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# Global Monitoring Report on Non-Bank Financial Intermediation

2021



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## Executive summary

**This report discusses global trends in the non-bank financial intermediation (NBFi) sector for the year ending 31 December 2020, the first year of the COVID-19 pandemic.** It presents the results of the 11th annual FSB monitoring exercise to assess trends and vulnerabilities in NBFi, covering 29 jurisdictions that account for approximately 80% of global GDP. The report covers NBFi developments in a period that includes both the COVID-19 shock and the extraordinary steps taken by official sector authorities to stabilise financial markets and support financing to the real economy.

**The report begins with a broad assessment of trends in financial intermediation before narrowing its focus to the subset of NBFi activities that may be more likely to give rise to vulnerabilities.** Section 1 describes trends across financial sectors and jurisdictions, drawing on sectoral balance sheet data. This section places developments in NBFi in the broader context of aggregate developments in financial intermediation. Section 2 uses more detailed balance sheet information to highlight interconnectedness among financial sectors. The report develops a “narrow measure” of NBFi in Section 3, focusing on those activities that may engender vulnerabilities through liquidity/maturity transformation or leverage. Non-bank financial entities are included in this narrow measure if they perform one of the five economic functions set out in the FSB monitoring approach (Graph 0-1, RHS). Classification into an economic function is performed on a conservative (or inclusive) basis, assuming that policy mitigants or risk management tools are not applied (i.e. on a “pre-mitigant” basis).

**In contrast to the trend over the past decade, the NBFi sector grew less than the banking sector in 2020.** While the financial assets of the NBFi sector — which includes all financial institutions that are not central banks, banks or public financial institutions (see Box 0-1) — rose in absolute terms, the sector’s share of total financial assets declined from 49.7% in 2019 to 48.3% in 2020. This decline reflects in part the COVID-19 shock and the significant monetary and fiscal policy responses to the shock, including a greater role played by the banking sector and public financial institutions in supplying credit to the real economy, and the expansion in central bank balance sheets to support credit and funding markets over this period. While the share of global NBFi sector assets held by emerging market economies (EMEs) has increased over time, it remains small relative to total NBFi financial assets, amounting to around 10.9%. Nevertheless, the relative importance of NBFi has increased at a faster pace in EMEs than in advanced economies (AEs) between 2013 and 2020.

**Banks’ balance sheet linkages with the NBFi sector decreased in 2020.** Banks continue to be net recipients of funding from NBFi entities, in aggregate and in most jurisdictions. As a percentage of bank assets, however, banks’ liabilities to the NBFi sector were lower in 2020 than in prior years.

**The assets of non-bank financial entities classified into the five economic functions set out in the FSB monitoring approach grew more slowly in 2020 than in 2019.** Globally, except for securitisation-based credit intermediation, all economic functions experienced growth in assets. Assets classified in economic function 1 — collective investment vehicles with features that make them susceptible to runs — grew more rapidly than assets classified in other economic

functions, primarily driven by growth in fixed income funds and money market funds (these grew by 7.4% and 16.7%, respectively). Most jurisdictions saw a growth in the narrow measure.

**Despite the substantial volatility in financial markets observed during the first half of 2020, balance sheet measures of vulnerability in NBFIs appear broadly stable year-to-year.**

Across most economic functions, median measures of credit intermediation, maturity and liquidity transformation, and leverage have not changed drastically when comparing 2020 to 2019. However, the 2020 Global Monitoring Report on NBFIs highlighted substantial changes in these measures for some types of intermediaries based on ad hoc analysis.<sup>1</sup> The rapid stabilisation in these measures during 2020 highlights the rapid response and impact of official sector intervention. However, the course of the pandemic and its impact on the real economy remain uncertain, and the longer-term implications for these measures may only be visible as the official sector unwinds its support.

**Data availability and quality continue to evolve, and there is scope for further improvements to better capture vulnerabilities in NBFIs.**

Jurisdictions that participate in the annual monitoring exercise continue to enhance the collection and quality of data, leading to improvements in NBFIs statistics reported in this exercise. Compared to past exercises, this year's monitoring exercise includes more granular information about money market funds (MMFs). This permits a better understanding of how trends and risk profiles differ across MMFs that primarily invest in short-term government securities, and those that invest in non-government or longer maturity securities. Nevertheless, there remain important data gaps in certain sectors. For example, while interconnectedness plays a key role in the amplification and transmission of shocks, detailed data on linkages between sectors is often difficult to source.

**The COVID-19 experience bears important lessons for the annual global monitoring exercise and for the design of the exercise going forward.**

As part of its work programme to enhance the resilience of the NBFIs sector, the FSB will consider developing more refined indicators of vulnerabilities in particular NBFIs segments or activities. The FSB has also highlighted the importance of enhancing its understanding and monitoring of interconnectedness in the financial system. These developments may shape future iterations of the annual monitoring exercise.

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<sup>1</sup> These changes were analysed by the FSB in targeted studies. See, e.g. FSB (2020c) Section 4.

### Box 0-1: Monitoring aggregates

The following monitoring aggregates are referenced throughout this report:

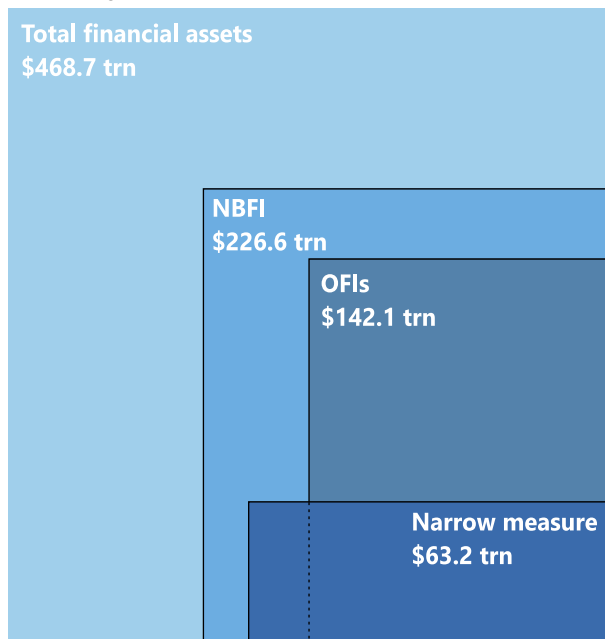
- (i) The **non-bank financial intermediation (NBFI)** sector is a broad measure of all non-bank financial entities, composed of all financial institutions that are not central banks, banks or public financial institutions.
- (ii) **OFIs (other financial intermediaries)** are a subset of the NBFI sector, composed of all financial institutions that are not central banks, banks, public financial institutions, insurance corporations, pension funds, or financial auxiliaries. OFIs include, for example, investment funds, captive financial institutions and money lenders (CFIMs), central counterparties (CCPs), broker-dealers, finance companies, trust companies and structured finance vehicles.
- (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.

### Size of monitoring aggregates and composition of the narrow measure

At end-2020

Graph 0-1

Narrowing down to the narrow measure<sup>1</sup>



Composition of the narrow measure<sup>2</sup>

Economic Functions	Size <sup>3</sup> (USD trillion)	Share (%)	Change in 2020 (%)
EF1 ( <i>collective investment vehicles with features that make them susceptible to runs</i> )	47.4	75.1	9.0
EF2 ( <i>lending dependent on short-term funding</i> )	4.3	6.7	4.2
EF3 ( <i>market intermediation dependent on short-term funding</i> )	4.9	7.8	3.7
EF4 ( <i>facilitation of credit intermediation</i> )	0.2	0.3	0.4
EF5 ( <i>securitisation-based credit intermediation</i> )	4.7	7.5	-4.0
Unallocated	1.7	2.6	20.2
<b>Total</b>	<b>63.2</b>	<b>100</b>	<b>7.4</b>

<sup>1</sup> Total financial assets, NBFI and OFIs are based on 21+EA Group; Narrow measure is based on the 29-Group. <sup>2</sup> For additional details on these categories, see Section 3. <sup>3</sup> Net of prudential consolidation into banking groups.

Source: Jurisdictions' 2020 submissions (national sector balance sheet and other data); FSB calculations.

## Introduction

The comprehensive monitoring of global trends, risks, and innovations of non-bank financial intermediation (NBFi) is a key part of the FSB's ongoing efforts to enhance financial system resilience.<sup>2</sup> The FSB's annual global monitoring exercise, which is currently based on data submitted by 29 jurisdictions as of end-2020, uses sectoral balance sheet data from national financial accounts statistics ("flow of funds"), complemented with supervisory and other publicly available data where appropriate.<sup>3</sup>

The monitoring exercise adopts a practical two-step approach.<sup>4</sup> The first step takes a comprehensive look at NBFi to ensure that data gathering and monitoring covers all NBFi areas where vulnerabilities might arise that amplify or transmit shocks to the financial system (see Section 1). As part of the comprehensive review of NBFi, this report provides an assessment of interconnectedness between different types of non-bank financial entities and banks, as well as cross-border linkages (see Section 2). The second step of the monitoring approach focuses on vulnerabilities associated with NBFi that resemble those in the banking system, or where there are indications of regulatory arbitrage that could undermine the goals of regulatory reforms enacted after the global financial crisis.<sup>5</sup> To arrive at this narrow measure of NBFi, the participating jurisdictions classify a subset of NBFi entities on the basis of their economic functions (EFs) (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).<sup>6</sup> To enhance consistency across jurisdictions, this classification into the narrow measure 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). 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 may have significantly reduced or addressed financial stability risks. As part of the forward-looking aspect of the monitoring exercise, jurisdictions also shared recent NBFi-related innovations in their jurisdictions (see Box 0-2).

### Box 0-2: Innovations in NBFi

As in previous monitoring exercises, jurisdictions were asked to report whether a certain set of five specific innovations were present in their jurisdiction and to report any additional innovations. **The most common innovation reported by 19 jurisdictions in the 2021 exercise was Peer-to-Peer (P2P) lending.** Although P2P lending remains comparatively small within NBFi, a number of jurisdictions

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

<sup>3</sup> 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.

<sup>4</sup> The practical 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).

<sup>5</sup> See FSB (2011).

<sup>6</sup> The focus on economic functions is based on an approach that was introduced in the FSB's high-level *Policy Framework for Strengthening Oversight and Regulation of Shadow Banking Entities* (the "FSB Policy Framework"), published in 2013. See FSB (2013).



reported that regulations are in place that are intended to mitigate financial risks. Cyber, operational and privacy risks, however, are generally not covered by such mitigating regulation yet. Jurisdictions also observed collateralised-loan obligations (CLOs)<sup>7</sup> (14 jurisdictions), crypto-asset based lending (9 jurisdictions), NBFi involvement in leveraged loan markets (8 jurisdictions), and crowd-funding mortgages (6 jurisdictions).

**Some jurisdictions noted concerns related to leveraged lending CLO markets.** One jurisdiction highlighted complexity in the assignment of credit ratings to CLOs. In leveraged loan markets, other than involvement of CLOs, jurisdictions reported some involvement of investment funds (e.g., bank loan funds), pension funds, and insurers. Open-ended investment funds that hold most of their assets in leveraged loans may engage in liquidity transformation when offering investors redemption terms that are shorter than the time it may take for the sale and settlement of those loans.<sup>8</sup>

**Crowd-funding mortgages and crypto-asset based lending are relatively small in size, but the rapidly evolving crypto-asset markets may give rise to fresh financial stability risks.** Where crowd-funding mortgages are present, jurisdictions reported participation of a few small firms. In the context of crypto-asset based lending,<sup>9</sup> two jurisdictions noted concerns surrounding decentralised finance (DeFi) related to regulatory perimeter, cyber security, and know-your-customer/anti-money laundering requirements.

