Liquidity transformation (LT1)[5]

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 2023 represented 90% of FinCos' total assets. [3] Total liabilities / equity (L4). The sample of reporting jurisdictions in 2023 represented 89% of FinCos' total assets. [4] Short-term liabilities / short-term assets (MT2). The sample of reporting jurisdictions in 2023 represented 88% of FinCos' total assets [5] (Total financial assets - liquid assets (narrow) + short-term liabilities) / total financial assets (LT1). The sample of reporting jurisdictions in 2023 represented 65% of FinCos' total assets.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

The use of short-term wholesale funding by finance companies remained largely the same in 2023 for most jurisdictions, though some notable increases were observed. Argentina and Australia became more dependent on short-term wholesale funding, with the share increasing by 8.8pp and 3.8pp, respectively. Other jurisdictions meanwhile reduced their dependency on short-term funding, in particular Belgium (-3.9pp) and Mexico (-2.5pp). (See Annex 1, Graph A1-19 for EF2 use of short-term wholesale funding). EF2 entities in Hong Kong[45] and Chile continued to be heavily dependent on short-term wholesale funding, which represented more than 50% of finance companies' total assets. In a further six jurisdictions, short-term wholesale funding represented more than 20% of finance companies' total assets.

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[45] For Hong Kong, the ratio of short-term assets to short-term liabilities of finance companies continued to be close to 1 in 2023, which means little maturity transformation.

Starting with the 2024 global monitoring exercise, jurisdictions contributed – on a best-efforts basis – percentile data for the vulnerability metrics of EF2 entities. However, given that such data was available for up to only three jurisdictions, it is hard to draw meaningful conclusions globally. Data collected are presented in Annex 1, Graph A1-20.

Box 3-1: Policy tools for EF2 and EF3 entities

Policy tools for EF2 entities

Policy tools for EF2 aim to address vulnerabilities related to the bank-like role that these entities assume in their specific sectors or areas of operations. These vulnerabilities may be magnified by the high specialisation of EF2 entities, which may lead them to being highly exposed to cyclical sectors. EF2 entities may hold a large market share in the sectors in which they specialise, increasing the importance of their resilience for the financing of these sectors.

In less than 40% of the responding jurisdictions, EF2 entities were subject to bank prudential requirements. However, capital requirements or similar tools applied in close to 80% of the responding jurisdictions. Other tools that can be found in the banking prudential regulations also applied to EF2 entities, such as leverage limits (defined in regulations) and limits on large exposures (both in close to 40% of the responding jurisdictions). Liquidity buffers applied in close to 60% of the responding jurisdictions.

In addition to these quantitative prudential requirements, a majority of responding jurisdictions reported restrictions on the type of liabilities permitted for EF2 entities. Examples include: the requirement for liabilities to be issued in local currency, a restriction on the ability to take deposits from retail investors, or limits on the amount of liabilities they can accept from banks and other financial entities.

Several jurisdictions reported additional tools beyond those addressing liquidity and maturity transformation risks, and regulating liabilities. For example, several jurisdictions reported additional tools such as disclosure requirements, registration and authorisation requirements, as well as tools designed to limit the scope of their activities (such as issuing credit cards or dealing with riskier clients) and their interaction with retail investors.

Availability of EF2 and EF3 policy tools

Per cent of jurisdictions that participated in the survey response **Graph A**
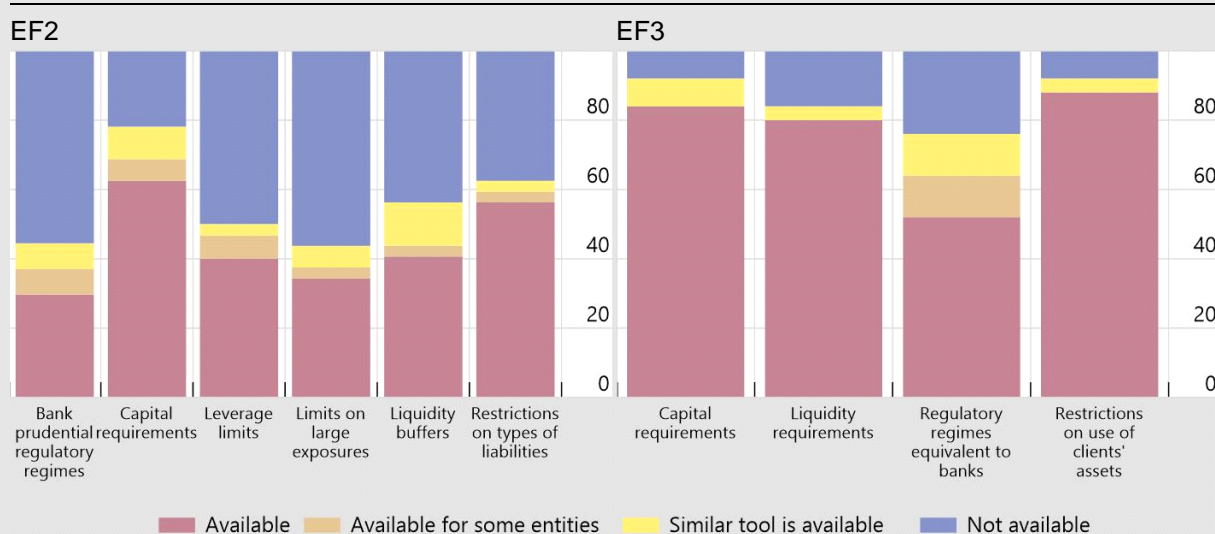
Source: Jurisdictions' 2024 survey response submissions; FSB calculations.

Policy tools for EF3

Policy tools for EF3 (almost exclusively broker-dealers) aim to mitigate vulnerabilities stemming from their intermediation activity. In most cases, policy tools have a dual objective of consumer protection and increasing EF3 entities' resilience to shocks via prudential requirements, which also contributes to preserving the orderly functioning of markets.

The vast majority of responding jurisdictions indicated that EF3 entities were subject to capital requirements (in 84% of the reporting jurisdictions) and liquidity requirements (in 80% of the reporting jurisdictions). In half of the reporting jurisdictions, EF3 entities were subject to regimes similar to those applied to banks, while in a portion of jurisdictions, only a subset of EF3 entities were subject to bank-like prudential regimes (in 12% of the reporting jurisdictions).

A key tool that was generally implemented was restrictions on the use of clients' assets (in 88% of the reporting jurisdictions). These restrictions often included segregation requirements for client accounts, as well as direct limits on the use of the client assets, either broad (e.g. repledging limits), or requiring explicit client agreement for individual operations.

In addition to the above tools, several jurisdictions have disclosure requirements in place, or additional assessments of EF3 internal governance and control processes.

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

EF3 consists of intermediation activities dependent on short-term funding, including secured funding of client assets, and securities financing transactions. EF3 activities are overwhelmingly performed by broker-dealers, which accounted for 97.7% of EF3 assets, while the remaining 2.3% were custodial accounts and securities finance companies (Graph 3-5, LHS). 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. 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, the vulnerability metrics analysed in this section focus exclusively on broker-dealers.[46]

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, especially during periods of already scarce market liquidity. As a result, broker-dealers may face vulnerabilities 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. Broker-dealers 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 market-based funding (e.g. repos). As covered in section 2.3, if financial leverage is not properly managed it creates a vulnerability that can propagate strains through the financial system. For example, leveraged

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[46] Due to data limitations, vulnerability metrics for some jurisdictions include broker-dealers that are prudentially consolidated.

investors may amplify and propagate shocks if they unwind positions quickly to raise cash. Thus, broker-dealers may be exposed more generally to the risk of dysfunction in short-term funding markets, particularly when counterparty risk management practices are insufficiently robust. These vulnerabilities may be mitigated by policy tools – Box 3-1 earlier provided an overview of such tools and their availability among responding jurisdictions.

3.3.1. *EF3 assets exhibited the largest percentage growth of any economic function in 2023*

EF3 total assets experienced accelerated growth of 16.2% to $4.9 trillion in 2023, following the 4.3% and 6.2% increases recorded in 2022 and 2021, respectively (Graph 3-5, LHS). EF3's share in total narrow measure assets stood at 7.0%, making it the second smallest economic function by asset size. Assets of broker-dealers prudentially consolidated into banking groups were 61.3% of total broker-dealer assets and were not included in EF3 or the narrow measure.

Japan contributed 40.9% to EF3 asset growth, and combined with the United States, China, and Korea, accounted for 86.0% of total growth of EF3 assets.[47] EF3 assets in EMEs grew at a slightly slower rate (15.0%) than assets in AEs (16.4%). Among AEs, the highest share of EF3 asset growth was attributed to Japan (see section 1.3) with a percent contribution of 40.9% of the growth seen in the 29-*Group*, and its share in global EF3 assets increasing to 32.3%.[48] Despite EF3 assets growing in the United States, China, and Korea, their respective shares of global EF3 assets decreased. EF3 assets were concentrated in these three jurisdictions and Japan, making up 90.4% of EF3 assets (Graph 3-5, RHS). The majority of EMEs showed positive growth, but the EME share of total EF3 assets remained low at 15.3%.

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[47] France, while making up only 1.7% of total EF3 assets, did contribute 10.8% of total growth seen across the *29-Group*. EF3 growth in France is due to a modification in data sources.

[48] The growth in Japan was due to an increase in repo transactions and in arbitrage transactions between short-term money market transactions and Bank of Japan current account deposits, both intermediated by broker-dealers.

Broker-dealers' assets increased in 2023

29-Group

Graph 3-5

EF3 by entity[1]

Contributions to EF3 growth[3]

EF3 by jurisdiction[3]
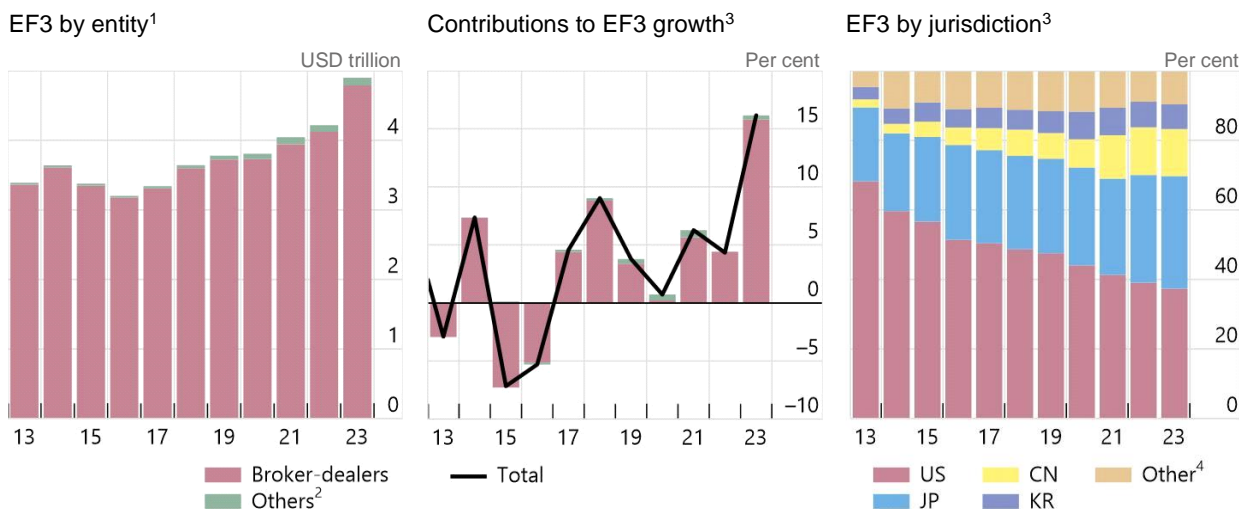
[1] Includes data for Russia up until 2020.   [2] Others include securities finance companies and dealers.   [3] Does not include data for Russia.   [4] Other jurisdictions in *29-Group* not displayed separately.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

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

Broker-dealers' credit assets grew strongly again in 2023 with 11.4% growth, almost twofold compared to the 5-year average growth rate of 5.2% between 2017 and 2022. Debt securities drove credit asset growth, while broker-dealer loan assets grew modestly at 4.1% in 2023, while their average growth rate for the prior five-year period had been relatively high (12.2%). See also section 2.1.

Aggregate vulnerability metrics display little change in credit intermediation, maturity transformation and leverage but do show a negative trend in liquidity transformation (Graph 3-6). Median liquidity transformation declined to 1.2 in 2023 from 1.4 in 2021. This signals that most jurisdictions are registering declines in short-term liabilities and/or increasing liquid assets.[49] Liquid assets, defined as cash-like instruments, likely increased due to higher interest rates, which made holding these assets more attractive. In 2023, total borrowings increased by 9.0% in 2023, and leverage increased in eight jurisdictions and decreased in six – broker-dealers still presented high levels of leverage in most reporting jurisdictions.

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[49]   The size of jurisdiction is not considered when looking at median vulnerability metrics, thus larger jurisdictions may exhibit trends counter to what aggregate median trends are showing.

Vulnerability metrics in 2023

Vulnerability metrics for broker-dealers[1]   **Graph 3-6**
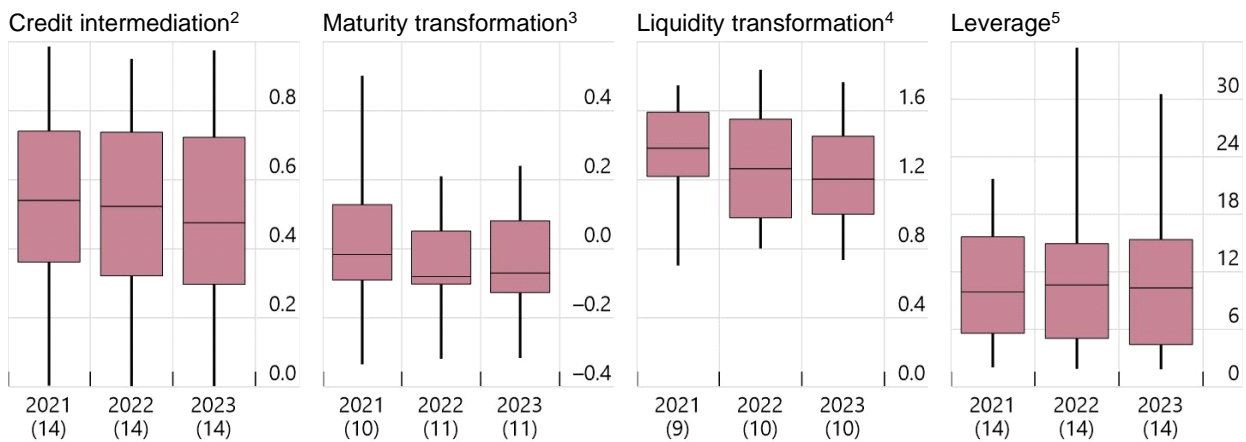
The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution across years might be related to changes 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%. This is because 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). The sample of reporting jurisdictions in 2023 represented 92% of broker dealers' total assets. [3] (Long-term assets - equity - long-term liabilities) / total financial assets (MT1). The sample of reporting jurisdictions in 2023 represented 29% of broker dealers' total assets. [4] (Total financial assets - liquid assets (narrow) + short-term liabilities) / total financial assets (LT1). The sample of reporting jurisdictions in 2023 represented 61% of broker dealers' total assets. [5] Total financial assets/equity (L1). The sample of reporting jurisdictions in 2023 represented 92% of broker dealers' total assets

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Starting with the 2024 global monitoring exercise, jurisdictions contributed – on a best-efforts basis – percentile data for the vulnerability metrics of EF3 entities. However, given that such data was provided by up to only four jurisdictions, it is hard to draw meaningful conclusions globally. Data collected are presented in Annex 1, Graph A1-21

The net repo position for broker-dealers was negative in 2023 and larger than in 2022 so that broker-dealers were further from achieving a net zero position in 2023. Both repo assets and repo liabilities increased in 2023, 12.7% and 22.5%, respectively, resulting in a negative net repo position (see also Annex 1, Graph A1-22). In addition, 75.0% of wholesale total funding, excluding repo funding, was short-term by end–2023 thereby contributing to trends described above on maturity and liquidity transformation. Wholesale total funding grew 6.4%, while the short-term component of wholesale funding grew 9.4%.