**Additionally, some jurisdictions reported credit intermediation by financial technology companies.** Four jurisdictions reported fintech lending (consumer credit) that offer direct lending through e-commerce partnerships. Their activity is supported by new technology, such as machine-learning, allowing near-instant credit risk assessment and personalised offerings. The main risks observed in fintech lending are credit and operational risks due to reliance on new digital processes. One jurisdiction highlighted digital-only non-bank financial companies as an innovation in credit intermediation similar to traditional NBFi activity and noted similarities with the activities of finance companies

**So called “stablecoins” seek to serve as a stable store of value or a medium of exchange backed by a range of collateral assets, including CP, CDs, and other crypto assets.** In light of an increase in the use of existing stablecoin arrangements in the past year in speculative trading activities involving other crypto assets and DeFi structures, FSB work is ongoing to monitor FinTech developments and assess the regulatory and supervisory implications of stablecoins.<sup>10</sup>

**Each year, the FSB aims to improve the annual monitoring exercise by deepening its analysis and learning from the experiences of previous exercises.** For example, in the 2021 monitoring exercise, jurisdictions provided more granular time series data for money market funds on a best-efforts basis. These data permit detailed analysis of differences between funds that primarily invest in short-term government securities and funds that invest in non-government or longer maturity securities. The FSB regularly assesses the effectiveness of these improvements and makes adjustments as needed to further improve its understanding of NBFi and associated vulnerabilities.

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

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<sup>7</sup> See FSB (2019b).

<sup>8</sup> See FSB (2019b) and Wu, Wong, and Fong (2021). In some jurisdictions, potential risks from liquidity transformation are mitigated at the fund level because of certain structural features, including regulatory requirements for managing fund liquidity risk and limits on the use of leverage.

<sup>9</sup> See FSB (2018b).

<sup>10</sup> See FSB (2021b)

**of euro area (EA) jurisdictions (Table 0-1).** 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 more comprehensive in terms of jurisdictional coverage because it not only comprises 21 individual non-euro area jurisdictions, but also includes the 19-member euro area as a whole, as opposed to only eight euro area jurisdictions in the *29-Group*.<sup>11</sup> As in previous reports, the *21+EA-Group* 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 the remaining parts of Sections 1 and 2, and the whole of Section 3 due to better coverage of NBFi sub-sectors.<sup>12</sup>

**Table 0-1: 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)*	Turkey (TR)**	
Luxembourg (LU)*	Chile (CL)**	Mexico (MX)**	United Kingdom (UK)*	
Netherlands (NL)*	China (CN)**	Russia (RU)**	United States (US)*	
Spain (ES)*				

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

**Measures of growth and results throughout this report are based on either annual historical data covering end-2002 to end-2020 or cross-sectional data as of end-2020.** Some exchange rate effects have been corrected when presenting growth rates by applying a constant end-2020 exchange rate across all past years to convert each jurisdiction's local currency data into US 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.

## 1. Financial Intermediation in the global financial system

Section 1.1 provides an overview of the growth and size of the global financial system, with comparisons to the (NBFi) sector, which includes insurance corporations (ICs), pension funds (PFs), other financial intermediaries (OFIs) and financial auxiliaries. Section 1.2 focuses on trends and the main drivers of growth in the NBFi sector. Credit intermediation and wholesale funding trends of OFIs are analysed in Section 1.3.

<sup>11</sup> The European Central Bank (ECB) provided the euro area aggregated data. The euro area jurisdictions are Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain.

<sup>12</sup> Throughout the report, 29-Group and 21-Group+EA refer to the sample of jurisdictions used for analysis although for some analyses data for only a subset of jurisdictions are available.

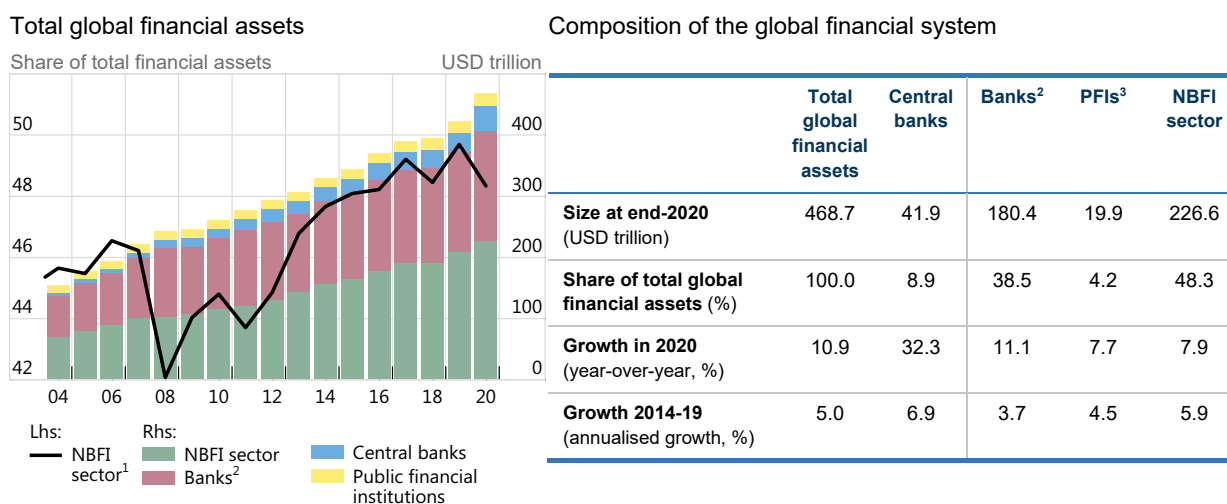
## 1.1. Global financial system assets exhibited strong growth, mainly driven by banks' and central banks' balance sheets

**Total global financial assets exhibited strong growth in 2020, increasing by 10.9% to \$468.7 trillion (Graph 1-1),<sup>13</sup> significantly faster than the global NBF sector, which experienced asset growth of 7.9%, reaching \$226.6 trillion (for the 21+EA Group).<sup>14</sup>** Accordingly, the NBF sector's relative share of total global financial assets decreased from 49.7% to 48.3% in 2020. This was the largest percentage point decrease since the 2008 financial crisis. In particular, asset growth in the NBF sector was lower than that of central banks (32.3%), and banks (11.1%). Growth of NBF sector assets in 2020 was above their 5-year annual growth from 2014-19 (5.9%); central bank, bank, and public financial institution (PFI) assets grew at their highest rates since the 2008 financial crisis. As discussed below, the growth in bank, central bank, and PFI assets, relative to NBF sector assets, may be partly attributable to the COVID-19 pandemic, when accommodative official sector responses supported the real economy, including through the banking system.

### NBF assets increased in absolute terms, but decreased as a share of total global financial assets

21+EA-Group

Graph 1-1



<sup>1</sup> NBF includes insurance corporations, pension funds, OFIs and financial auxiliaries. <sup>2</sup> All deposit-taking corporations. <sup>3</sup> Public financial institutions.

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

**Although the NBF sector accounts for 48.3% of total global financial assets, banks continue to be the largest entity type in 21 out of 29 jurisdictions, holding 38.5% of total global financial assets (Graph 1-2).** OFIs represent by far the largest component of NBF, representing 30.3% of total global financial assets in 2020, followed by pension funds (PFs) at 9.1%, and insurance corporations at 8.6%.

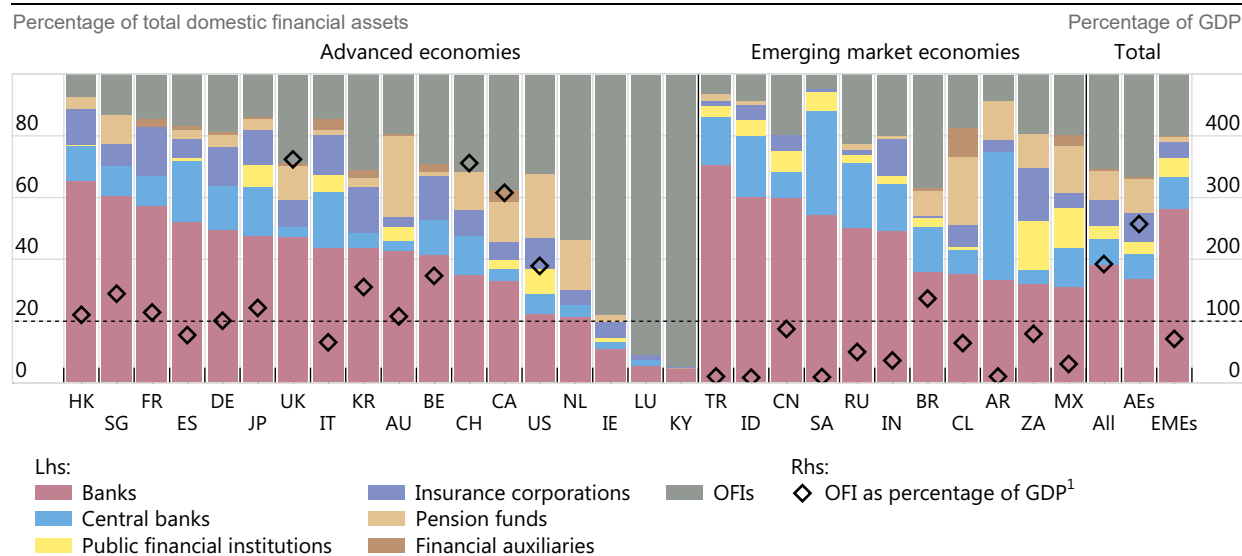
<sup>13</sup> Growth rates have been calculated based on historical data included in jurisdictions' 2021 data submissions.

<sup>14</sup> Of the 7.9% change in total NBF sector assets in 2020, 1.1 percentage points are the result of a regulatory change in the Cayman Islands during 2020 that required certain types of investment funds to register for the first time. See note 52 and Annex 3.

## In the majority of jurisdictions, banks remain the single largest sector of the financial system

29-Group at end-2020

Graph 1-2



<sup>1</sup> Jurisdictions with OFI assets greater (lower) than their GDP will be above (below) the horizontal dashed line. The ratio of OFI assets to GDP for the Cayman Islands (239,869), Luxembourg (21,501), Ireland (1,408) and the Netherlands (779) are not shown since they are particularly high compared to the rest of the jurisdictions.

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

**The reporting period for the 2021 Global Monitoring Report can be divided into two distinct periods due to the onset of the COVID-19 pandemic and its impact on financial markets.** Financial markets experienced significant stress and selling pressures in Q1 2020 due to declining asset prices and market liquidity, but the following quarters (Q2-Q4) saw calmer financial markets, partly because of official sector intervention.<sup>15</sup> Although the annual nature of the monitoring exercise makes it difficult to identify within-year changes, limited quarterly data submitted by 24 jurisdictions provides more detailed insights into intra-year changes.<sup>16</sup> For example, 19 out of these 24 jurisdictions experienced decreases in total AUM in Q1 2020 for money market, equity, fixed income and mixed funds. In contrast, total AUM grew in Q2 2020 in all 24 jurisdictions, 22 out of 24 jurisdictions experienced an increase in total AUM in Q3 2020, and 21 out of 24 jurisdictions experienced an increase in total AUM in Q4 2020.

**Bank balance sheets grew, both as a result of the COVID-19 shock and official sector responses.** The onset of financial market turmoil in March 2020 was characterized by a “flight to safety” where investors sold riskier assets and sought safer assets.<sup>17</sup> At the onset of the pandemic, large non-financial corporates tapped credit lines to cover funding shortfalls related to lockdowns and from a reduced supply of non-bank finance.<sup>18</sup> A subsequent “dash for cash” resulted in broad-based sales of financial assets. Further, authorities provided direct support to

<sup>15</sup> See FSB (2020b).

<sup>16</sup> Following the 2020 global monitoring exercise, certain jurisdictions contributed quarterly data up to and including Q1 2021 to attribute changes in MMFs', equity funds', fixed income funds' and mixed funds' assets under management (AUM) to flows and valuation effects. Participating jurisdictions include Argentina, Australia, Belgium, Brazil, Canada, Chile, China, France, Germany, Hong Kong, India, Indonesia, Ireland, Italy, Japan, Luxembourg, Mexico, Netherlands, Saudi Arabia, South Africa, Spain, Switzerland, Turkey, and the US submitted quarterly AUM data for at least one of these fund types. Nearly all of these jurisdictions submitted quarterly AUM data for all of these fund types.

<sup>17</sup> FSB (2020b)

<sup>18</sup> FSB (2020c)

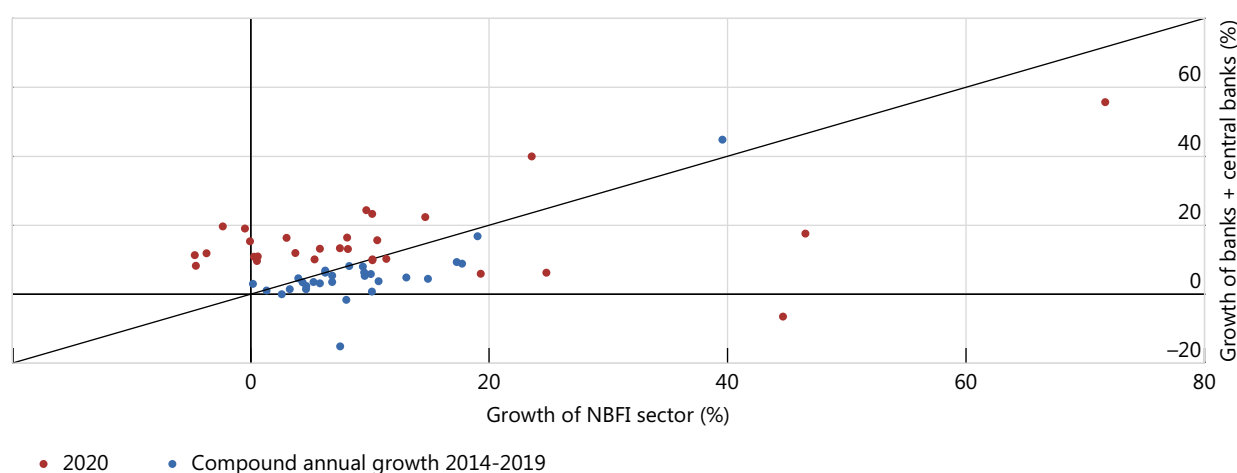
the private sector through measures that include direct fiscal stimulus and public guarantee schemes. The latter was intended to facilitate access to credit by encouraging bank lending.<sup>19</sup>

**Central bank balance sheets grew because of policy interventions such as asset purchase programs, although this differed across jurisdictions.<sup>20</sup>** The reallocation to safer and more liquid assets resulted in sales of more risky assets that tested markets' ability to supply liquidity. To support the flow of credit in strained markets, some jurisdictions' central banks established new liquidity facilities and expanded the assets they were willing to purchase.<sup>21</sup> Many of these measures produced a marked expansion in central bank balance sheets. Taken together, investor and official sector responses to the COVID-19 pandemic partly explain the higher growth of central bank and bank assets relative to NBFi sector assets (Graph 1-3).

### The cross-sectional relationship between NBFi sector asset growth and bank/central bank asset growth changed in 2020.

In per cent, 29-Group

Graph 1-3



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

## 1.2. Investment funds contributed the most to growth in NBFi sector assets in 2020.

**Similar to 2019, NBFi sector growth in 2020 was mainly driven by investment funds, insurance corporations, and pension funds, growth in investment fund assets was supported by a combination of flows and valuation effects (see Box 3-2).<sup>22</sup>** Growth in other investment fund assets was responsible for 38.2% of the overall change in NBFi sector assets, while insurance corporations and pension funds were collectively responsible for 27.1% of NBFi sector asset growth (Graph 1-4).

<sup>19</sup> *Ibid*, FSB (2020a) and FSB (2021a).

<sup>20</sup> Among jurisdictions in the 21 + EA Group central banks in Australia, Brazil, Canada, the euro area, India, Indonesia, Japan, South Africa, Korea, Turkey, the UK, and the US, were permitted to engage in, or engaged in asset purchases. See also FSB (2020a).

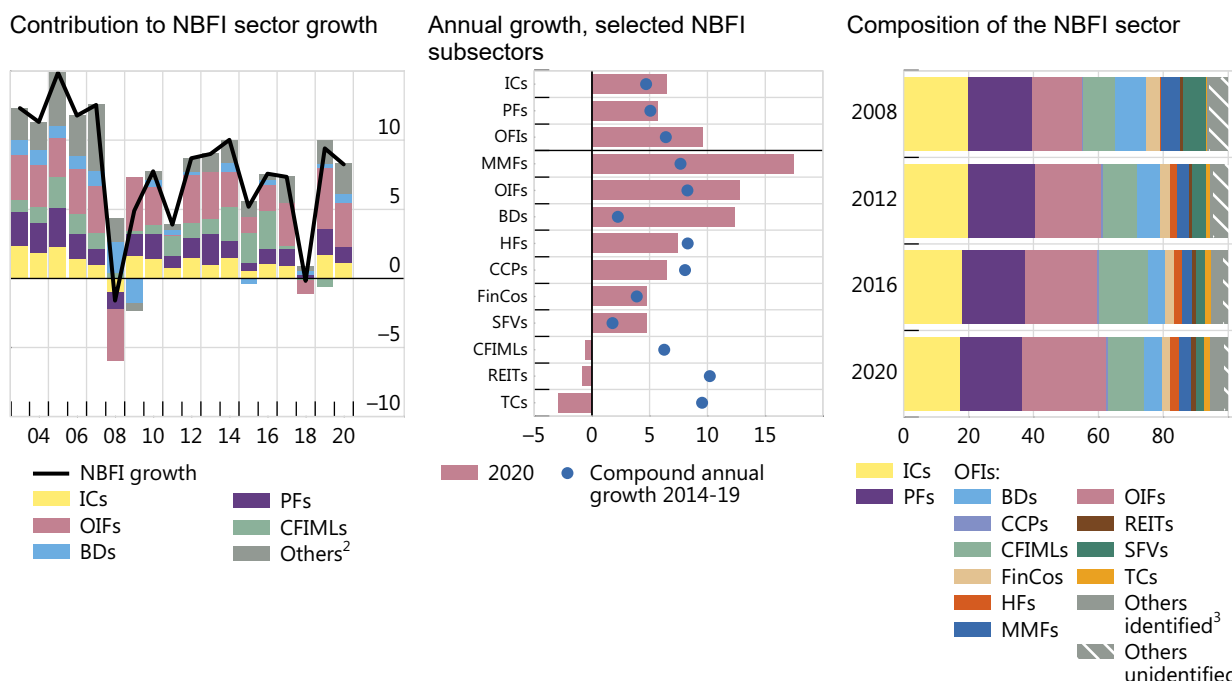
<sup>21</sup> FSB (2020b).

<sup>22</sup> Growth in investment funds' assets in 2020 also reflects a regulatory change in the Cayman Islands that imposed registration requirements on certain types of funds for the first time. See note 52 and Annex 3.

## Other investment funds<sup>1</sup> were the largest contributor to growth of NBFi assets in 2020

In per cent, 29-Group

Graph 1-4



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

<sup>1</sup> Investment funds other than hedge funds 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. <sup>2</sup> Others include MMFs, HF, SFVs, TCs, REITs and CCPs. <sup>3</sup> 'Others identified' comprise a variety of jurisdiction-specific entities that do not fit any of the explicit categories included in the monitoring exercise.

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

**In 2020, other financial intermediaries' (OFIs') assets increased in 21 out of 29 jurisdictions (Graph 1-5).** About half of these jurisdictions, representing 75% of global OFI assets, experienced slower OFI growth in 2020 than in 2019. The eight participating euro area jurisdictions still account for the largest share of OFI assets (29.5%), followed by the US (28.0%). EMEs experienced markedly higher OFI asset growth (13.1%) than AEs (9.0%) in 2020 although their share of global OFI assets remained largely the same as compared to 2019.

**Among OFIs, MMFs, broker-dealers (BDs), and other investment funds exhibited the largest growth.** (Graph 1-4, middle panel). The growth of MMFs largely reflected inflows, most of which occurred in the first half of 2020 (see Box 3-2), and higher global equity valuations buoyed other investment fund assets. Broker-dealer growth was driven by growth in loan assets and was higher in EMEs than in AEs. That said, the bulk of growth in total broker-dealer assets was attributable to assets that were prudentially consolidated into banking groups.

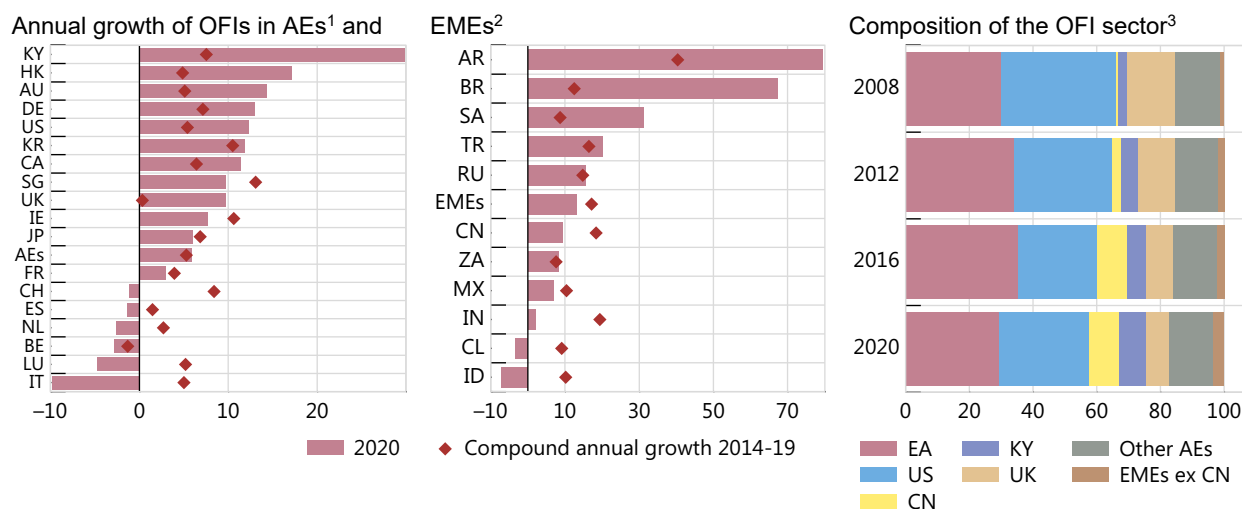
**After high rates of asset growth in 2019, insurance corporations (IC) and pension fund (PF) asset growth moderated in 2020 across most jurisdictions.** Only 7 jurisdictions out of 29, representing about 15% of global insurance corporation assets, experienced higher insurance corporation asset growth in 2020 compared to 2019, and only 7 jurisdictions out of 29, representing 6% of global pension fund assets, experienced higher pension fund asset growth in 2020 compared to 2019. On a global level, ICs' total assets grew by 6.4% in 2020 compared

to 9.6% in 2019, and PFs' asset growth slowed from 9.6% in 2019 to 5.7% in 2020. Despite this slower growth, the shares of both insurance corporations and pension funds remained stable.