3.4.   Facilitation of credit intermediation (EF4)

EF4 comprises entities, such as financial guarantors and monoline insurers, that provide credit enhancements by insuring structured securities and financial products, including residential mortgages. These entities offer guarantees to both banks and non-bank financial entities, facilitating credit creation by helping investors and lenders manage credit risk. However, if credit, liquidity, or counterparty risks are mispriced or incentives misaligned, EF4 entities may contribute to excessive risk-taking and boom-bust cycles. The pricing of credit protection should reflect the creditworthiness of both borrowers and guarantors, but market inefficiencies may hinder this. Mispricing may lead to an oversupply of credit during economic booms and over-restriction of credit during busts.

EF4's impact and importance may be significantly understated due to challenges in capturing off-balance-sheet exposures and the lack of vulnerability metrics. Balance sheets of credit insurers may not fully represent their credit exposure, especially when using derivatives. Only four jurisdictions reported off-balance-sheet assets for EF4, and the small size of EF4 assets relative to total financial assets results in sparse vulnerability metrics data, which are not published.

EF4 continued to be the smallest economic function at $148 billion, with its share of the narrow measure generally stable at 0.2% in 2023. 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 in Korea, accounted for 19.7% 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 (in Argentina, Switzerland, Spain, Italy, and the United Kingdom) accounted for another 10.6% of EF4 assets. Whilst total EF4 assets remained stable, there were mixed trends across different entity types: insurance corporations and broker-dealers saw slight declines, which were offset by increases for mortgage insurers and financial guarantors (Graph 3-7).

Growth in EF4 was driven by financial guarantors and mortgage insurers

29-Group   Graph 3-7

EF4 by entity[1, 2]   Contributions to EF4 growth[2, 4]   EF4 by jurisdiction[2, 4]
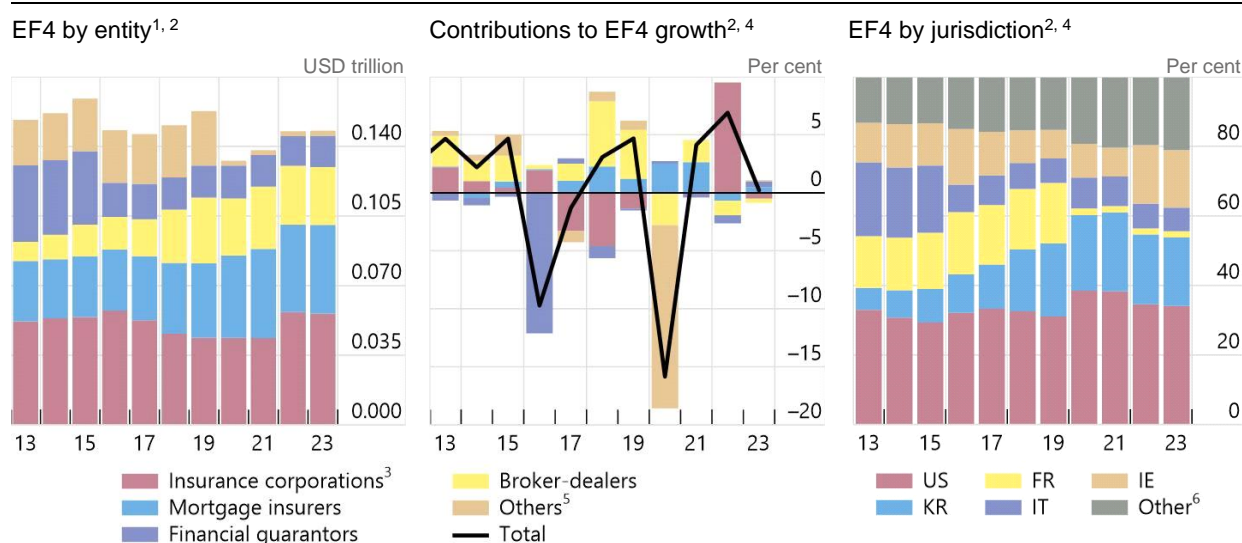
[1] Includes data for Russia up until 2020.   [2] The decline in "Others" in 2020 is linked to the reclassification of one specific entity in France as a public administration entity. This also explains the reduction in 2020 in EF4 assets for France shown in the right-hand side chart above.   [3] The growth in insurance corporations' assets in 2022 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 special purpose vehicles (SPVs).   [6] Other jurisdictions in *29-Group* not displayed separately.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

3.5.   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.

3.5.1. EF5 assets grew at half the pace of the narrow measure

Global EF5 assets increased 3.8% in 2023 to $5.3 trillion; given the growth of EFs 1-3, the EF5 share of the narrow measure reduced slightly to 7.5% (Graph 3-8, LHS and Graph 1-7). 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 (only in China), which represented 95.8% and 4.2% of EF5 assets, respectively.

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

29-Group   **Graph 3-8**

EF5 by entity[1]

Contributions to EF5 growth[2]

EF5 by jurisdiction[2]
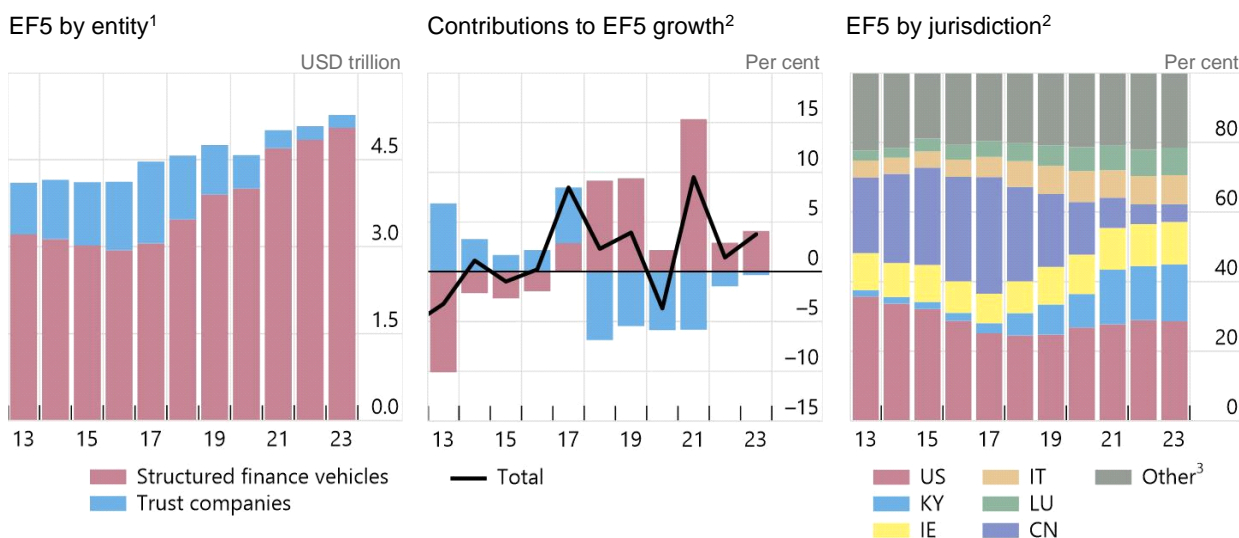
[1] Includes data for Russia up until 2020.   [2] Does not include data for Russia.   [3] Other jurisdictions in 29-Group not displayed separately.
Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.

Structured finance vehicles and trust companies continued to display divergent growth trends. Structured finance vehicle assets classified into EF5 grew 4.3% in 2023, continuing a trend that started in 2017. This overall growth was mostly supported by growth in the Cayman Islands (9.6%), the United States (2.6%), Luxembourg (8.0%) and Ireland (4.6%). In 2023, spreads on mortgage-backed securities, while remaining high historically, tightened marginally, which favoured the growth in SFV assets. EF5 assets in China continued to decrease, with a fall of 6.0%, now bringing its contribution to overall EF5 assets to 5.1%. Meanwhile, 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 the introduction of tighter regulations.

3.5.2. Vulnerability metrics for structured finance vehicles

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. However, the median ratio of loans (on the asset side of the balance sheet) to total financial assets declined to 0.76 (Graph 3-9, LHS). Nevertheless, the high values for this metric indicated that these entities typically intermediated more loans than bonds. However, in some jurisdictions they also engaged to a significant extent in credit intermediation through the securitisation of debt securities.[50] There were also a couple of jurisdictions that consistently showed a very low level of credit intermediation. Two reasons explain this: (i) some of these SFVs invested in debt securities (tradeable and securitised loans), which are excluded from the metric calculation since it focuses on loans; (ii) some other of these SFVs acquired loan portfolios through special purpose vehicles or trusts, and a look-through approach was not applied to calculate the metric.

Leverage remained elevated, and little changed year-on-year. Most jurisdictions presented a ratio higher than 0.9, and the median remained close to one, reflecting the fact that SFVs held little equity (Graph 3-9, RHS).

Maturity transformation of structured finance vehicles remained low in most jurisdictions, indicating that the maturities of liabilities and assets closely match (Graph 3-9, middle panel). The median ratio of short-term liabilities to short-term assets (both less than or equal to 12 months) stayed slightly below one across the 14 reporting jurisdictions at 0.78. Its highest value, however, increased significantly over the last three years, showing that maturity transformation is growing larger in one jurisdiction.

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[50] The FSB's Global Monitoring Exercise does not collect data on the types of securitisations (e.g. residential/commercial asset-backed securities, collateral loan obligations, etc.).

Credit intermediation and leverage remained stable, while maturity transformation increased slightly in 2023[1]

Graph 3-9
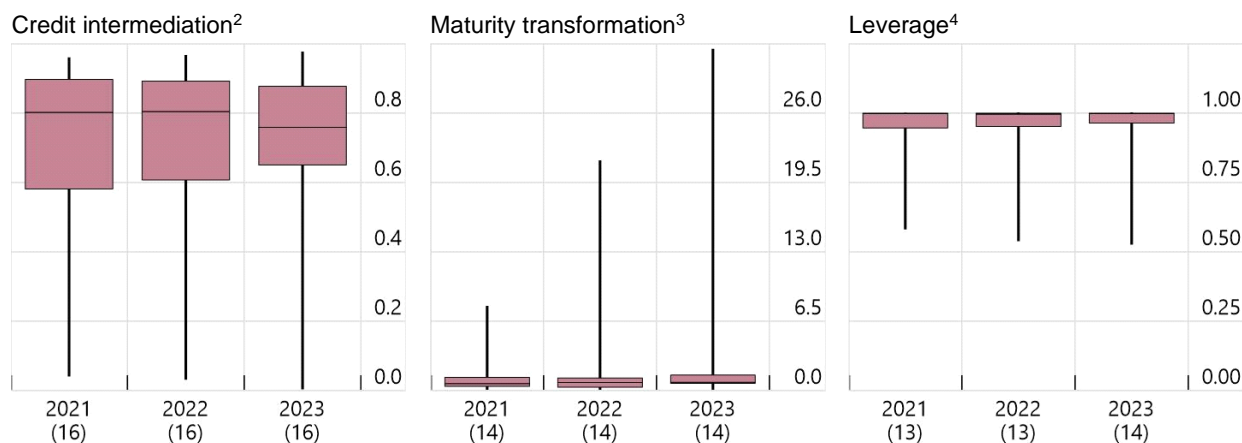
Credit intermediation[2]

Maturity transformation[3]

Leverage[4]

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 2023 represented 82% of SFV total assets. [3] Short-term liabilities / short-term assets (MT2). The sample of reporting jurisdictions in 2023 represented 77% of SFV total assets. [4] (Total financial assets – equity) / total financial assets (L5). The sample of reporting jurisdictions in 2023 represented 45% of SFV total assets.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Annex 1: Statistical Annex

Section 1

Size vs. growth in 2023 of major NBFI subsectors
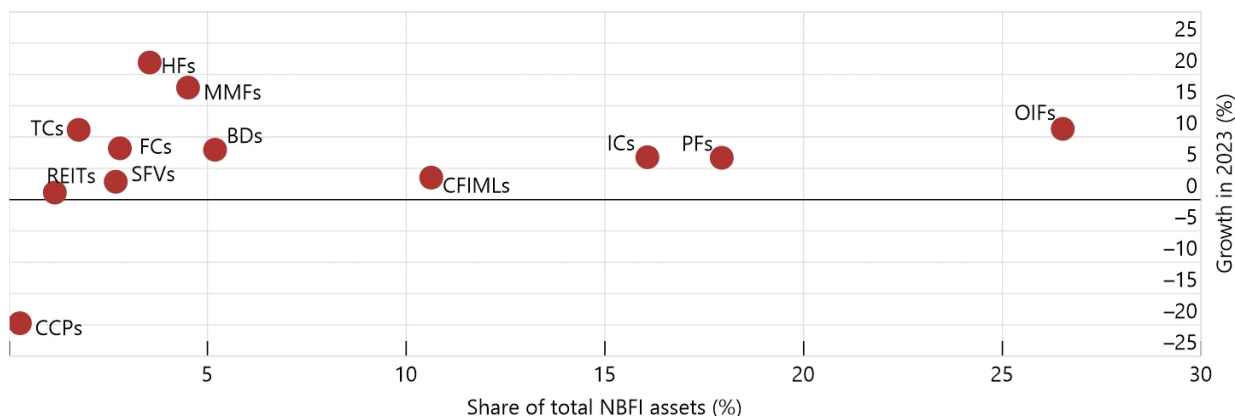
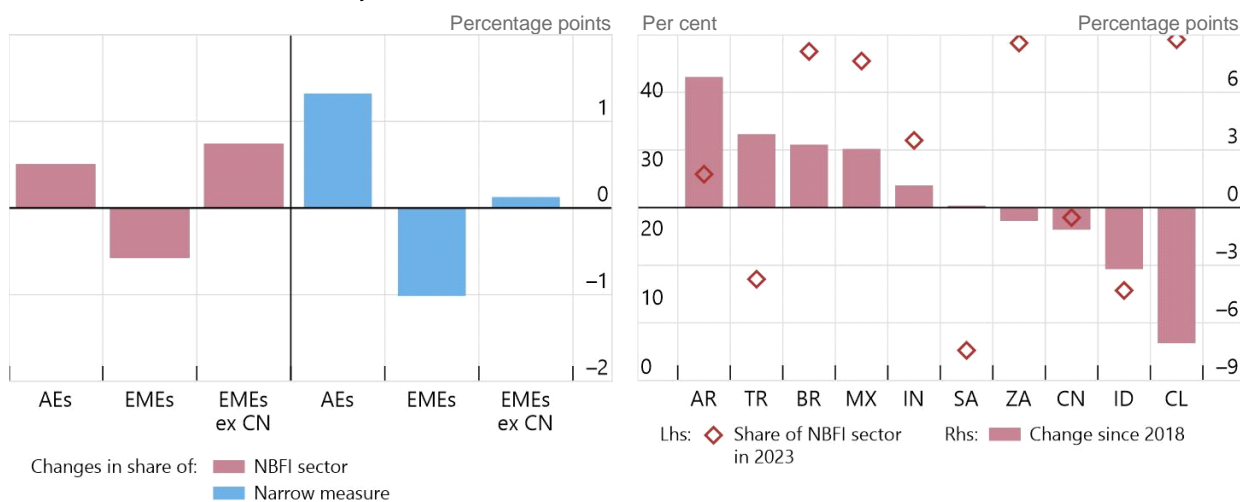Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

The relative importance of NBFI has increased in EMEs, except in China   **Graph A1-2**

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.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Other Financial Intermediary (OFI) size and growth by jurisdiction[1]

In per cent

Annual growth of OFIs in AEs and EMEs[2]

Composition of the OFI sector[3]
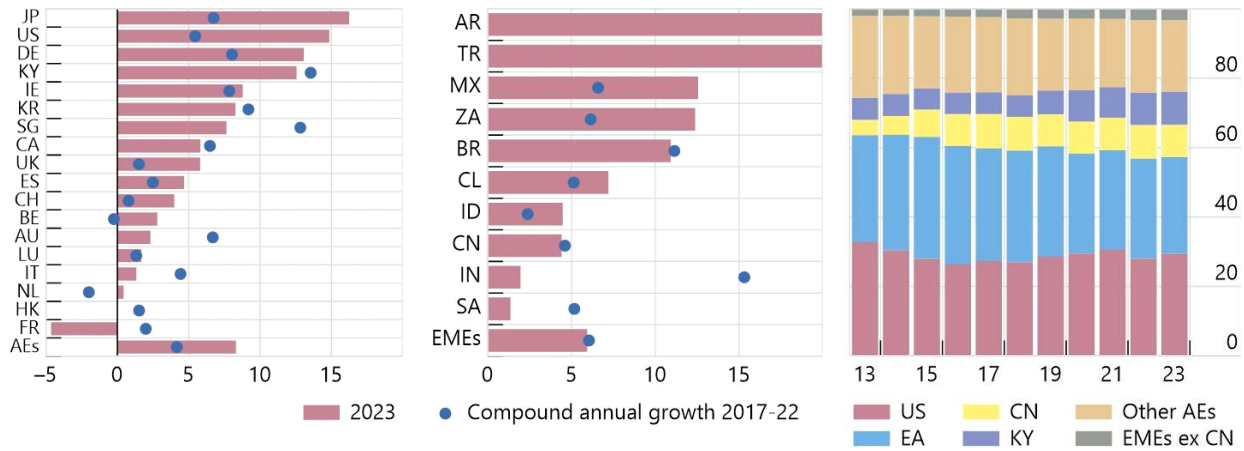
2023 ● Compound annual growth 2017-22

US CN Other AEs
EA KY EMEs ex CN

[1] Does not include data for Russia. [2] Growth rates in Argentina and Türkiye reflected high rates of inflation. The bars for these two countries are not shown entirely because they are particularly high compared to the rest of the jurisdictions. [3] OFI assets by jurisdiction, *21+EA-Group*.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Other Investment Fund (OIF) size and growth by jurisdiction[1]

In per cent

Annual growth of OIFs in AEs and EMEs[2]

Composition of the OIF sector[3]
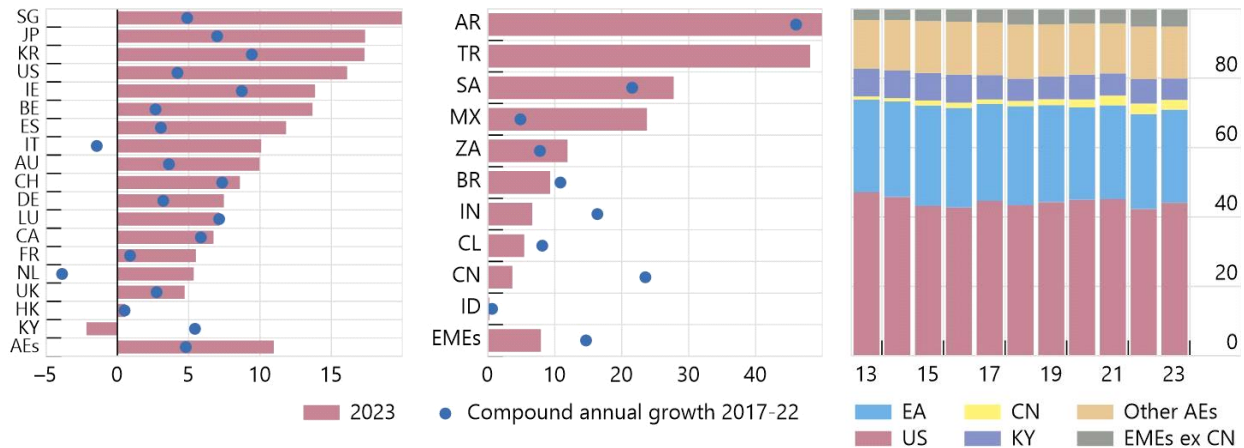
2023 ● Compound annual growth 2017-22

EA CN Other AEs
US KY EMEs ex CN

[1] Does not include data for Russia. [2] Growth rates in Argentina and Türkiye reflected high rates of inflation. The bar for Argentina is not shown entirely because it is particularly high compared to the rest of the jurisdictions. [3] OIF assets by jurisdiction, *21+EA-Group*.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.
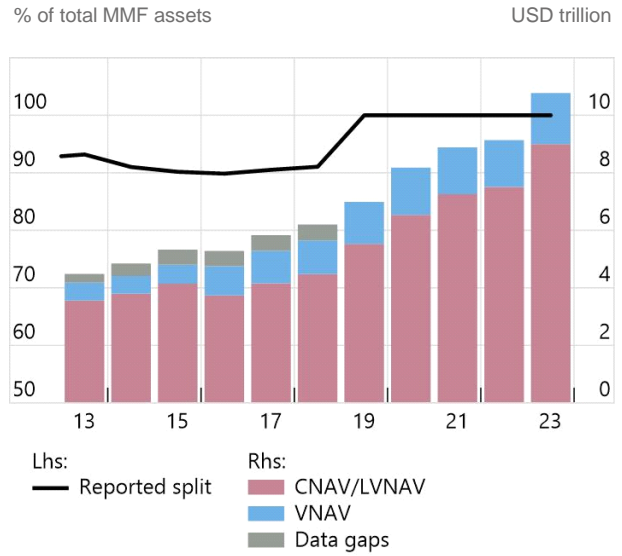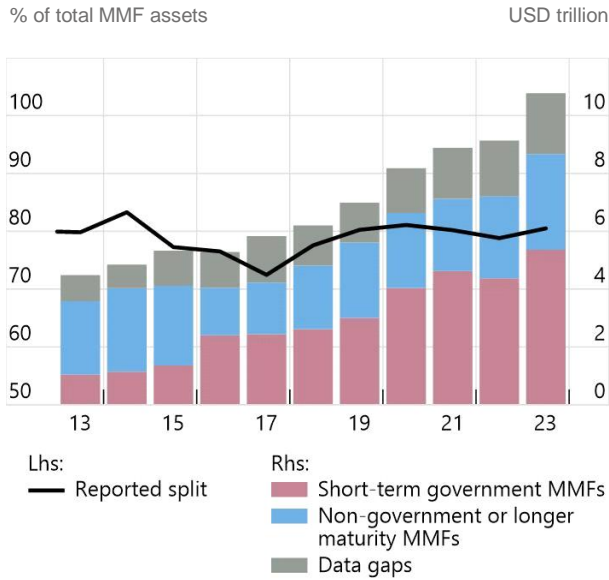
MMF split per type[1]

29-Group **Graph A1-5**

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

Accounting split between MMFs

% of total MMF assets   USD trillion

% of total MMF assets   USD trillion

Lhs:
— Reported split

Rhs:
■ Short-term government MMFs
■ Non-government or longer maturity MMFs
■ Data gaps

Lhs:
— Reported split

Rhs:
■ CNAV/LVNAV
■ VNAV
■ Data gaps

[1] Does not include data for Russia.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

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

29-Group **Graph A1-6**

MMFs[1]

Fixed income funds

Percentage of total MMF assets

Percentage of total fixed income fund assets

Lhs:
● Jurisdictions' share of global fund assets
● Jurisdictions' ratio of fund to OFI assets

Rhs:
■ Share of five largest funds within jurisdiction
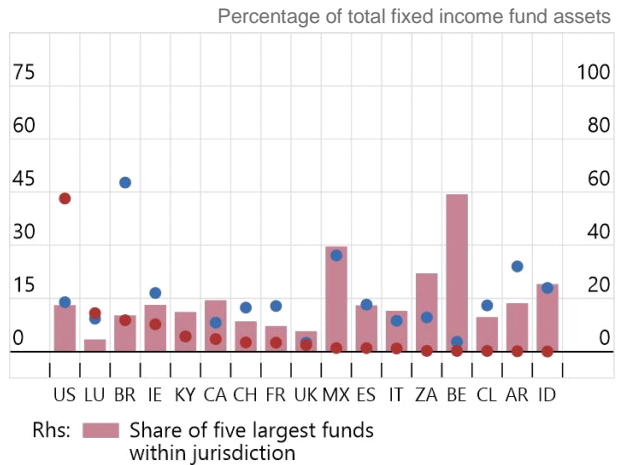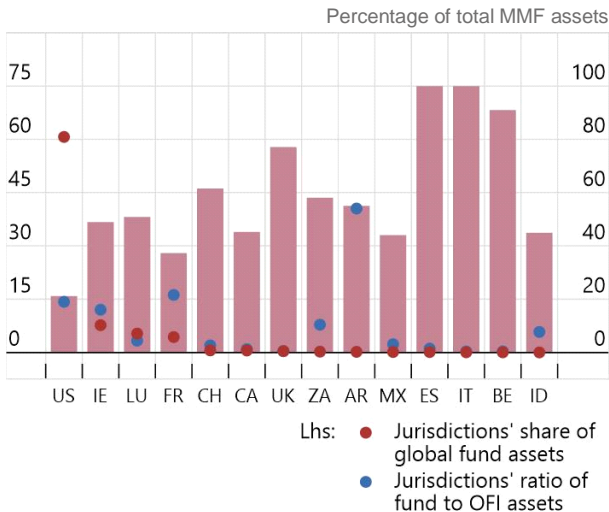
[1] In Spain and Italy there were only 3 MMFs.

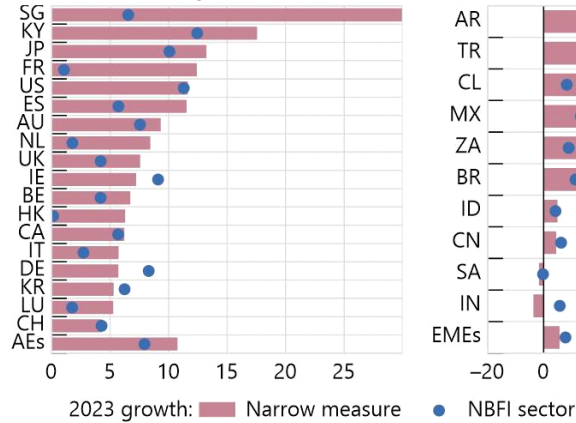Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Narrow measure size and growth by jurisdiction

In per cent, *29-Group*
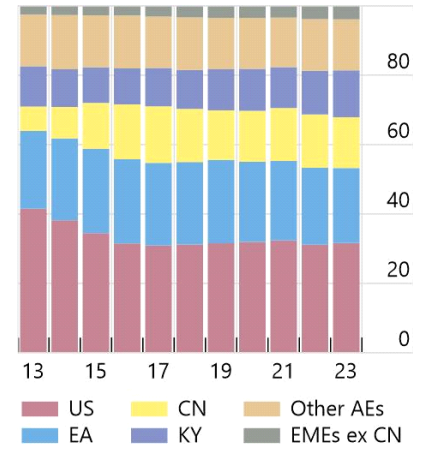
Narrow measure growth in AEs and EME[1][2]

Share of the narrow measure

2023 growth: ■ Narrow measure ● NBFI sector

US   CN   Other AEs
EA   KY   EMEs ex CN

[1] Growth rates in Argentina and Türkiye reflect a high rate of inflation. The narrow measure and NBFI sector growth rates for Argentina of 255.4% and 282.3%, respectively, are not shown entirely because they are particularly high compared to the rest of the jurisdictions. Aggregates are computed as a weighted average on the basis of rolling GDP weights.   [2] The high narrow measure growth for Singapore of 57.7% was due to enhanced data coverage to include assets of restricted collective investment schemes (CIS) incorporated in Singapore, whereas previously only assets of authorised CIS incorporated in Singapore were reported.
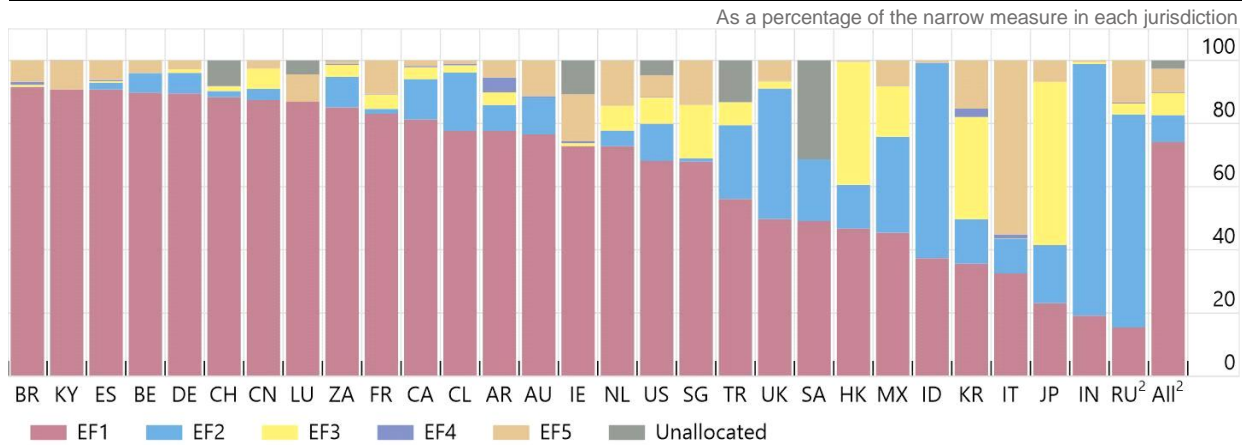
Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

EF1 remained the largest economic function in 24 jurisdictions at end-2023[1]

Economic function classification by jurisdiction at end-2023

As a percentage of the narrow measure in each jurisdiction

■ EF1   ■ EF2   ■ EF3   ■ EF4   ■ EF5   ■ Unallocated

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' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.
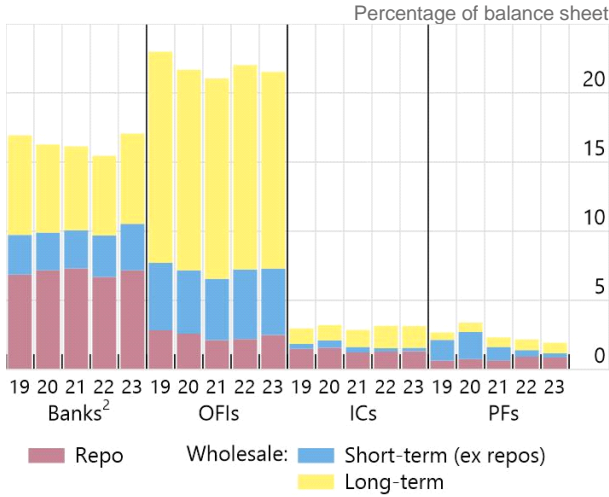
Section 2