## OFI assets increased in most jurisdictions in 2020

In per cent, 29-Group

Graph 1-5



<sup>1</sup> The growth rate for the Cayman Islands is not shown in its entirety. Although the change in the Cayman Islands' OFI assets from 2019 to 2020 was 43.5%, a substantial portion of this change reflects regulatory changes that imposed registration requirements on certain types of funds for the first time (see note 52). Excluding these additional investment funds, growth of OFI assets in the Cayman Islands would have been 11.8%. The decrease in Italy's OFI assets in 2020 was largely driven by a statistical residual of \$106.9 billion. <sup>2</sup> High growth in Brazil's OFI sector reflects inclusion of funds of funds in 2020 data; growth rates in Argentina reflect a high rate of inflation. <sup>3</sup> OFI assets by jurisdiction, 21+EA group.

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

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

	Size, share of global NBF assets, change in 2020	Trends in 2020
<b>Insurance corporations (ICs)</b>	<p><b>\$39.2 trillion</b></p> <p><b>17.3% share of NBF assets</b></p> <p><b>6.4% growth</b></p>	<p>Growth in the financial assets of insurance corporations slowed somewhat in 2020. IC assets grew in 26 of the 29 reporting jurisdictions, and a rebound in AEs contributed to most of the overall growth.</p> <p>Global IC assets are held mainly in the US (31.2%), the eight participating euro area jurisdictions (25.1%), and Japan (12.9%) while EMEs hold 12.1%.</p>
<b>Pension funds (PFs)</b>	<p><b>\$42.4 trillion</b></p> <p><b>18.7% share of NBF assets</b></p> <p><b>5.7% growth</b></p>	<p>The growth rate of pension funds' assets slowed in 2020 (5.7%), after experiencing strong growth in 2019 (9.6%). 23 out of 28 reporting jurisdictions<sup>23</sup> showed increases in pension funds' assets during 2020.</p> <p>AE pension funds still hold more than 96.6% of global pension fund assets but pension fund assets continue to grow rapidly in EMEs, particularly in Turkey (33.5%), India (31.2%) and China (26.6%), which have experienced double-digit pension fund asset growth in each of the last three years.</p>

<sup>23</sup> Saudi Arabia does not report data for pension funds.

	Size, share of global NBF assets, change in 2020	Trends in 2020
Money market funds (MMFs)	<p><b>\$8.5 trillion</b></p> <p><b>3.8% share of NBF assets and 6.0% of OFI assets</b></p> <p><b>17.4% growth</b></p>	<p>MMFs' assets grew in the majority of jurisdictions (23 out of 29). In the US, MMF assets grew by 19.0% in 2020, contributing 61.0% of the total increase in global MMF assets. MMF assets in the eight participating euro area jurisdictions grew by 14.7%, contributing 17.9% of the total increase in global MMF assets. MMFs are discussed in Section 3.3.</p>
Investment funds (other than MMFs and hedge funds)	<p><b>\$58.1 trillion</b></p> <p><b>25.7% share of NBF assets and 41.0% of OFI assets</b></p> <p><b>12.8% growth</b></p>	<p>Investment funds grew by 12.8% in 2020, with fixed income funds, equity funds, and other funds growing by 11.2%, 13.8% and 12.2%, respectively. Equity funds experienced outflows but benefitted from rising equity prices, while fixed income fund assets increased due both to inflows and valuation effects.</p> <p>The US and the eight participating euro area jurisdictions continued to account for a substantial majority of investment fund assets, representing 43.5% and 27.2% of global investment fund assets, respectively.</p>
Real estate investment trusts and real estate funds (REITs)	<p><b>\$2.9 trillion</b></p> <p><b>1.3% share of NBF assets and 2.1% of OFI assets</b></p> <p><b>0.8% decline</b></p>	<p>Equity REIT assets, which are 51.1% of total REITs, grew by 2.8% in 2020, driven mainly by growth in Korea (17.7%) and the US (14.9%). Mortgage REITs, which comprise 24.5% of total REITs, shrank by 17.4%, driven by a large contraction in the US (25.5%).</p>
Hedge funds	<p><b>\$6.3 trillion</b></p> <p><b>2.8% share of NBF assets and 4.4% of OFI assets</b></p> <p><b>7.5% growth</b></p>	<p>Hedge fund assets continued to grow, though more slowly than in 2019 (15.7%). Out of 15 jurisdictions that reported hedge fund assets in 2020, 7 jurisdictions (representing 93.6% of total reported hedge fund assets) observed growth. Turkey reported the largest growth in hedge fund assets (64.5%).</p>
Finance companies	<p><b>\$5.6 trillion</b></p> <p><b>2.5% share of NBF assets and 4.0% of OFI assets</b></p> <p><b>4.8% growth</b></p>	<p>In 2020, growth in finance companies' assets slowed in 15 out of 25 reporting jurisdictions. Finance company assets grew by 4.9% in AEs, and 4.3% in EMEs. Germany, the US, and Japan were the largest contributors to the growth in finance company assets; asset growth in these three jurisdictions represented 71.6% of total finance company asset growth in 2020. Finance companies' trends and risks are discussed in more detail in Section 3.4.</p>
Broker-dealers (BDs) <sup>24</sup>	<p><b>\$12.1 trillion</b></p> <p><b>5.4% share of NBF assets and 8.6% of OFI assets</b></p> <p><b>12.4% growth</b></p>	<p>Broker-dealers' assets increased in 22 of the 28 jurisdictions that reported these data. AEs and EMEs contributed to overall growth. Growth in UK BD assets represented 40.8% of the overall increase in BD assets, due in part to changes in the market value of derivatives positions. BDs assets in Germany (178.6%) and the</p>

<sup>24</sup> This category includes not only broker-dealers, but also other entities with similar structures, such as securities dealers and money market dealers.



	Size, share of global NBF assets, change in 2020	Trends in 2020
		Netherlands (43.9%) continued to grow in 2020 as some BDs continued to move to the euro area following the UK's withdrawal from the EU. Although these growth rates are high, the total value of BD assets in Germany and the Netherlands combined represents less than one percent of total BD assets. Broker-dealers' trends and risks are discussed in more detail in Section 3.5.
Structured finance vehicles (SFVs)	<b>\$5.7 trillion</b> <b>2.5% share of NBF assets and 4.0% of OFI assets</b> <b>4.7% growth</b>	SFV assets continued an upward trend that began in 2017. Out of 25 reporting jurisdictions, 15 reported an increase in SFV assets in 2020. The increase in 2020 was mostly driven by AEs, where SFV asset growth offset reductions in SFV assets in EMEs. SFVs' trends and risks are discussed in more detail in Section 3.7.
Trust companies	<b>\$3.9 trillion</b> <b>1.7% share of NBF assets and 2.8% of OFI assets</b> <b>2.8% decline</b>	The decline in trust companies' assets was mainly driven by a decline in China (5.2%), which offset growth in the other reporting jurisdictions.  China accounted for 80.2% of global trust company assets in 2020. However, this share has been declining since 2018 because of a policy that was issued by China's banking regulator in November 2017 to regulate banks and trust companies. <sup>25</sup> Section 3.7 provides more detail on trust companies.
Captive financial institutions and money lenders (CFIMLs)	<b>\$25.2 trillion</b> <b>11.1% share of NBF assets and 17.8% of OFI assets</b> <b>0.6% decline</b>	The slight decline in CFIML assets reflects reductions in assets in Luxembourg and the Netherlands, which together comprise 60.1% of reported CFIML assets.  However, CFIML assets grew in seven of the 15 reporting jurisdictions.
Central counterparties (CCPs)	<b>\$0.7 trillion</b> <b>0.3% share of NBF assets and 0.5% of OFI assets</b> <b>6.5% growth.</b>	Nearly all reporting jurisdictions reported an increase in CCP assets. CCP assets are concentrated in the UK and US. These two jurisdictions account for 87.6% of CCP assets.

<sup>25</sup> The policy issued by Chinese authorities in 2017 requires that trust companies in China do not provide financial institutions with a conduit service for the purpose of avoiding regulations, such as investment or leverage constraints. This policy was followed by a series of guidelines for regulating the asset management businesses of financial institutions that were released jointly by the Chinese authorities in April 2018.

### 1.3. Credit Intermediation by the NBFIs sector increased more slowly than credit intermediation by the banking sector

#### 1.3.1. Credit and loan assets

The credit activities of NBFIs entities are of particular importance to financial stability because maturity/liquidity transformation, leverage and imperfect credit transfer can give rise to vulnerabilities that may amplify or transmit shocks. Moreover, in jurisdictions where the NBFIs sector plays a more significant role in credit intermediation, NBFIs entities that are not sufficiently resilient to shocks could slow the flow of credit to the wider economy, especially during downturns. Credit assets of financial intermediaries include loans,<sup>26</sup> debt securities,<sup>27</sup> and cash on deposit, or “deposit assets”. A discussion of the deposit assets of financial intermediaries is included in Section 2.

**Credit assets held by banks (including deposits) increased at a faster pace than credit assets held by insurance corporations, pension funds and OFIs in 2020. Credit assets held by banks account for 63.1% of total credit assets in the financial system** (Graph 1-6, LHS). In 2020, banks’ credit assets grew by 10.5% whereas banks’ loan assets increased by 7.7%. Banks continue to hold the largest share of credit assets in the financial system and remain the single largest source of loans, accounting for 84.1% of global loan assets at end-2020. For insurance corporations, credit asset growth has slowed from 10.2% in 2019 to 6.4% in 2020. Compared to the 5-year annual growth rate from 2014-19 (4.3%), credit asset growth for insurance corporations continues to be high. For pension funds, credit assets continued to grow (7.9%) but at a lower rate compared to 2019 (9.7%) (Table 1-2).

**Table 1-2: Credit asset composition and growth in 2020, 21+EA-Group**

	Total	Banks	Insurance corporations	Pension funds	OFIs
<b>Credit assets (including deposits)</b> (USD trillion at end-2020)	232.8	146.8	21.3	10.7	53.9
Growth (% in 2020)	8.6	10.5	6.4	7.9	4.6
<b>Credit assets (excluding deposits)</b> (USD trillion at end-2020)	209.9	130.1	20.2	10.0	49.7
Growth (% in 2020)	7.9	9.5	6.1	8.2	4.4
<b>Loan assets</b> (USD trillion at end-2020)	114.4	96.2	2.6	0.3	15.3
Growth (% in 2020)	6.4	7.7	4.3	11.1	-1.1

**Drivers of credit growth differ across financial institutions based on their business models.** OFIs’ credit assets have increased significantly since 2008 (\$31.2 trillion) and

<sup>26</sup> These are also referred to as loan assets, which include overdrafts, instalment loans, hire-purchase credits, and loans to finance trade credit.

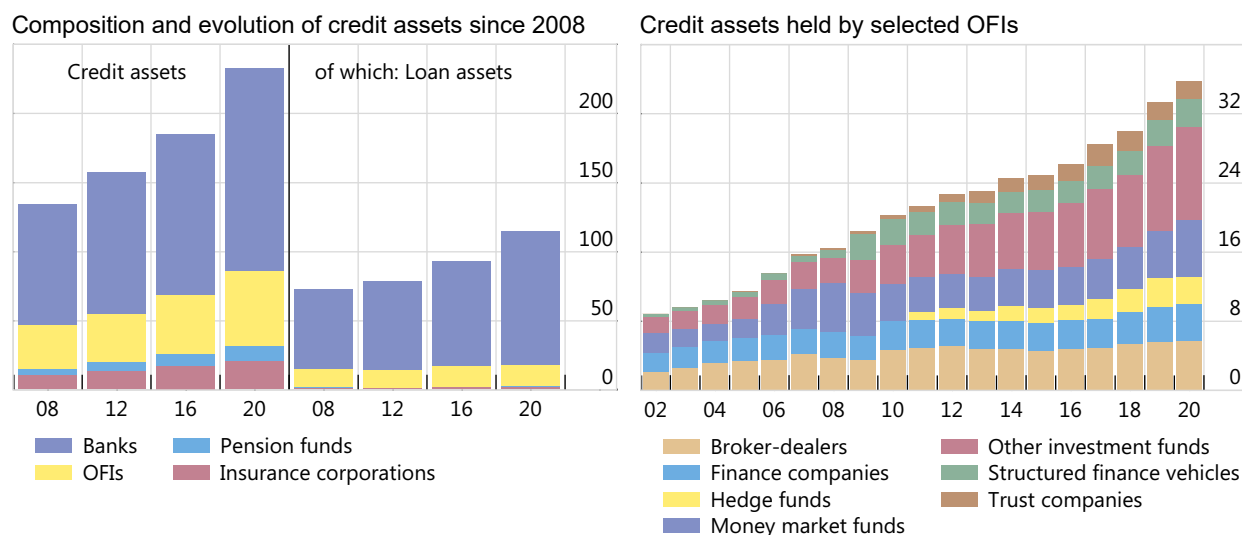
<sup>27</sup> Examples of debt securities include bills, bonds, commercial paper.

amounted to \$53.9 trillion in 2020 (Table 1-2). In contrast to banks, this increase is mostly related to growth in credit assets other than deposits and loans. Bank business models involve extending loans to borrowers, whereas OFIs, in aggregate, are less involved in direct provision of credit through lending.

### OFIs' share of credit assets continued to increase in 2020 although growth was lower compared to 2019

In USD trillions, 21+EA-Group

Graph 1-6



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

**Among OFIs, other investment funds continued to hold the largest share of credit assets (20.1%) (Graph 1-6).** Credit assets of OFIs increased in most jurisdictions. Among OFIs, credit assets held by MMFs increased at the highest rate (17.1%), mainly driven by the United States, where MMF credit assets grew by 19.4% and the euro area, where MMF credit assets grew by 14.7%. Credit assets held by other investment funds (using the 29-Group sample) increased by 6.7%, driven by the United States (10.7%), Germany (6.1%), and Japan (8.9%).

#### 1.3.2. Wholesale funding and repos

Wholesale funding instruments, which include repurchase agreements (repos), are important funding sources for financial intermediaries, notably for banks. As a means of funding inventory, these instruments support price discovery and secondary market liquidity for a wide variety of securities. They can also be used by non-bank financial entities to create short-term money-like liabilities, facilitating credit growth, and maturity/liquidity transformation outside the banking system. Wholesale funding increases interconnectedness among financial institutions. Although increasing interconnectedness may support efficient risk sharing in the financial system, in periods of stress it may also contribute to pro-cyclicality.

The repo market is a major channel for circulating cash and collateral through the financial system. Repo market activity may pose financial stability risks by facilitating the build-up of leverage and maturity transformation. Owing to the secured nature of each transaction combined with comparatively short maturities, the repo market has generally remained functional during stress, e.g., in 2008 and 2020. Notably, however, repo markets experienced their own dislocation

in September 2019, indicating potential vulnerabilities in these markets.<sup>28</sup>

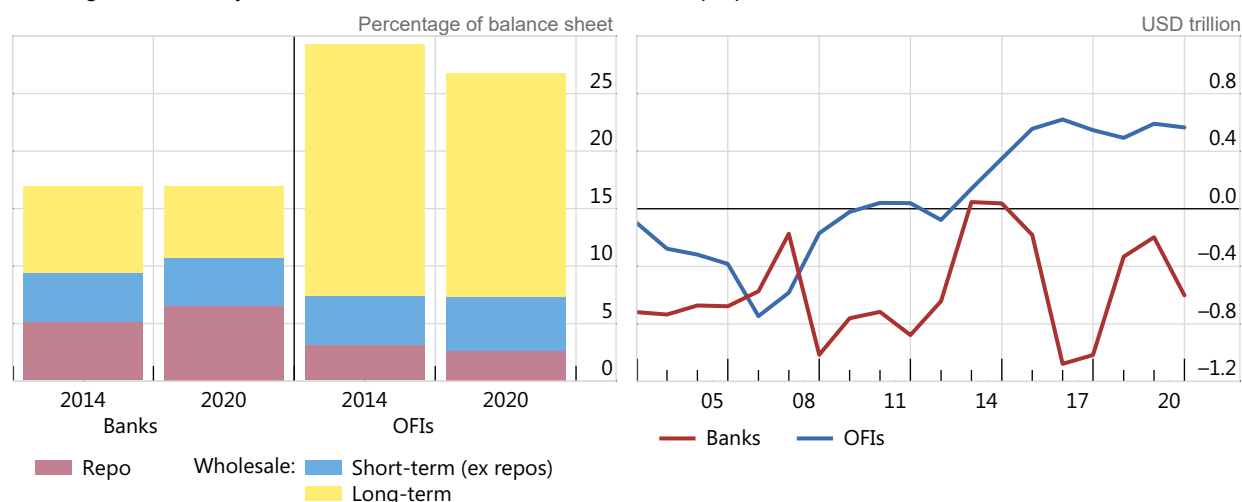
## OFIs' net level of repo assets declined in 2020 but they remained net suppliers of cash

29-Group

Graph 1-7

Funding of entities, by source<sup>1</sup>

Net repo position<sup>2</sup>



<sup>1</sup> Short-term funding is defined as wholesale funding whose residual maturity is less than 12 months. <sup>2</sup> 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.

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

**OFIs continue to be net providers of cash in the repo market, although their net level of repo assets declined by 4.5% in 2020 (Graph 1-7, RHS). OFI repo assets decreased by 2.6% and repo liabilities decreased by 2.3%.** This trend was mainly driven by the United States. By contrast, bank use of repos increased. The largest contributors to growth in bank repo assets (9.0%) were the United States, France, and the United Kingdom, while the largest contributors to growth in bank repo liabilities (14.2%) were France, the United Kingdom, and Canada. As such, Banks remain net recipients of cash in repo transactions.

**OFIs' reliance on wholesale funding and repo funding has decreased in 2020 compared to 2014 (Graph 1-7 LHS).** OFIs rely slightly more on long-term wholesale funding (19.4% of total OFI assets) than short-term wholesale funding (4.8% of total OFI assets, excluding repos). The proportion of long-term to total wholesale funding varies across jurisdictions.

**Amongst the 18 jurisdictions that report OFI repo activity, MMFs, trust companies, and SFVs tend to be cash providers through reverse repo transactions, while hedge funds, other investment funds, broker-dealers, and finance companies are net recipients of cash.** Whereas MMFs, SFVs, finance companies, broker-dealers, and other investment funds expanded their net repo positions, hedge funds and trust companies' net repo positions decreased in 2020.

<sup>28</sup> Avalos, Ehlers and Eren (BIS, 2019) discuss the potential structural nature of the September 2019 repo-market dislocation whereas Anbil, Anderson and Seyuz (FEDS, 2021) investigate the repo market fragility that might have been revealed during this time.

## 2. Direct Interconnectedness among financial sectors

Financial interconnectedness is a feature of an open and integrated global financial system. It may help share risk across financial sectors but may also serve as a channel for risk transmission,<sup>29</sup> particularly when entities along intermediation chains employ a high degree of leverage or engage in maturity/liquidity transformation. Therefore, measures of interconnectedness among banks, OFIs, and other non-bank financial entities can serve as important indicators of potential contagion, within and across borders.

This section focuses on direct domestic balance sheet interconnectedness between banks and OFIs, insurance corporations and pension funds, as well as OFI cross-border linkages.<sup>30</sup> To measure direct interconnectedness, the FSB compiles aggregated balance sheet data to identify balance sheet exposures between financial sectors that arise from credit provision and/or investment to/in a counterparty (e.g., assets and liabilities of banks to OFIs and of OFIs to banks).<sup>31</sup> These aggregated data are used to calculate high-level measures of interconnectedness (including exposures and funding dependence) between sectors.

### 2.1. While large data gaps remain, OFIs have the largest cross border linkages across sectors

**Data gaps make it difficult to fully assess the extent of direct interconnectedness.** Although the data-coverage of linkages reported by jurisdictions improved, there was no clear improvement in time series data reporting.<sup>32</sup> In addition, as in past exercises, the collection of data by type of exposure and the collection of disaggregated data on cross-border linkages lies outside the scope of the 2021 monitoring exercise. As a result, the nature of exposure and the set of cross-border entities with which these links exist is not known.

The aggregate domestic linkages among banks, insurance corporations, pension funds and OFIs are shown in Graph 2-1 as a percentage of total liabilities and claims, together with their linkages to domestic households, government and non-financial corporates. Cross-border linkages are represented by linkages to the rest of the world (RoW). The unspecified category represents additional links that were either not reported or are beyond the data coverage of the monitoring exercise. Based on available data, the relative importance of linkages varies across sectors, according to different business models.

**Compared to last year's exercise, the proportion of bilateral linkages with both parties specified has decreased, except for linkages involving banks (Graph 2-1, RHS).** In 2020, a

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<sup>29</sup> For example, if one or more large OFIs (particularly those with a high degree of leverage or significant maturity/liquidity transformation) are significant borrowers from one or more banks, material credit deterioration of those OFIs could precipitate broader contagion to a large bank or across multiple banks, which may spread to the entire banking system or other financial intermediary.

<sup>30</sup> Direct borrowing/lending and investment exposures between two counterparties are examples of direct interconnectedness.

<sup>31</sup> The FSB adjusts for assets and liabilities of OFIs that are prudentially consolidated into banking groups whenever jurisdictions provide sufficient granularity in their data submissions. Most jurisdictions have followed their respective accounting rules and brought the full amount of an entity's assets back onto the bank's balance sheet, even in the case of partial ownership.