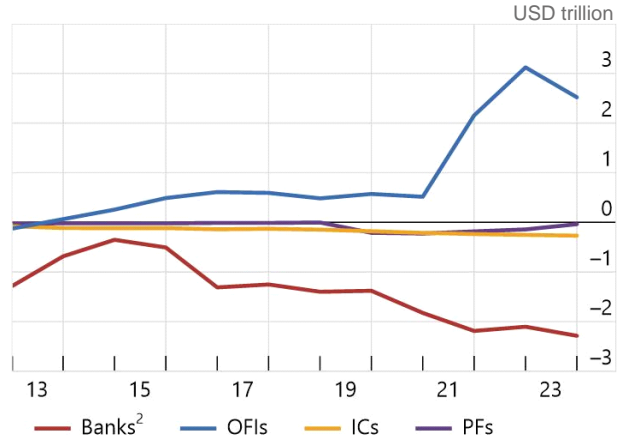## OFIs' net level of repo assets decreased in 2023 but remained high

21+EA-Group

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.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.
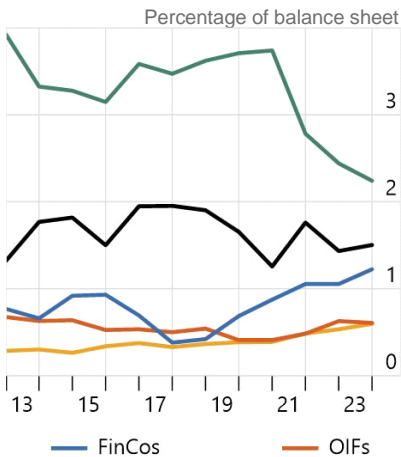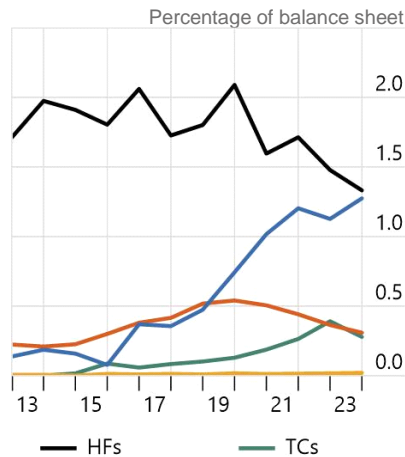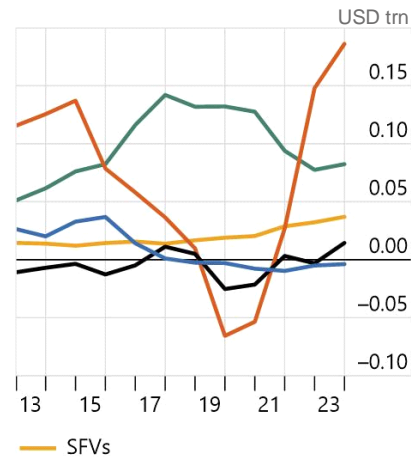
Repo positions

21+EA-Group

Assets[1]

Liabilities[1]

Net position[2]

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' 2024 submissions (national sector balance sheet and other data); FSB calculations.
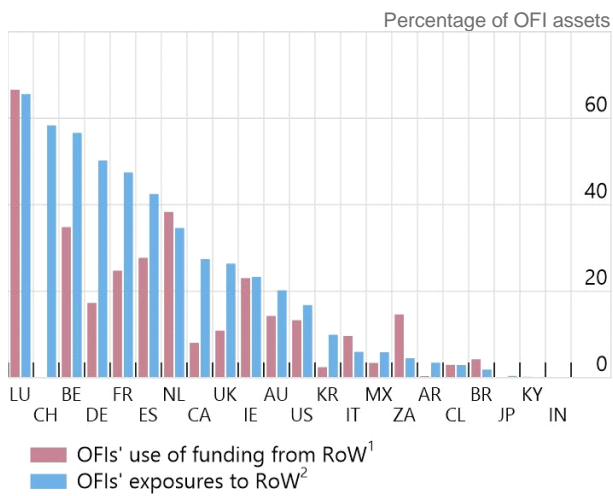
Cross-border interconnectedness

29-Group

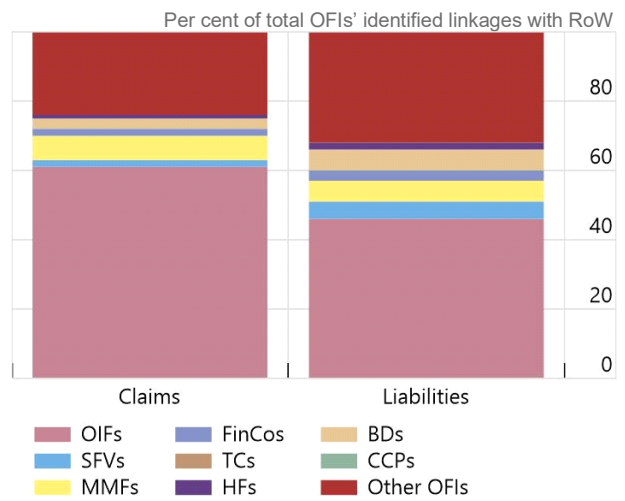Aggregate exposures between OFIs and RoW

Percentage of OFI assets

OFIs' cross-border interconnectedness, at end-2023

Per cent of total OFIs' identified linkages with RoW

- OFIs' use of funding from RoW[1]
- OFIs' exposures to RoW[2]

Legend:
- OIFs
- SFVs
- MMFs
- FinCos
- TCs
- HFs
- BDs
- CCPs
- Other OFIs

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

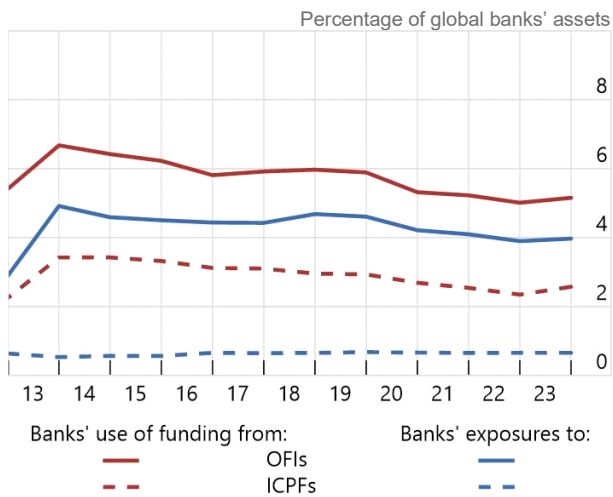Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Banks' and NBFI interconnectedness

21+EA-Group

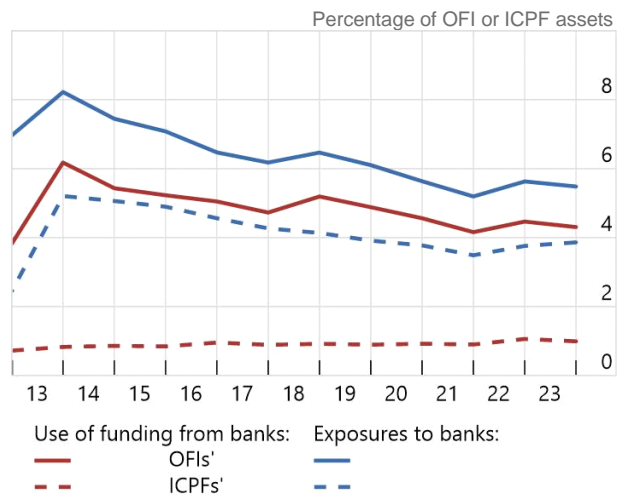Banks' interconnectedness with OFIs and ICPFs[1]

Percentage of global banks' assets

Interconnectedness of NBFI sector with banks[1]

Percentage of OFI or ICPF assets

Banks' use of funding from:
- OFIs
- ICPFs

Banks' exposures to:
- OFIs
- ICPFs

Use of funding from banks:
- OFIs'
- ICPFs'

Exposures to banks:
- OFIs
- ICPFs'

[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.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.
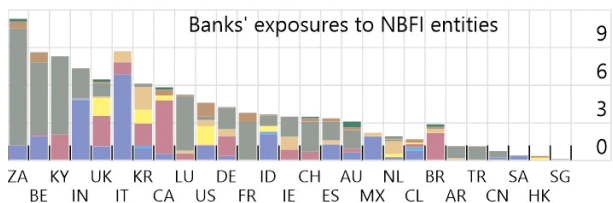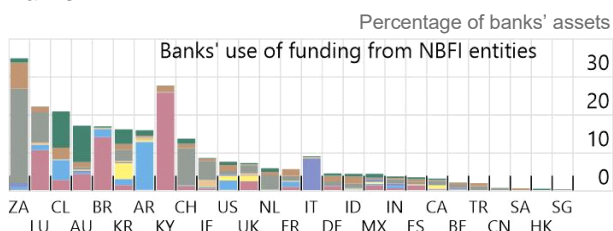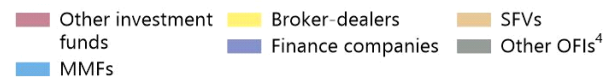
Banks' and NBFI interconnectedness by jurisdiction

29-Group

Banks[1]

Percentage of banks' assets

OFIs[3]

Percentage of OFI assets

Banks' use of funding from NBFI entities

Banks' exposures to NBFI entities

OFIs' use of funding from banks

OFIs' exposures to banks

- Finance companies
- MMFs
- Other investment funds
- Broker-dealers
- SFVs
- Other OFIs[2]
- ICs
- PFs

- Other investment funds
- MMFs
- Broker-dealers
- Finance companies
- SFVs
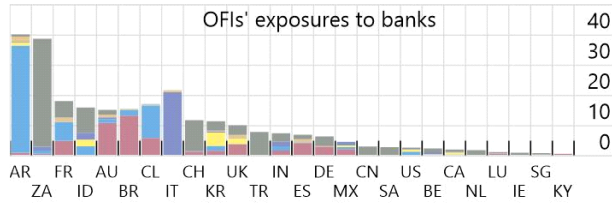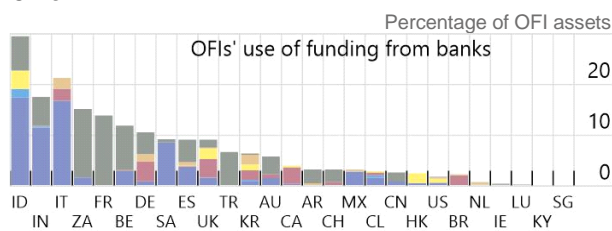- Other OFIs[4]

[1] 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. [2] "Other OFIs" includes CCPs, hedge funds, trust companies, and unidentified OFIs. [3] 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. [4] 'Other OFIs' includes CCPs, hedge funds, trust companies, captive financial institutions and money lenders, and unidentified OFIs.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

OFI deposits and use of funding

OFI deposits – selected entities[1]

Per cent of total assets from each subsector

OFIs' use of funding[2]

Per cent of OFI assets

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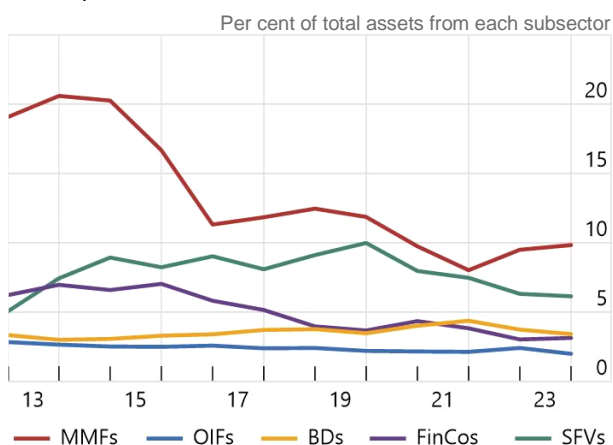
[1] Includes data from 16 jurisdictions. [2] OFIs use of funding from ICs = OFIs' liabilities to ICs as a share of OFI assets. OFIs use of funding from PFs = OFIs' liabilities to PFs as a share of OFI assets. OFIs' use of funding from OIFs is based on data reported on a consolidated basis by jurisdictions,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

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

OFIs' use of funding from NBFI per jurisdiction

End-2023, as a percentage of OFI assets

ICs   PFs   OFIs   ◆ OFIs, of which OIFs

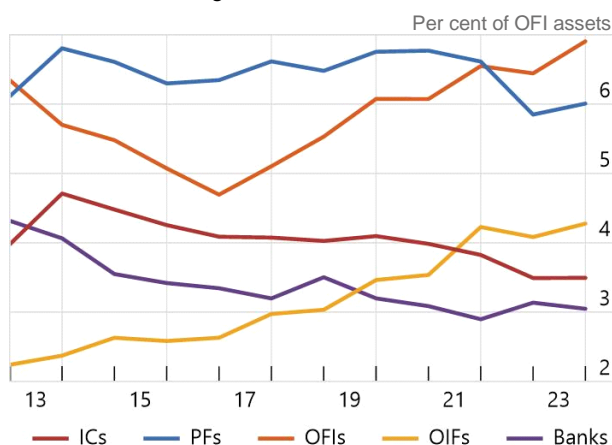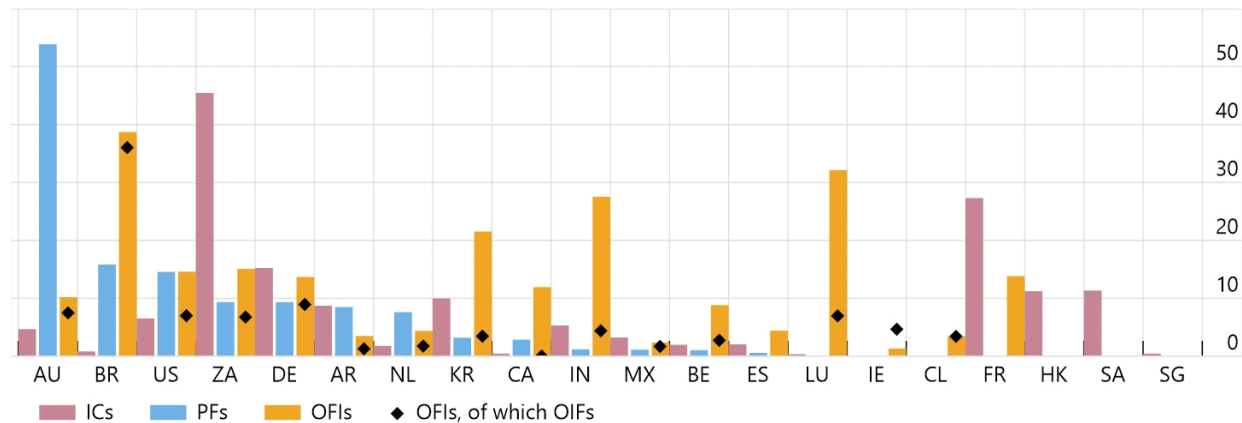Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Section 3