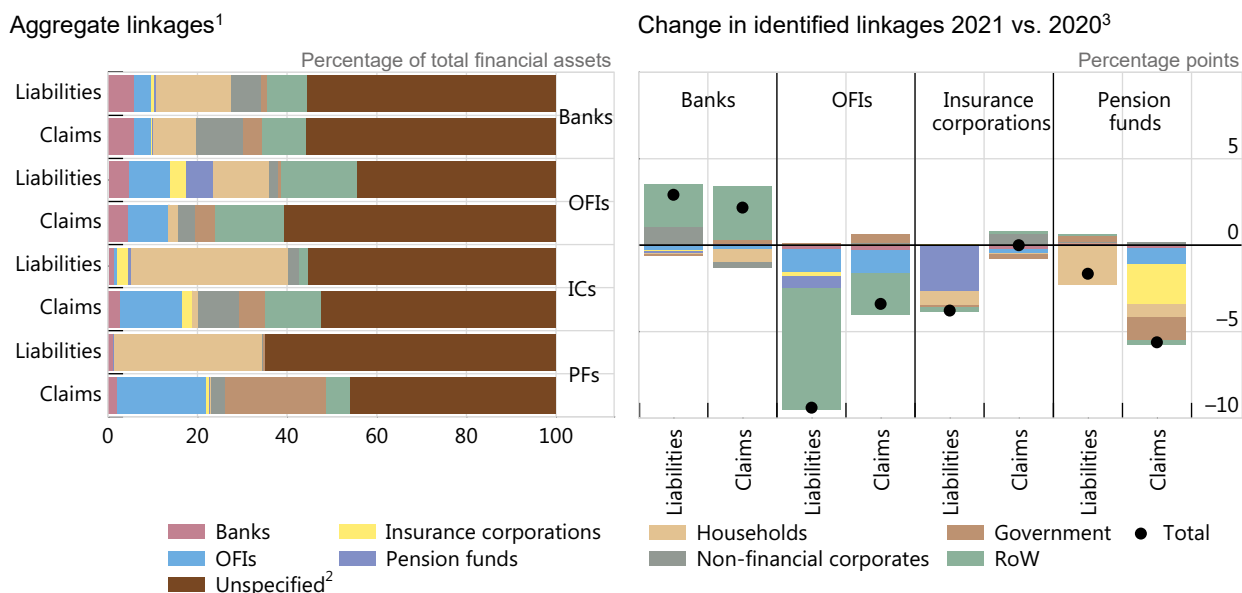
<sup>32</sup> Responding jurisdictions have made efforts to improve the collection of data regarding linkages, however, sufficiently granular data are often difficult to obtain.

smaller proportion of OFIs', insurance corporations', and pension funds' claims on and liabilities to other sectors can be identified. This could, in part, reflect lower reporting quality, but may also be attributable to an actual reduction in linkages between these NBFIs entities and the sectors for which the exercise requests data.

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

29-Group

Graph 2-1



<sup>1</sup> The total reported linkages of all participating jurisdictions as a percentage of total liabilities and claims 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. Includes data from 28 jurisdictions. The absolute size of the 'unspecified' share of liabilities and claims are \$94tn and \$94tn for banks, \$63tn and \$86tn for OFIs, \$22tn and \$21tn for insurance corporations, and \$28tn and \$19tn for pension funds, respectively. <sup>2</sup> Unspecified indicates linkages to other sectors not identified by jurisdiction or not covered in this report. <sup>3</sup> A decrease in identified linkages (negative total change) in the 2021 monitoring exercise vs. the 2020 exercise indicates a relative increase in unspecified linkages for claims or liabilities in the respective sector.

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

**Excluding the unspecified linkages, OFIs have the largest cross-border linkages across sectors, when measured as a percentage of both total claims and liabilities.** OFIs' largest funding source is cross-border funding (30.7%), followed by households (22.7%), other OFIs (16.2%), and pension funds (10.7%). Banks have substantial connections with households, non-financial corporations and the RoW on both asset and liability sides, while households are the main source of funding to banks. The largest portion of insurance companies' and pension funds' liabilities are to households, while these two entity types also have large claims on OFIs. That said, pension funds are most exposed to the government sector. Overall, banks' linkages with OFIs remain larger than linkages with ICs and PFs combined (Graph 2-1, LHS). The size and the entities that compose the links varied significantly across jurisdictions.

**Available data suggests financial sector entities are interconnected with funding channels both through claims and liabilities, although the linkages vary in aggregate value.** OFIs sourced more funding from insurance companies and pension funds than they provided to ICs and PFs (Graph 2-1, LHS). Banks' funding from OFIs balanced with OFIs' funding from banks (\$6.3 trillion and \$6.5 trillion, respectively).

## 2.2. Interconnectedness between banks and the NBFIs sector decreased slightly in 2020

**Banks and NBFIs 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.<sup>33</sup>

**Banks' linkages with the OFIs decreased in 2020, as well as their use of funding from insurance corporations and pension funds.** Measured as a percentage of bank assets, banks' use of funding from OFIs and banks' exposures to OFIs both decreased in 2020 after remaining relatively stable over the preceding 4 years (Graph 2-2, LHS). Similarly, banks' use of funding from ICs and PFs decreased relative to global banks' assets in 2020, continuing its downward trend since 2013. In contrast, banks' exposures to ICs and PFs remained very low as a proportion of assets. Overall, banks appear to have shifted increasingly to sources of funding outside of the NBFIs sector, though banks continue to be net recipients of funding from NBFIs entities.

Banks' use of funding from OFIs continued to exceed the use of funding from ICs and PFs (Graph 2-2, LHS). OFIs provided banks with funding amounting to 5.3% of global bank assets in 2020, whereas banks' funding from insurance corporations and pension funds amounted to 2.8% of global bank assets.<sup>34</sup> While in global terms, NBFIs entities' funding of banks is not very high, in certain jurisdictions, NBFIs entities account for a particularly high share of bank funding. In South Africa, Chile, Luxembourg, Korea, and Australia banks' use of funding from NBFIs entities is above 15% of banks' asset and banks in Belgium and Russia report the largest exposures to NBFIs entities (10% of aggregate bank assets).

**Banks' exposures to NBFIs entities were generally to OFIs.** Bank exposures to OFIs in aggregate were 4.4% of bank assets with 18 out of 29 reporting jurisdictions reporting less than 5%. Furthermore, the heterogeneity in the types of NBFIs entities to which banks are exposed to continues to persist. In Belgium banks have relatively high exposures to SFVs and finance companies, while Russian banks are exposed to other OFI entities – a category that includes CCPs, hedge funds, trust companies, and unidentified OFIs. There is also heterogeneity among bank funding sources across jurisdictions. For example, South African banks obtain funding from NBFIs entities that are predominantly other OFIs and ICs, while in Chile, PFs and MMFs are important funding sources for banks.

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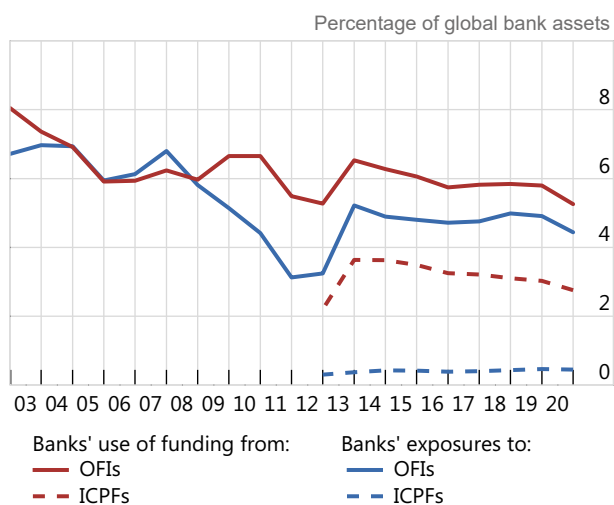
<sup>33</sup> In March 2021, Archegos, a family office that relied on relationships with a group of global dealers to obtain concentrated leveraged exposures to a number of equity securities, failed to meet margin calls, causing its dealers to liquidate positions. Although the unwinding of Archegos was not a systemic episode, many of Archegos's dealers reported substantial losses. The failure of Archegos to meet margin calls in March 2021 underscores the value of developing a clear understanding of the size and structure of links between banks and the NBFIs sector. See e.g., ECB (2021).

<sup>34</sup> The estimate of OFI funding was constructed using data from the subsample of jurisdictions that reported OFIs as a funding source for banks; the estimate of insurance corporations and pension fund funding was constructed using data from only the subsample of jurisdictions that reported insurance corporations and pension funds as a funding source for banks.

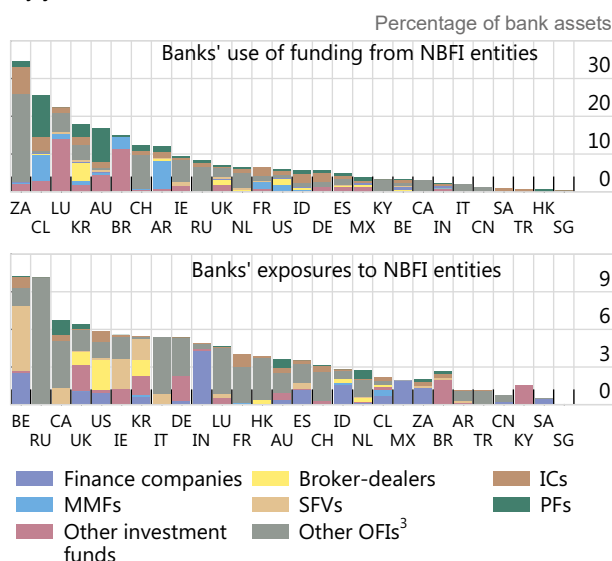
## Banks' use of funding from NBFIs is larger than their exposure to NBFIs

Graph 2-2

Banks' interconnectedness with OFIs and ICPFs<sup>1</sup>



By jurisdiction, at end-2020<sup>2</sup>



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

<sup>1</sup> The sharp rise in OFI linkages in 2013 partly reflects availability of euro area aggregate data from 2013 onwards. <sup>2</sup> For upper (lower) panel, banks' use of funding from (exposure to) the corresponding NBFIs sub-sector, net of prudential consolidation (where data permits), as a share of bank assets. <sup>3</sup> Other OFIs includes CCPs, hedge funds, trust companies and unidentified OFIs.

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

**OFIs' funding and credit links with banks have largely been on a downward trend since 2013 (Graph 2-3, LHS).** OFIs' use of funding from banks remained significant in many jurisdictions, especially in Hong Kong, Russia, Italy, and Indonesia where over 15% of OFIs' total funding came from banks. ICs' and PFs' exposures to banks have been continuously decreasing since their peak in 2013 to reach 4.1% of ICPFs' assets in 2020. This trend is driven by the growth of IC assets in the US and the participating euro area jurisdictions.

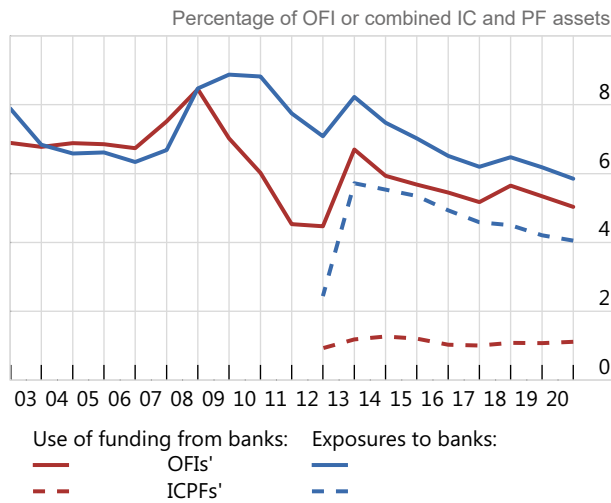
**OFIs' exposure to banks is mainly through deposits, which continue to decrease as a percentage of OFI assets since the 2008 global financial crisis (Graph 2-4, LHS).** While the aggregate value of OFI deposits at banks increased by 6.5% in 2020, deposits as a share of OFI assets have steadily declined since 2008. While deposits by SFVs, MMFs, and other investment funds decreased in 2020, deposits by finance companies and broker-dealers increased (Graph 2-4, RHS).



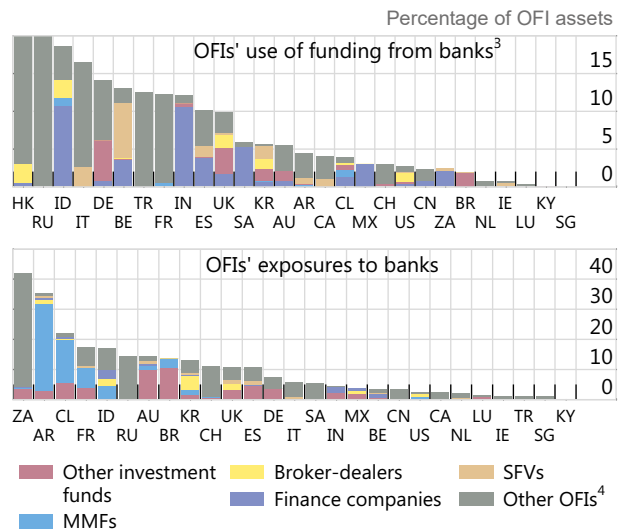
## NBFIs' interconnectedness with the banking sector decreased relative to NBFIs' assets

Graph 2-3

### Interconnectedness of NBFIs' sector with banks<sup>1</sup>



### By jurisdiction, at end-2020<sup>2</sup>



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

<sup>1</sup> Includes data from 20 jurisdictions and EA group. The sharp rise in OFI linkages in 2013 partly reflects availability of euro area aggregate data from 2013 onwards. <sup>2</sup> 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. <sup>3</sup> Bars for Hong Kong (33%) and Russia (21%) are not shown entirely because they are particularly high compared to the rest of the jurisdictions. <sup>4</sup> Other OFIs' includes CCPs, hedge funds, trust companies and unidentified OFIs.

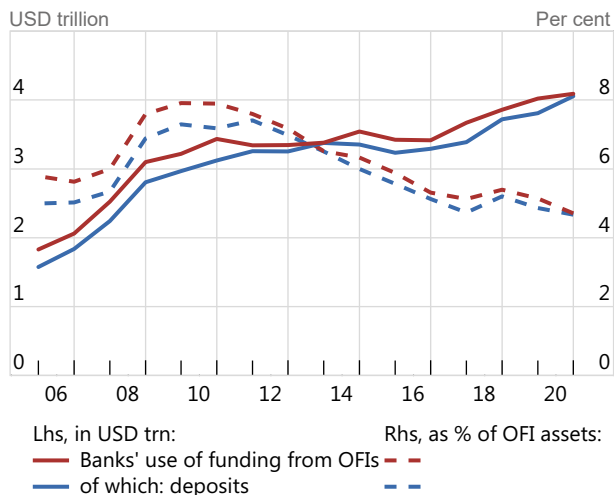
Sources: Jurisdictions' 2021 submissions (national sector balance sheet and other data); FSB calculations.

## Banks' funding from OFIs mainly comes in the form of deposits

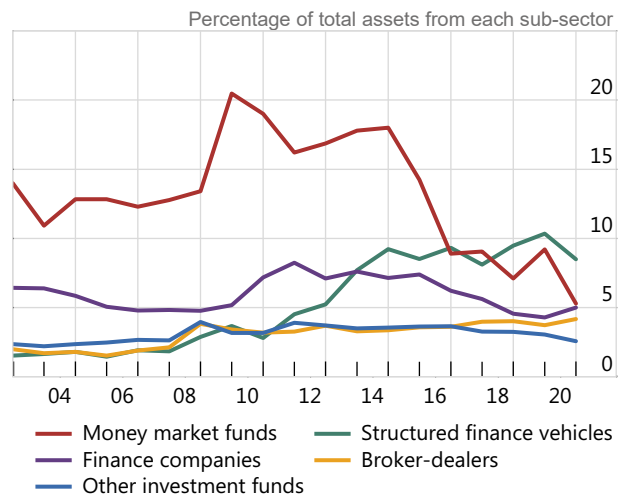
29-Group

Graph 2-4

### Banks' use of funding from OFIs and deposits<sup>1</sup>



### OFI deposits – selected sub-sectors<sup>2</sup>



<sup>1</sup> Includes data from 16 jurisdictions. <sup>2</sup> Includes data from 17 jurisdictions.

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

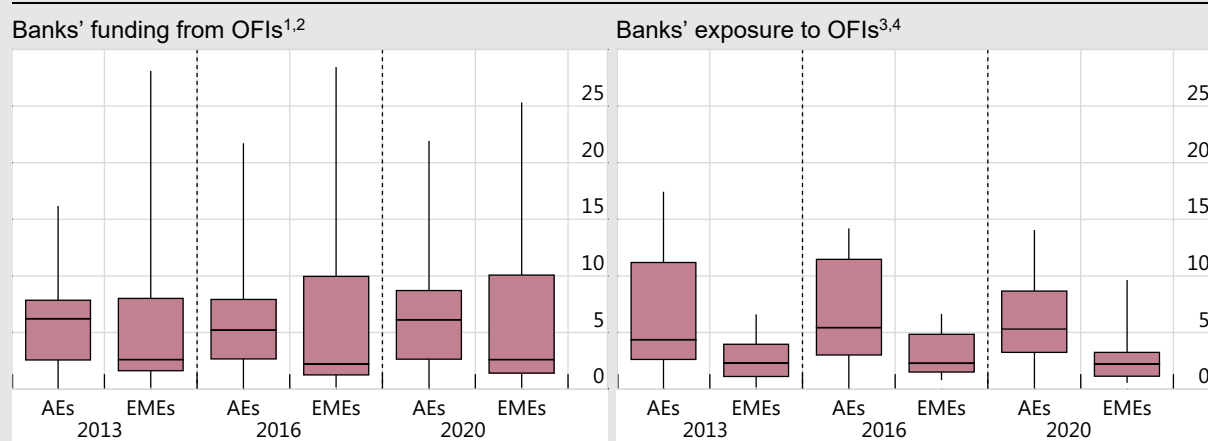
### Box 2-1: Interconnectedness of banks and OFIs in emerging market economies<sup>35</sup>

**The interconnectedness of banks and OFIs is generally smaller in EMEs than in AEs (Graph B1).** As a percentage of bank assets, banks in the median EME jurisdiction are less connected to OFIs than banks in the median AE jurisdiction. This holds for both banks' exposure to, and funding from, OFIs. At the same time, the distribution of banks' funding from OFIs in EME jurisdictions is more diverse, with banks in certain EMEs appearing to use more funding from OFIs than banks in most AEs (Graph B1 LHS).<sup>36</sup> In contrast, banks' exposure to OFIs is consistently smaller in EME jurisdictions than in AEs. (Graph B1, RHS)

#### Interconnectedness of banks and OFIs is generally smaller in EMEs than in AEs, with larger dispersion of banks' funding from OFIs among EMEs

As a percentage of bank assets

Graph B1



<sup>1</sup> Funding defined as banks' liabilities to OFIs as a percentage of total bank assets. <sup>2</sup> AEs = AU, BE, CA, CH, DE, ES, FR, IE, IT, KR, KY, LU, NL, SG, UK and US; EMEs = AR, BR, CL, CN, ID, IN, MX, RU, SA, TR and ZA. <sup>3</sup> Exposure defined as banks' claims on OFIs as a percentage of total bank assets. <sup>4</sup> AEs = AU, BE, CA, CH, DE, ES, FR, HK, IE, IT, KR, KY, LU, NL, SG, UK and US; EMEs = AR, BR, CL, CN, ID, IN, MX, RU, SA, TR and ZA.

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

**The bank-OFI linkages in EMEs exhibit substantial heterogeneity across geographical regions (Graph B2).** Banks in certain non-Asian EMEs (Americas, blue dots or Other EMEs, yellow dots) appear to be much more reliant on funding from OFIs than banks in Asian EMEs (red dots).<sup>37</sup> Differences among geographical regions are less evident for banks' exposure to OFIs (Graph B2, RHS).

<sup>35</sup> The observations presented in this box could reflect both structural differences between jurisdictions and differences in the scope of data reported by jurisdictions. Readers should interpret the results with caution.

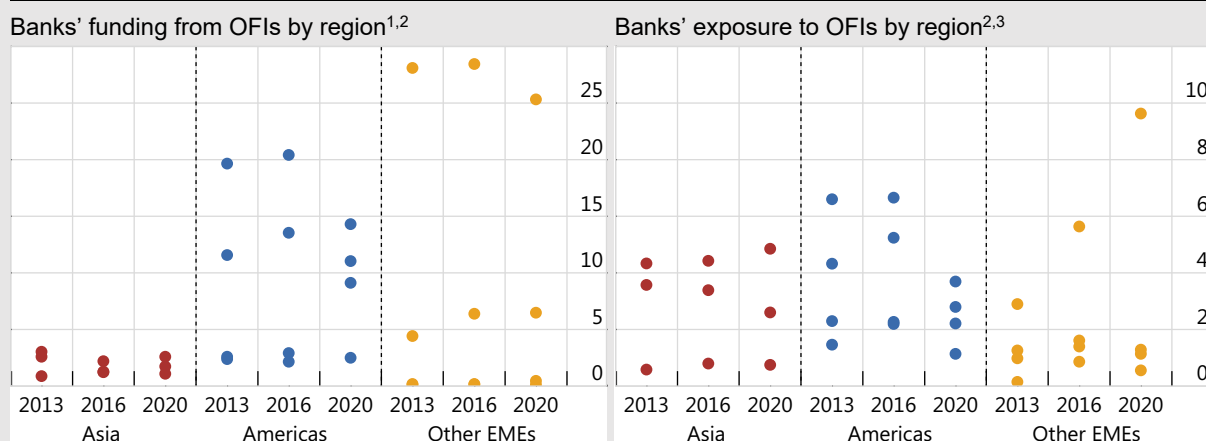
<sup>36</sup> This relationship also appears from the OFI perspective, measuring banks' funding from OFIs as a percentage of OFI assets.

<sup>37</sup> Similar to LHS of Graph B1, this relationship also appears from the OFI perspective, measuring banks' funding from OFIs as a percentage of OFI assets.

## Banks in a few non-Asian EMEs have noticeably higher reliance on funding from OFIs

As a percentage of bank assets

Graph B2



<sup>1</sup> Funding defined as banks' liabilities to OFIs as a percentage of total bank assets. <sup>2</sup> Asia = CN, ID, and IN; Americas = AR, BR, CL, and MX; Other EMEs = RU, SA, TR, and ZA. <sup>3</sup> Exposure defined as banks' claims on OFIs as a percentage of total bank assets. Sources: Jurisdictions' 2021 submissions (national sector balance sheet and other data); FSB calculations.