Contributions to EF1 growth varied across jurisdictions[1]
In per cent

Contribution to EF1 growth in advanced economies[2]

Contributors to EF1 growth in emerging market economies[3]

SG HK KY US ES AU KR FR IT NL BE CA UK DE IE LU JP CH

AR TR CL MX ZA BR CN ID SA IN

- Fixed income funds
- Money market funds
- Mixed funds
- Hedge funds
- Other funds[4]
- • Total
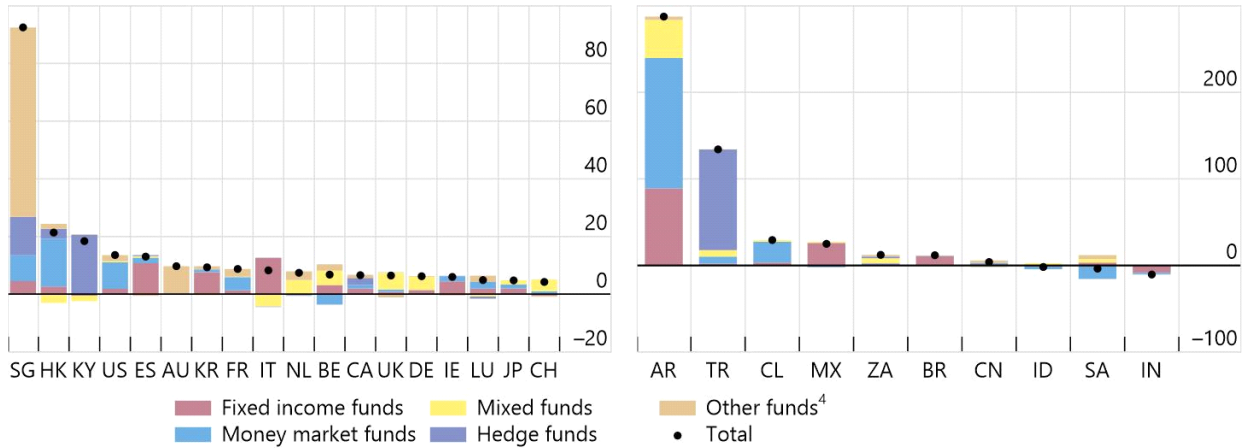
[1] Does not include data for Russia. [2] Singapore experienced a 93% increase in EF1 assets due to enhanced data coverage to include assets of restricted collective investment schemes (CIS) incorporated in Singapore, whereas previously assets of only authorised CIS incorporated in Singapore were reported. [3] For Argentina and Türkiye, the growth in EF1 reflects the high inflation rate experienced in 2023. [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.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

EF1 vulnerability metrics

Credit intermediation[1]
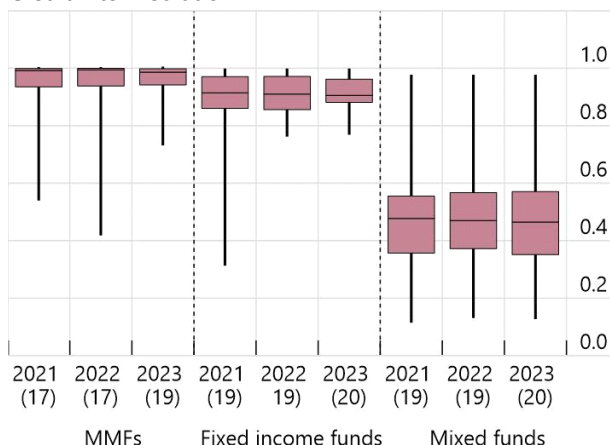
Maturity transformation[2]

Liquidity transformation[3]
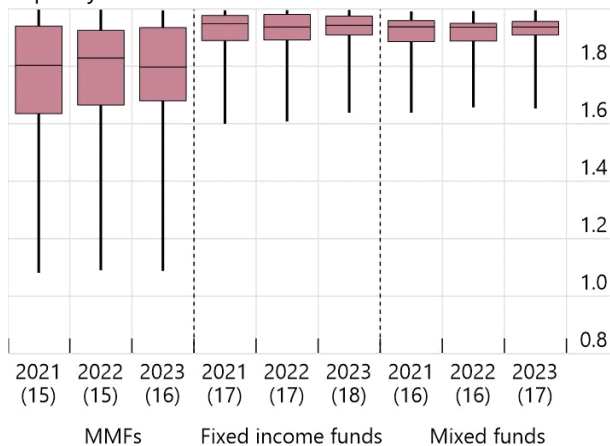
Balance sheet leverage[4]
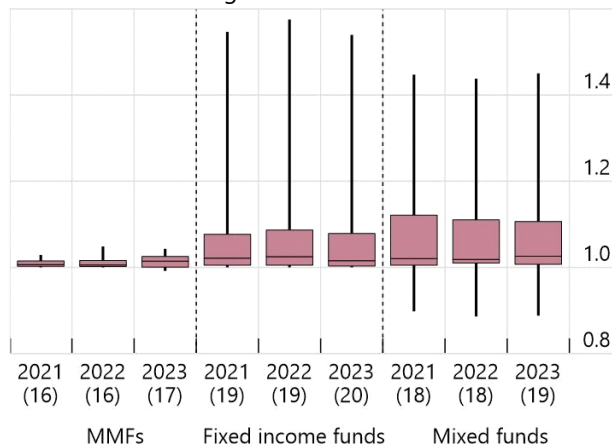
The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. The sample size indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission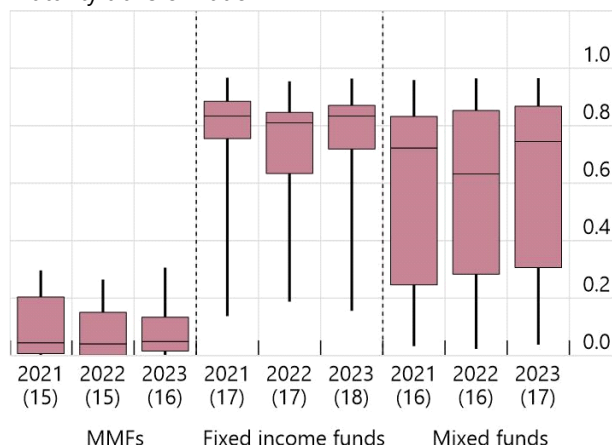 reflects data from many individual entities within that jurisdiction. Changes in the distribution across years might be related to changes in the sample of jurisdictions that provided data. The sample of reporting jurisdictions in 2023 represents 90% of total fixed income funds' assets, 71% of mixed funds' assets and more than 100% of MMFs funds' assets. 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.

[1] Credit assets / total financial assets (CI1).   [2] Long-term assets – equity – long-term liabilities) / total financial assets (MT1).   [3] (Total financial assets - liquid assets + short-term liabilities + redeemable equity) / total financial assets (LT1).   [4] Total financial assets / equity (leverage 1).

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Vulnerability metrics for MMFs split by type[1]

Graph A1-18

Credit intermediation and leverage in 2023

Maturity transformation and liquidity transformation in 2023

■ Aggregate MMFs ■ Short-term government MMFs ■ Non-government/longer maturity MMFs
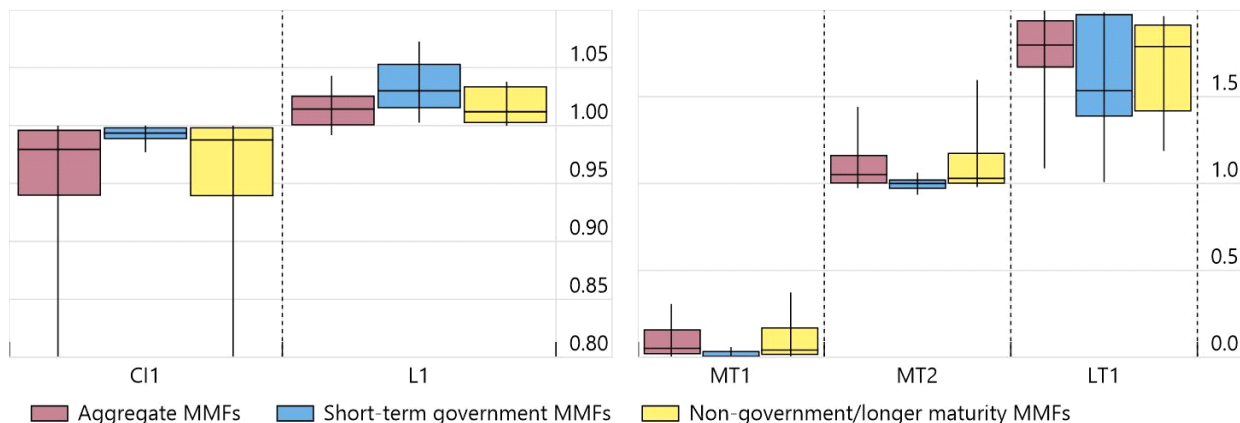
[1] The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution across years might be related to changes 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.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Use of short-term wholesale funding by finance companies – year-on-year changes[1]

As a percentage of total finance companies' assets

Graph A1-19

● 2022 ● 2023
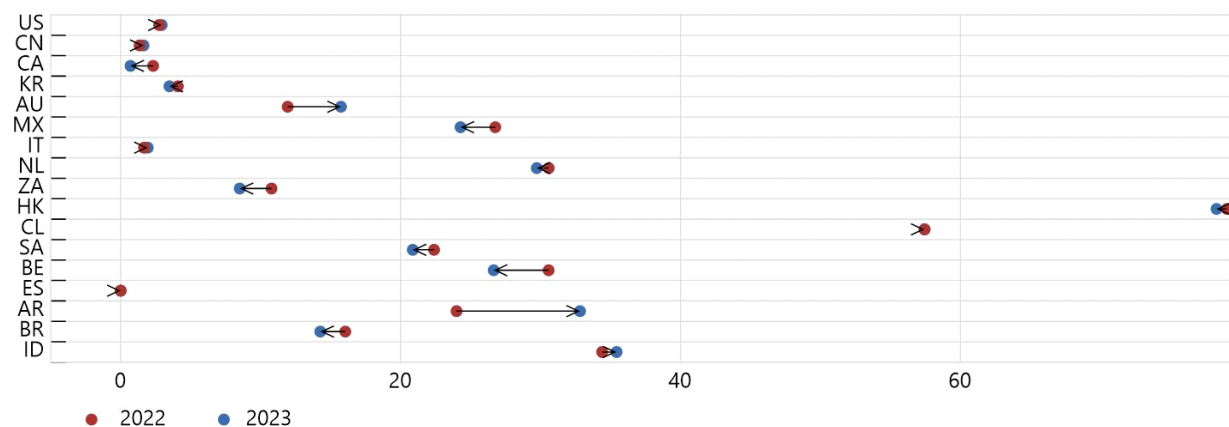
[1] Includes only jurisdictions that provided short-term wholesale funding data for both years. Does not include data for Russia.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Percentile vulnerability metrics for finance companies in 2023

Ratios   **Graph A1-20**
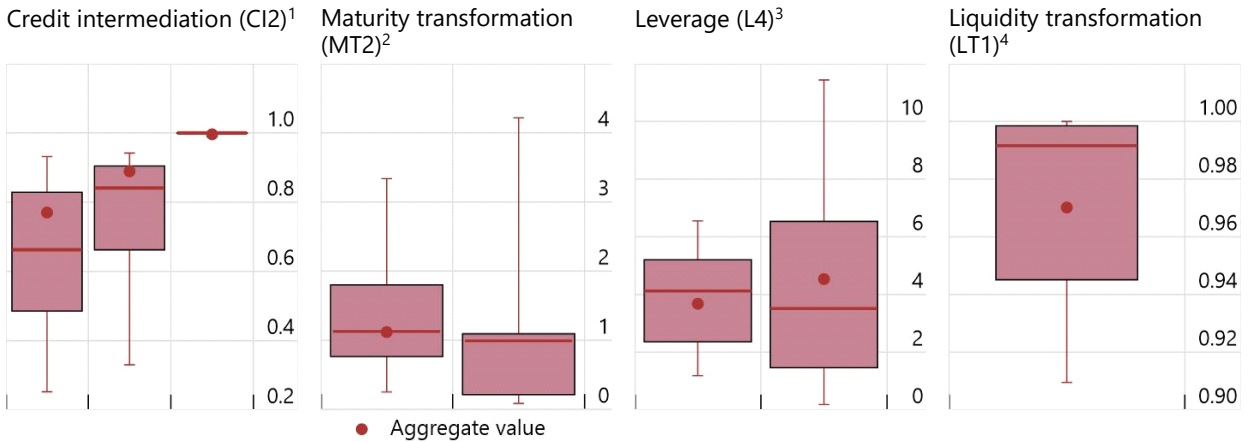
Credit intermediation (CI2)[1] | Maturity transformation (MT2)[2] | Leverage (L4)[3] | Liquidity transformation (LT1)[4]

● Aggregate value

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.

[1] Loans / total financial assets (CI2).   [2] Short-term liabilities / short-term assets (MT2).   [3] Total liabilities / equity (L4).   [4] (Total financial assets – liquid assets (narrow) + short-term liabilities) / total financial assets (LT1).

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Percentile vulnerability metrics for broker-dealers in 2023

                                                                                Graph A1-21
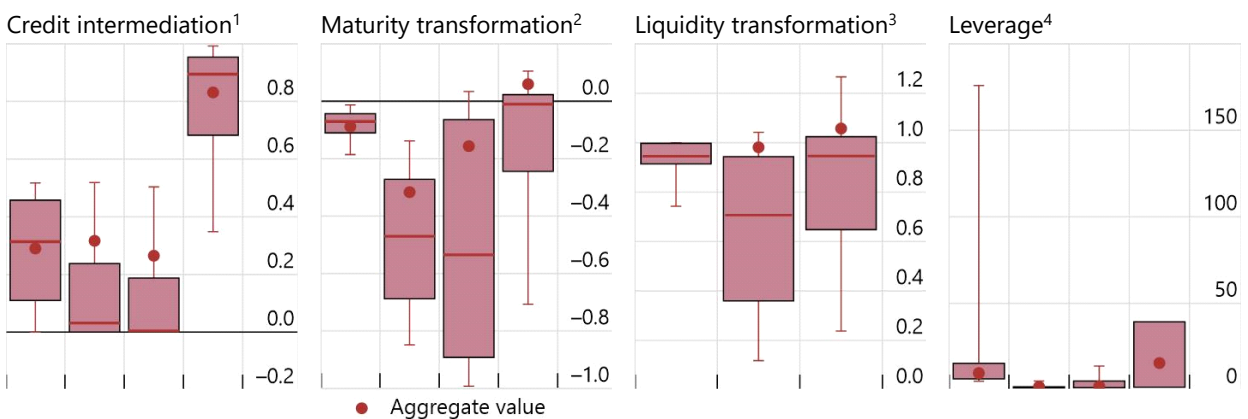
Credit intermediation[1] | Maturity transformation[2] | Liquidity transformation[3] | Leverage[4]

● Aggregate value

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

[1] Credit assets / total financial assets (CI1).   [2] (Long-term assets – equity – long-term liabilities) / total financial assets (MT1).   [3] (Total financial assets – liquid assets (narrow) + short-term liabilities) / total financial assets (LT1).   [4] Total financial assets/equity (L1).

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Broker-dealers reverted to a negative net repo position in 2023

Graph A1-22

Debt-to-equity ratios[1]
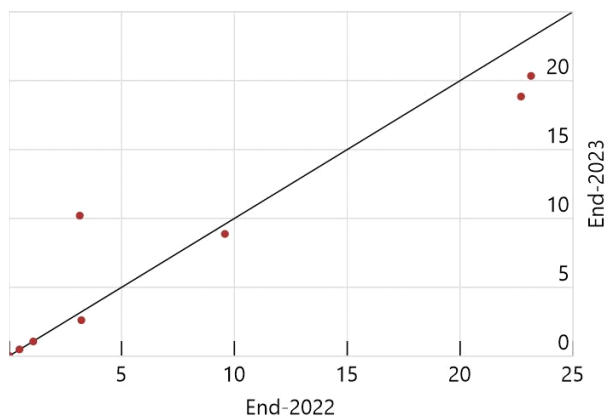
Broker-dealers' repo assets and liabilities[2]
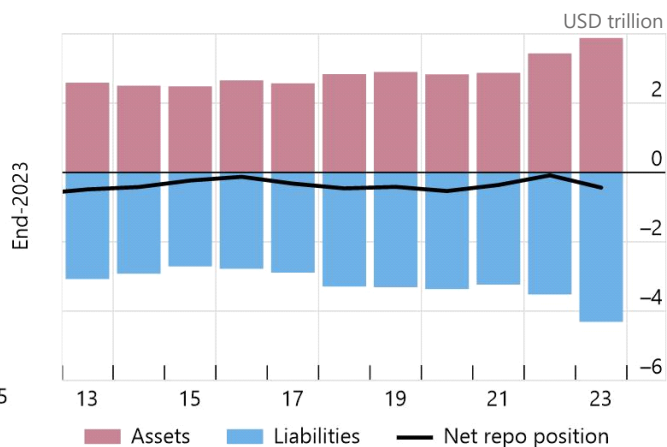
Return to main text

Annex 2: Jurisdiction-specific financial sectors

Share of total national financial assets by jurisdiction[1]
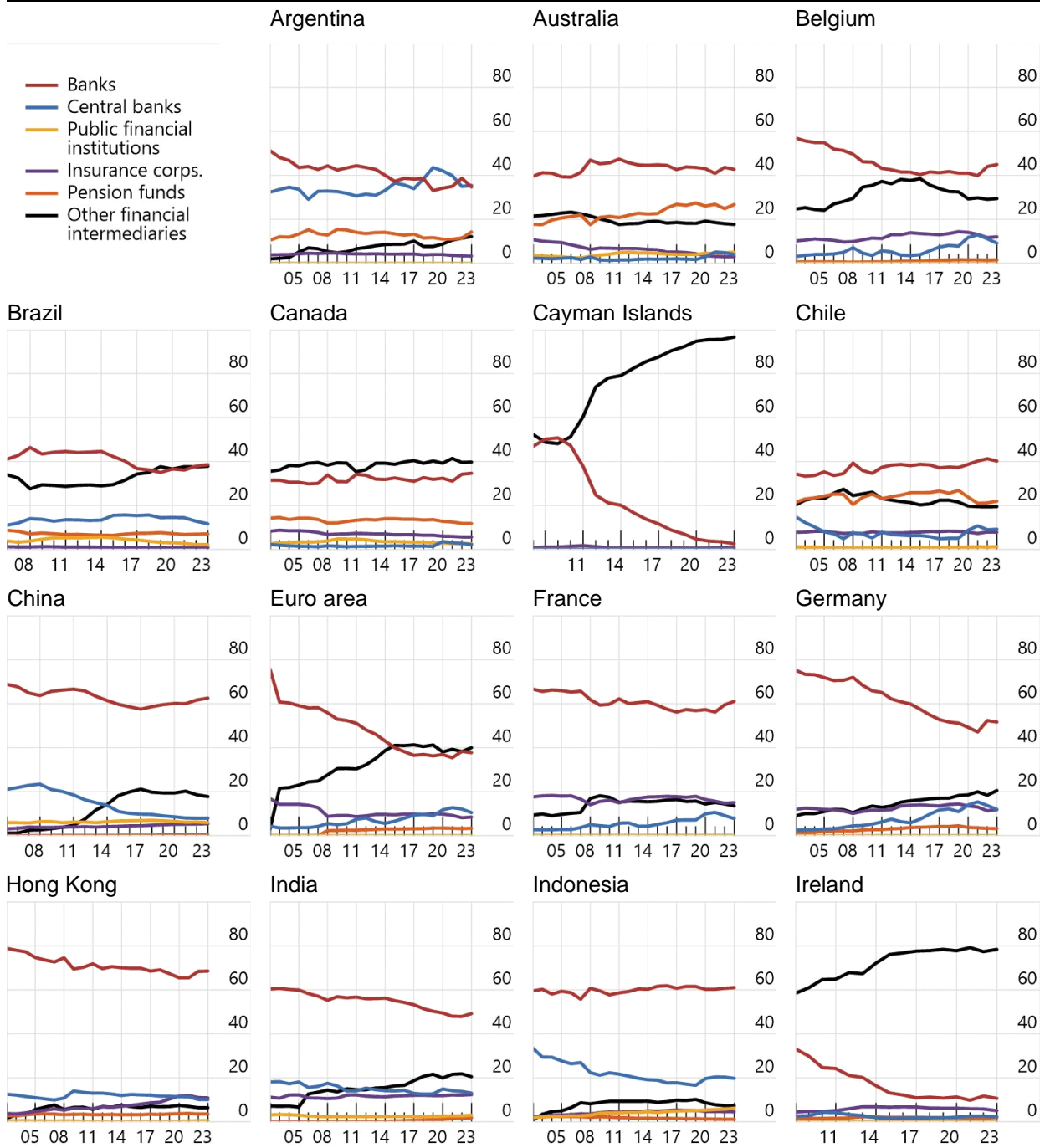
In per cent

Legend:
- Banks
- Central banks
- Public financial institutions
- Insurance corps.
- Pension funds
- Other financial intermediaries

Panels: Argentina, Australia, Belgium, Brazil, Canada, Cayman Islands, Chile, China, Euro area, France, Germany, Hong Kong, India, Indonesia, Ireland

[1] Based on historical data included in jurisdictions' 2024 submissions. Exchange rate effects were netted out by using a constant exchange rate (from 2021).

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Share of total national financial assets by jurisdiction[1]

In per cent

Legend:
- Banks
- Central banks
- Public financial institutions
- Insurance corps.
- Pension funds
- Other financial intermediaries

Panels (left to right, top to bottom): Italy, Japan, Korea, Luxembourg, Mexico, The Netherlands, Russia[2], Saudi Arabia, Singapore, South Africa, Spain, Switzerland, Türkiye, United Kingdom, United States

[1] Based on historical data included in jurisdictions' 2024 submissions. Exchange rate effects were netted out by using a constant exchange rate (from 2021).   [2] Data for Russia up until 2020.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data) and 2021 submission for Russia; FSB calculations.
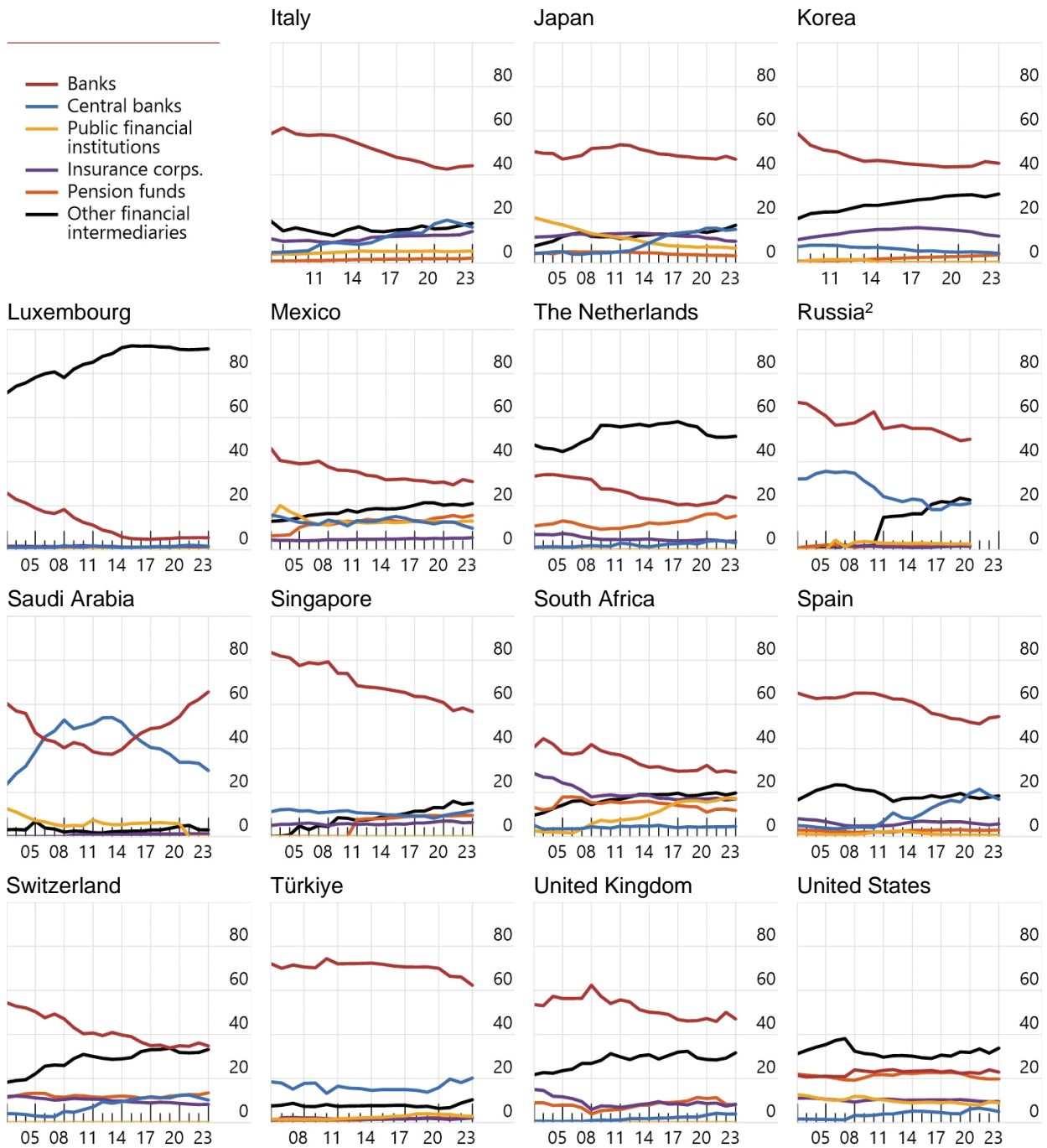
Annex 3: Summary table

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					
		ICs	PFs	OFIs	FAs			EF1	EF2	EF3	EF4	EF5	Unallocated
2008	98.6	18.4	19.5	59.4	1.3	67.7	30.9	13.8	3.3	5.5	0.1	6.0	2.2
2009	103.8	20.0	21.1	61.1	1.6	75.1	28.7	14.7	3.1	3.5	0.1	6.2	1.2
2010	111.7	21.4	23.1	65.6	1.6	83.3	28.4	15.9	3.0	3.2	0.1	5.2	1.1
2011	115.0	22.2	24.1	67.2	1.5	85.8	29.2	17.6	3.1	3.3	0.1	4.5	0.7
2012	124.8	23.8	25.7	73.7	1.6	91.8	33.0	21.4	3.0	3.5	0.1	4.2	0.6
2013	135.4	25.0	28.5	80.2	1.7	99.6	35.8	24.4	3.1	3.4	0.2	4.1	0.6
2014	149.1	26.9	30.2	90.2	1.8	109.7	39.4	27.5	3.3	3.6	0.2	4.2	0.7
2015	155.8	27.7	31.0	95.2	1.9	113.7	42.1	30.4	3.3	3.4	0.2	4.1	0.8
2016	167.6	29.3	32.8	103.5	2.0	122.6	45.0	33.1	3.3	3.2	0.1	4.1	1.1
2017	180.1	30.8	35.0	112.1	2.2	131.2	48.8	36.3	3.5	3.3	0.1	4.5	1.1
2018	180.1	31.1	35.3	111.4	2.3	130.6	49.5	36.2	3.7	3.6	0.2	4.6	1.2
2019	197.8	34.2	38.9	122.2	2.5	142.7	55.1	41.3	3.9	3.8	0.2	4.8	1.2
2020	214.0	36.6	41.2	133.6	2.6	154.6	59.4	45.3	4.2	3.8	0.1	4.6	1.4
2020[2]	*213.2*	*36.5*	*41.1*	*133.0*	*2.6*	*153.8*	*59.4*	*45.2*	*4.2*	*3.8*	*0.1*	*4.6*	*1.4*
2021[2]	233.8	38.4	43.7	148.7	3.0	167.8	66.0	49.9	5.2	4.0	0.1	5.0	1.7
2022[2]	220.5	35.8	39.9	142.0	2.9	156.7	63.9	47.3	5.6	4.2	0.1	5.1	1.7
2023[2]	238.0	38.1	42.5	154.3	3.1	167.9	70.2	52.0	6.0	4.9	0.1	5.3	1.9

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. Source: Jurisdictions' 2024 submissions (national sectoral balance sheet and other data) and 2021 submission for Russia; FSB calculations.

Annex 4: Main development per major NBFI sub-sectors

	Size at end-2023 and growth/contraction year-on-year (yoy) for the *29-Group*
Insurance corporations	• $38.2 trillion • 6.5% yoy • 5.6% yoy for AEs • 12.1% yoy for EMEs • For the above three increases, each was the largest yoy increase since 2020
Pension funds	• $42.5 trillion • 6.6% yoy, largest increase since 2019 • 6.2% yoy for AEs, in line with the 2021 yoy increase • 15.3% yoy for EMEs, largest increase since 2012
MMFs	• $10.8 trillion • 17.9% yoy, largest increase since 2008 • 20.2% yoy for AEs, largest increase since 2008 • 7.9% for EMEs, marginally higher rate of increase than 2022
Hedge Funds	• $8.5 trillion • 21.9% yoy, largest increase since 2012 • 24.6% for AEs, largest increase since 2012 • 1.6% for EMEs
Real estate investment trusts and funds (REITs)	• $3.3 trillion • 1.5% yoy, marginally lower rate than 2022 • 0.7% yoy for AEs • 22.3% yoy for EMEs, largest increase since 2017
Other investment funds – i.e. excluding MMFs, hedge funds, and REITs – (OIFs)	• $62.6 trillion • 11.2% yoy, lower than the 2021 yoy increase • 11.5% for AEs • 7.9% for EMEs
Finance Companies	• $7.5 trillion • 7.4% yoy, slightly larger increase than 2022 • 7.8% for AEs • 5.4% for EMEs
Broker-dealers	• $12.8 trillion • 4.7% yoy, marginally smaller increase than 2022 • 4.1% for AEs

	Size at end-2023 and growth/contraction year-on-year (yoy) for the *29-Group*
	• 15.3% for EMEs
Structured finance vehicles	• $6.4 trillion • 2.9% yoy • 2.6% for AEs • 15.1% for EMEs
Trust companies	• $4.2 trillion • 11.1% yoy, largest increase since 2017 • 3.3% for AEs • 13.1% for EMEs
Captive financial institutions and money lenders (CFIML)	• $25.3 trillion • 3.5% yoy • 3.7% for AEs • 0.7% for EMEs
Central counterparties	• $0.7 trillion • -19.9% yoy, largest yearly decrease recorded • -20.4% for AEs, largest yearly decrease recorded • 4.8% for EMEs

Annex 5: Narrowing down and exclusion of NBFI entity types from the narrow measure of NBFI

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.[51] To accomplish this narrowing, the FSB classifies a subset of the NBFI entities into the five EFs shown in Table 0-1.[52]

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:[53]

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 $154.3 trillion at end-2023. OFIs not classified into any EF in the 2024 monitoring exercise include mainly captive financial institutions and money lenders ($22.9 trillion) and equity funds, including equity ETFs ($32.6 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),[54] including for maturity/liquidity transformation, leverage, and imperfect credit risk transfer, and are therefore excluded from the narrow measure.[55] 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.[56] The

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[51] This second step is based on the August 2013 FSB <u>Policy Framework</u>. The Experts Group periodically reviews the composition of the narrow measure in light of better data and analysis.

[52] 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.

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

[54] See Basel Committee on Banking Supervision, <u>Basel Framework</u>.

[55] 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.

[56] 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.
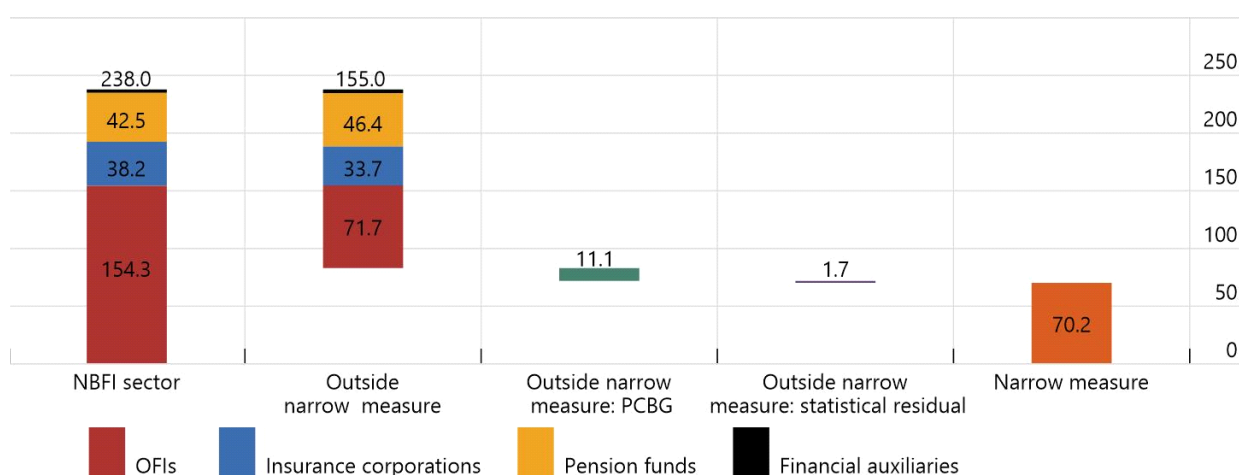
amount of prudentially consolidated assets, including self-securitisation, as of end-2023 was $11.1 trillion.

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 $1.7 trillion at end-2023 (0.7% 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.[57]

Narrowing down the NBFI sector

29-Group at end-2023, in USD trillion

Graph A5-1

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.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

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[57] Residuals were reported by Switzerland, Germany, Italy, and the Netherlands. The $1.7 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 $1.7 trillion may be added to the $70.1 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-2023, in USD trillion

Graph A5-2
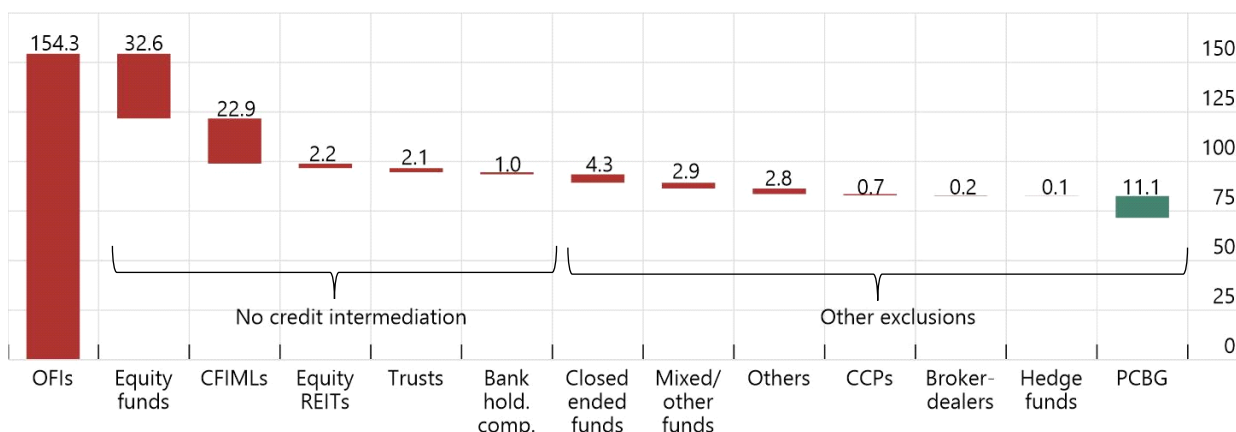
OFIs also includes CFIMLs; CFIMLs = captive financial institutions and money lenders; Equity REITs = real estate investment trusts and real estate funds; Bank hold. comp. = bank holding companies; Trusts = trust companies; CCPs = central counterparties; PCBG = prudentially consolidated into banking groups. Does not include data for Russia.

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

In addition to the five EFs, the narrow measure also includes $1.9 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.[58]

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 2024 monitoring exercise, authorities performed a classification assessment and a series of mutual reviews to arrive at the narrow measure and excluded $71.7 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.

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58 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 collective investment vehicles. 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.[59]

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[59] 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 6: Vulnerability metrics

Box A6-1: Vulnerability metrics

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

Examples of vulnerability metrics	Definition and range

Credit intermediation (CI)

$$CI1 = \frac{\text{credit assets}}{\text{total financial assets}}$$

$$CI2 = \frac{\text{loans}}{\text{total financial assets}}$$

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.

These metrics fall between 0 and 1, with higher values showing more involvement in credit intermediation, while "0" indicates no involvement in credit intermediation.

Maturity transformation (MT)

$$MT1 = \frac{\left(\begin{array}{c}\text{long-term assets} - \text{equity} \\ - \text{long-term liabilities}\end{array}\right)}{\text{total financial assets}}$$

$$MT2 = \frac{\text{short-term liabilities}}{\text{short-term assets}}$$

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.

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)

$$LT1 = \frac{\left(\begin{array}{c}\text{total financial assets} - \text{liquid assets (narrow)} \\ + \text{short-term liabilities}\end{array}\right)}{\text{total financial assets}}$$

$$LT2 = \frac{\left(\begin{array}{c}\text{total financial assets} - \text{liquid assets (broad)} \\ + \text{short-term liabilities}\end{array}\right)}{\text{total financial assets}}$$

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.

Leverage (L)

$$L1 = \frac{\text{total financial assets}}{\text{equity}}$$

$$L2 = \frac{\begin{array}{c}\text{total financial assets} \\ + \text{total off balance sheet exposures}\end{array}}{\text{equity}}$$

$$L3 = \frac{\text{gross notional exposure (GNE)}}{\textit{net asset value (NAV)}}$$

$$L4 = \frac{\text{total liabilities}}{\textit{equity}}$$

$$L5 = \frac{(\text{total financial assets} - \text{equity})}{\textit{total financial assets}}$$

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.
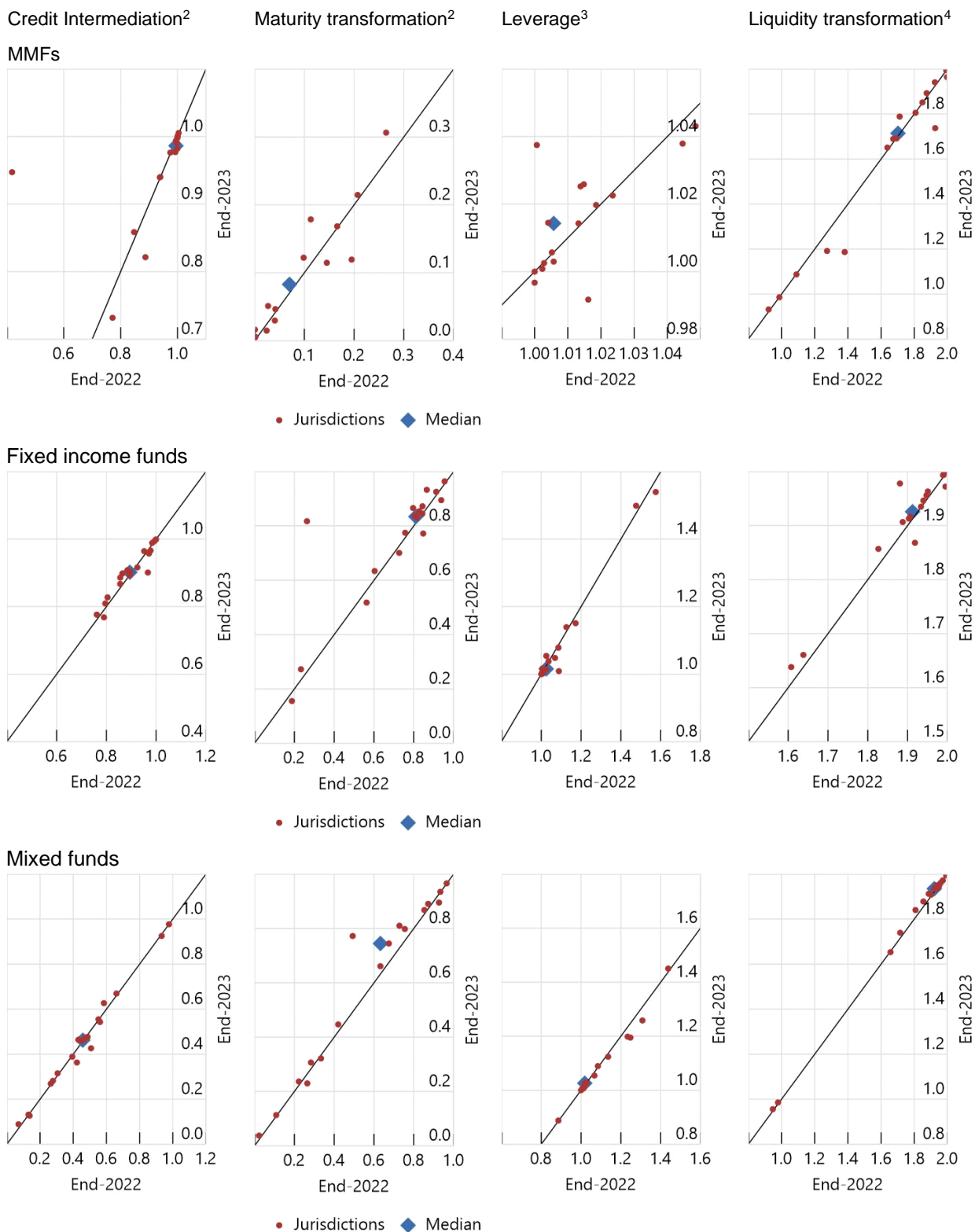
[*] For EF1 entities, the collected balance sheet data and calculated vulnerability metrics were expanded to also include assets under management (AUM) instead of total financial assets, Gross Notional Exposure and Net Asset Value (to calculate leverage ratios), and non-/redeemable equity (as a form 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 the Basel Committee on Banking Supervision (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 2022 and 2023 across jurisdictions[1]

End-2022 versus end-2021   **Graph A6-1**

Credit Intermediation[2]   Maturity transformation[2]   Leverage[3]   Liquidity transformation[4]

MMFs

• Jurisdictions   ◆ Median

Fixed income funds

• Jurisdictions   ◆ Median

Mixed funds

• Jurisdictions   ◆ Median

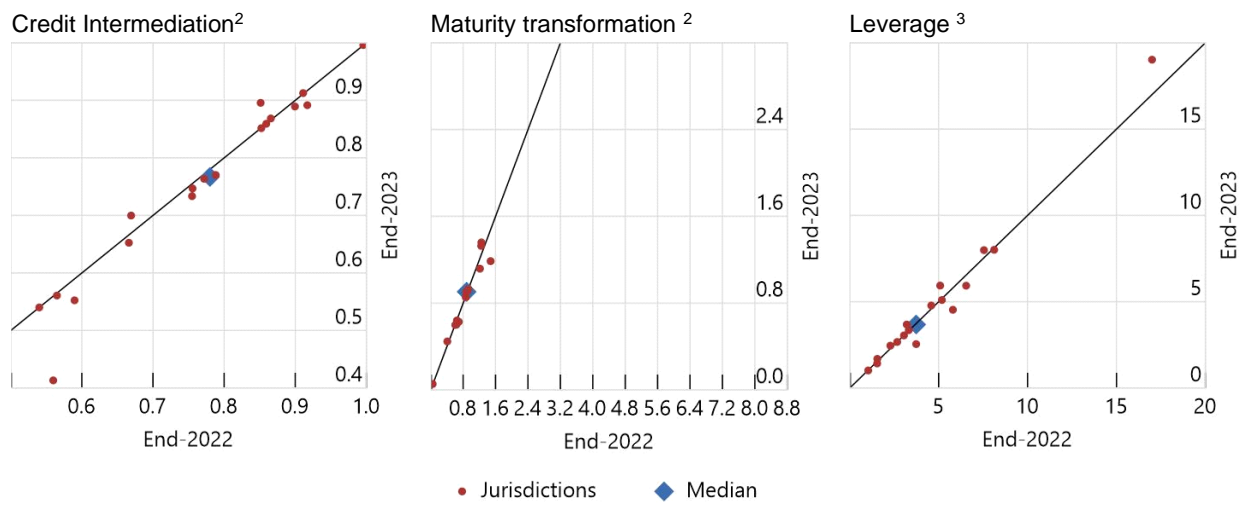[1] Does not include data for Russia.   [2] Credit assets / AUM (CI1).   [3] (Long-term assets – non-redeemable equity – long-term liabilities) / AUM (MT1).   [4] AUM / net asset value (leverage 1).   [5] AUM – liquid assets (narrow) + short-term liabilities + redeemable equity) / AUM (LT1).
Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

EF2: Focus on selected vulnerability metrics for finance companies in 2022 and 2023 across jurisdictions[1]

End-2023 versus end-2022 **Graph A6-2**

Credit Intermediation[2]

Maturity transformation [2]

Leverage [3]
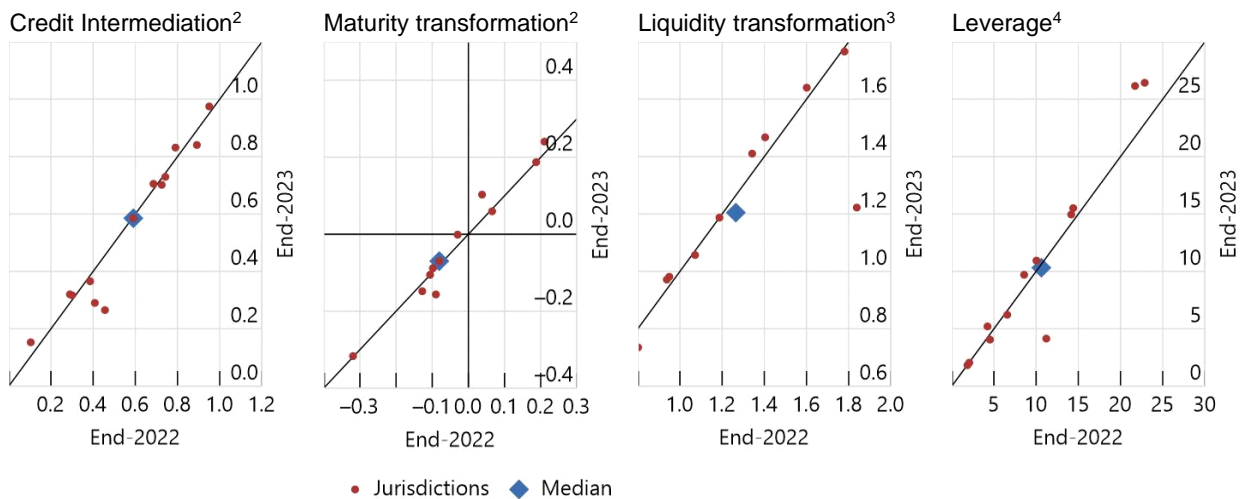

• Jurisdictions ◆ Median

[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).

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

EF3: Focus on selected vulnerability metrics for broker-dealers in 2022 and 2023 across jurisdictions[1]

End-2023 versus end-2022

Credit Intermediation[2] Maturity transformation[2] Liquidity transformation[3] Leverage[4]

● Jurisdictions ◆ Median

[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).

Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

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' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Finance companies' identified linkages with ultimate savers and borrowers

29-Group

USD million

Banks - savers: 1,219,170
ICs - savers: 348,043
PFs - savers: 184,175
OFIs - savers: 756,326
RoW - savers: 767,981
NFCs - savers: 648,901
Gov - savers: 59,813
HHs - savers: 70,814

FinCos: 4,225,730

Banks - borrowers: 474,249
ICs - borrowers: 24,112
PFs - borrowers: 661
OFIs - borrowers: 520,792
RoW - borrowers: 560,078
NFCs - borrowers: 1,276,009
HHs - borrowers: 1,361,629
Gov - borrowers: 8,195

Does not include data for Russia. The size of FinCos balance sheet was estimated by taking the maximum of savings and borrowings.
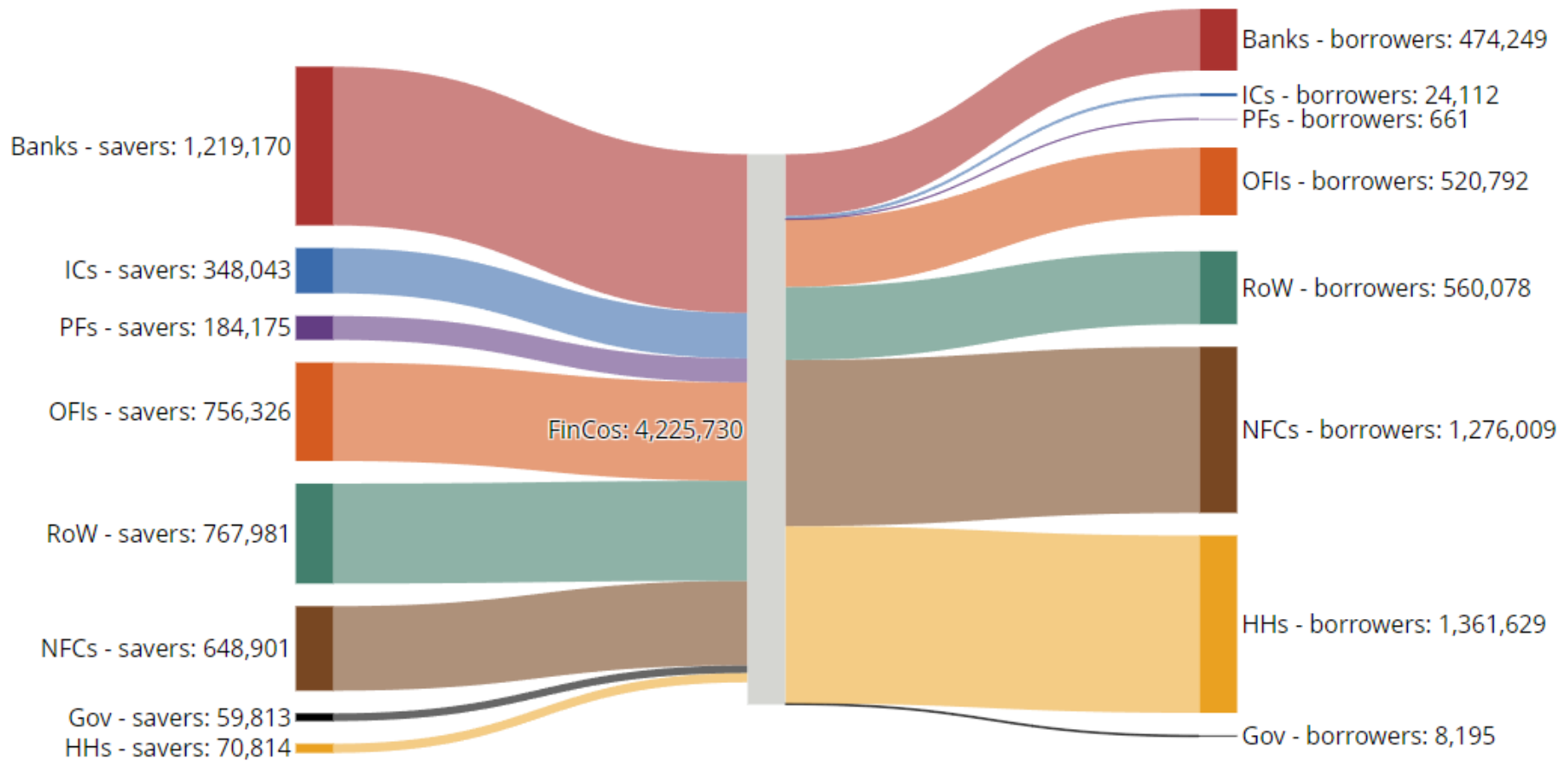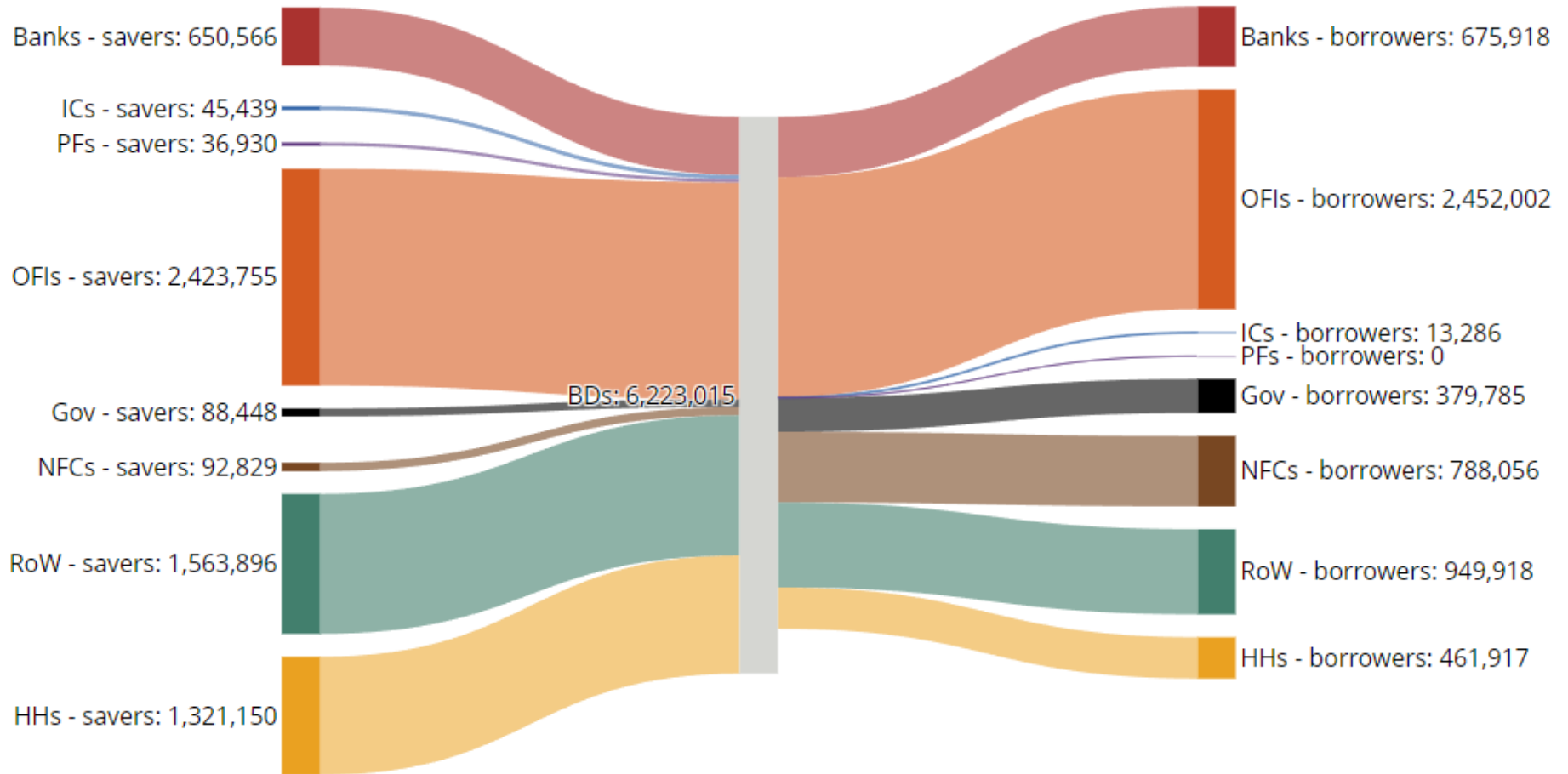
Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Broker-dealers' identified linkages with ultimate savers and borrowers

29-Group

USD million

Banks - savers: 650,566

ICs - savers: 45,439

PFs - savers: 36,930

OFIs - savers: 2,423,755

Gov - savers: 88,448

NFCs - savers: 92,829

RoW - savers: 1,563,896

HHs - savers: 1,321,150

BDs: 6,223,015

Banks - borrowers: 675,918

OFIs - borrowers: 2,452,002

ICs - borrowers: 13,286

PFs - borrowers: 0

Gov - borrowers: 379,785

NFCs - borrowers: 788,056

RoW - borrowers: 949,918

HHs - borrowers: 461,917

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.
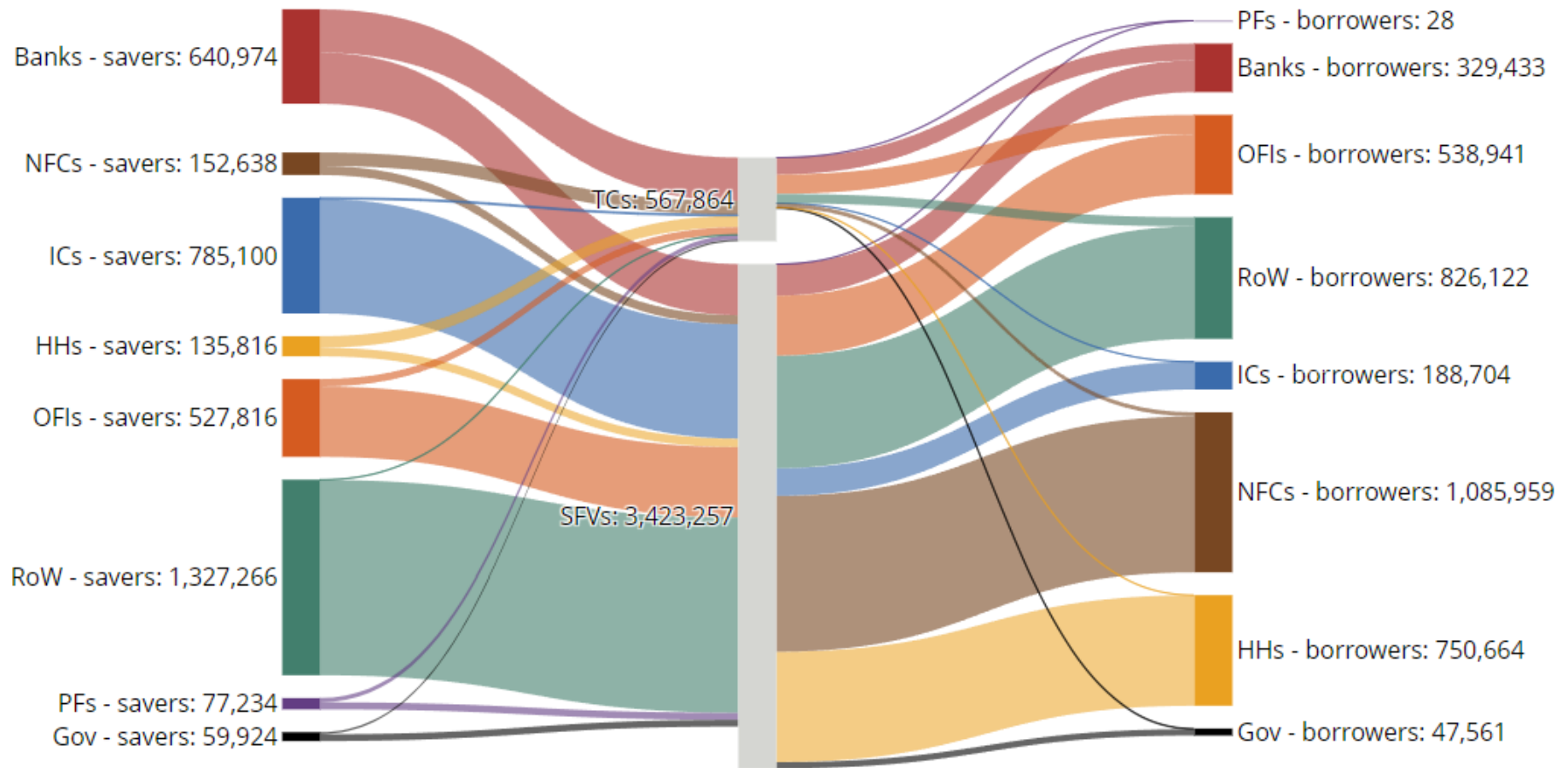
Source: Jurisdictions' 2024 submissions (national sector balance sheet and other data); FSB calculations.

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

29-Group

USD million

Banks - savers: 640,974
NFCs - savers: 152,638
ICs - savers: 785,100
HHs - savers: 135,816
OFIs - savers: 527,816
RoW - savers: 1,327,266
PFs - savers: 77,234
Gov - savers: 59,924

TCs: 567,864
SFVs: 3,423,257

PFs - borrowers: 28
Banks - borrowers: 329,433
OFIs - borrowers: 538,941
RoW - borrowers: 826,122
ICs - borrowers: 188,704
NFCs - borrowers: 1,085,959
HHs - borrowers: 750,664
Gov - borrowers: 47,561

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' 2024 submissions (national sector balance sheet and other data); FSB calculations.

Abbreviations

AEs	Advanced economies
AUM	Assets under management
BDs	Broker-dealers
CCPs	Central counterparties
CFIMLs	Captive financial institutions and money lenders
CIS	Collective investment scheme
CIV	Collective investment vehicle
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