### 2.3. OFIs, PFs and ICs invest in, and provide funding to, one another.

**Beyond direct funding and credit exposures to banks, linkages exist among non-bank financial entities – for example insurance companies and pension funds invest in OFIs.** While insurance corporations and pension funds tend to lend to, or invest in OFIs (Graph 2-5), they typically do not obtain significant funding from OFIs, and analysis of this is therefore not included in this report.<sup>38</sup>

**OFIs' use of funding from PFs has remained relatively constant over the past decade, while OFIs' use of funding from ICs has trended downwards.** While ICs and PFs are exposed to OFIs through investments, they do not obtain significant funding from that sector. A reversal of such investments by insurance corporations or pension funds in certain OFIs could lead to funding pressure on these OFIs and, in turn, the funding that these OFIs provide to other sectors. OFIs' use of funding from pension funds continued to exceed their use of funding from ICs and other investment funds (Graph 2-5, LHS). From a jurisdictional perspective, OFIs' use of funding from ICs and PFs varies greatly – in Australia, Brazil, Germany, and the US, OFIs' use of funding from pension funds was larger than 13%. In Argentina, France, Germany, Hong Kong, and South Africa, OFIs' use of funding from insurance corporations was above 15%.

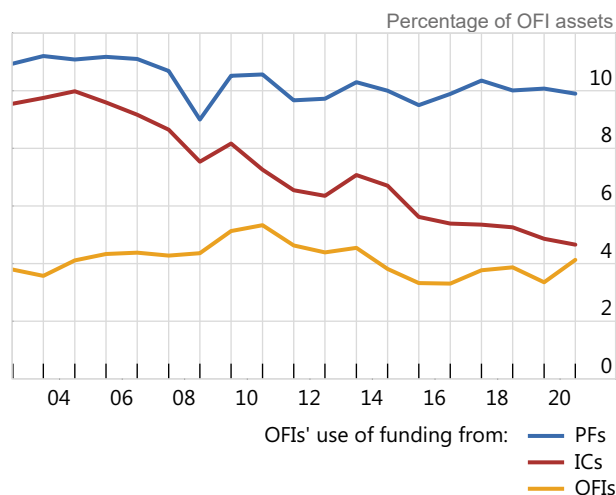
<sup>38</sup> For example, Greensill's insolvency in March 2021 highlights complex linkages within the NBFIs sector that could facilitate risk transmission. Greensill Capital, a finance company, engaged in factoring while securitising the loans it underwrote. The receivables that backed the securities issued by Greensill were insured by a large insurance corporation and a large asset manager managed funds that invested in Greensill-issued securities. See e.g., WSJ (2021).

## Pension funds' exposures to OFIs have remained relatively constant over the past decade, while those of insurance corporations and other investment funds have decreased

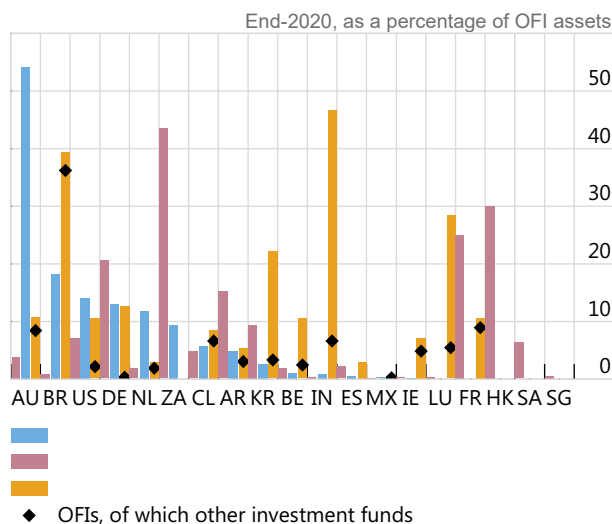
29-Group

Graph 2-5

OFIs' use of funding<sup>1</sup>



Insurance corporations, pension funds and OFIs: Interconnectedness with NBFIs<sup>2</sup>



<sup>1</sup> OFIs' use of funding from ICs = OFIs' liabilities to insurance corporations as a share of OFI assets. OFIs use of funding from PFs = OFIs' liabilities to pension funds as a share of OFI assets. OFIs' use of funding from OFIs = OFIs' liabilities to sum of MMFs, HFs, other investment funds, FinCos, and BDs as a share of OFI assets. OFIs' use of funding from ICs data from 21 jurisdictions. OFIs' use of funding from PFs data from 15 jurisdictions. OFIs' use of funding from other investment funds data from 14 jurisdictions. High growth in the estimate of OFIs' use of funding from OFIs in 2020 reflects inclusion of funds of funds by Brazil in 2020 data. <sup>2</sup> OFIs' use of funding from OFIs is based on data reported on a consolidated basis by jurisdictions, net of entities prudentially consolidated into banking groups.

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

### 2.4. Other investment funds are responsible for a meaningful share of reported OFI cross-border linkages.

**OFI sectors in jurisdictions that serve as hubs for international capital flows continued to have relatively high levels of cross-border interconnectedness.** For example, large cross-border exposures were reported for OFIs in Ireland, Belgium, Switzerland, Luxembourg, and the Netherlands. There is also a positive correlation between the relative size of the OFI sector and the relative size of cross-border links – i.e., the larger is the OFI sector as a share of the overall financial system, the larger are the cross-border linkages (Graph 2-6, middle panel).

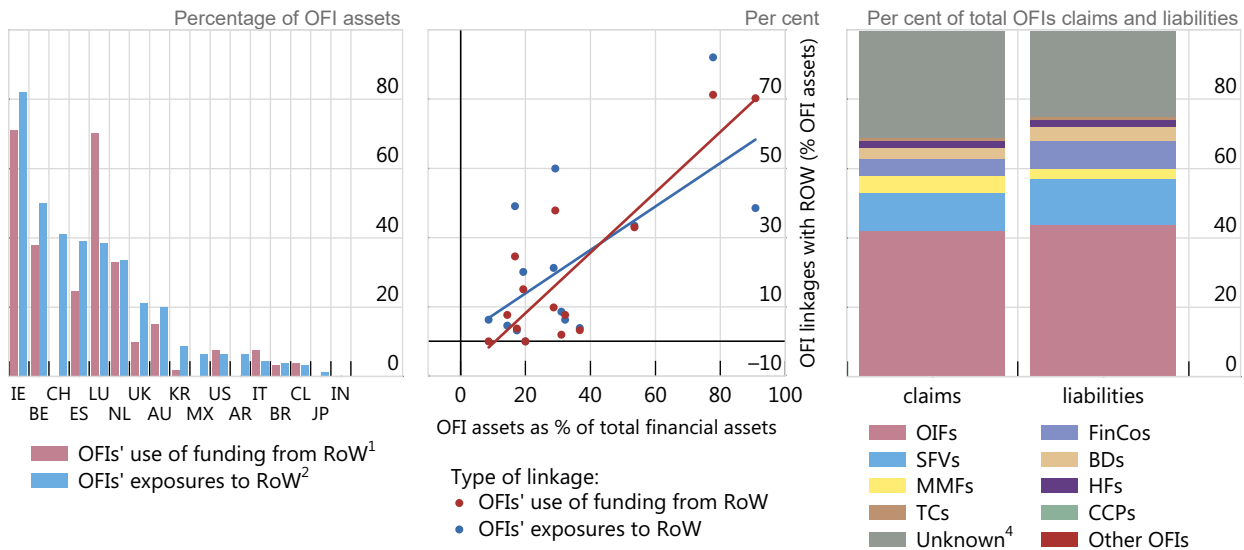
**A significant share of OFI cross-border linkages can be attributed to other investment funds** (Graph 2-6, RHS). However, due to difficulties associated with obtaining granular data on other OFI sub-sectors, a significant share of cross-border linkages cannot be attributed to any particular OFI sub-sector.

**OFI exposures to the rest of the world vary significantly across jurisdictions** Graph 2-6

Aggregate exposures between financial intermediaries and the rest of the world (RoW)

Larger relative size of OFIs tends to be associated with larger cross-border exposures

OFIs' cross-border interconnectedness, at end-2020<sup>3</sup>



<sup>1</sup> OFIs' liabilities to the RoW as a share of OFI assets. <sup>2</sup> OFIs' claims to the RoW as a share of OFI assets. <sup>3</sup> Includes data from 24 jurisdictions. <sup>4</sup> The "Unknown" portion covers the specified OFI subsectors identified above but represents linkages with the "rest of the world" that cannot be identified or where jurisdictions could not identify the counterparty's OFI type.

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

### 3. The narrow measure of NBF1

This section first describes the FSB's process for calculating the narrow measure according to the five economic functions (EFs) or activities.<sup>39</sup> It then provides an overview of global and regional trends for the overall narrow measure across all EFs.<sup>40</sup> Finally, the section presents trends and risk metrics for each of the five EFs (see Annex 4 for discussion of the metrics used to describe these risks).<sup>41</sup>

**The narrow measure of NBF1 grew by 7.4% to \$63.2 trillion in 2020**, at a pace similar to the 2014-19 5-year annual growth rate of 7.3%. It now represents 27.9% of total NBF1 assets, and 13.7% of total global financial assets.

- **Collective investment vehicles with features that make them susceptible to runs (EF1) grew by 9.0% in 2020**, retaining their share of the narrow measure of 75.1% even as some EF1 assets declined in the first quarter of the year. Two of the largest EF1 entity types, MMFs and fixed income funds, invest primarily in credit assets (reflecting their business models). Measures of credit intermediation, liquidity and maturity transformation, and leverage were relatively stable, calculated on a year-to-year basis.

<sup>39</sup> The narrow measure also includes an unallocated category, which captures OFIs that the relevant authorities assessed to be involved in bank-like financial stability risks from NBF1, but which could not be assigned to a specific economic function.

<sup>40</sup> As in previous reports, the 29-Group sample is used for the narrowing down section of this report because of its greater granularity. Therefore, all the aggregates discussed in this Section relate to the 29-Group sample and might deviate from the aggregates discussed in Section 1 (which relies, in part, on the 21+EA-Group sample).

<sup>41</sup> The Experts Group periodically assesses the effectiveness of these metrics as measures of the underlying vulnerabilities of each economic function.

- **Loan provision that is typically dependent on short-term funding (EF2) grew by 4.2% in 2020**, representing 6.7% of the narrow measure. Measures of leverage for finance companies, the entity type most prevalent in EF2, remained stable. Finance companies in most jurisdictions continue to engage in some maturity transformation.
- **Intermediation of market activities dependent on short-term funding (EF3) grew by 3.7% in 2020**, representing 7.8% of the narrow measure. Growth in 2020 was driven, in broadly equal measure, by broker-dealers and custodial accounts, the two main entities classified into EF3. Broker-dealers, however, appeared to have employed lower leverage in 2020 than in 2019.
- **After strong growth in 2019 (4.5%), insurance or guarantees of financial products (EF4) only grew by 0.4% in 2020.<sup>42</sup> Financial assets associated with these activities still constitute less than 1% of the narrow measure.** Insurance corporations and mortgage insurers together make up more than 50% of EF4 assets, with shares of 26.7% and 24.7%, respectively.
- **Securitisation-based credit intermediation (EF5) shrank by 4.0% in 2020**, as assets of Chinese trust companies continued to decrease. EF5 now accounts for 7.5% of the narrow measure. The aggregate level of assets of SFVs, the main entity in EF5, remained largely stable during 2020.

### 3.1. Narrowing down towards an activity-based measure of NBF1

**The FSB’s methodology of narrowing down entities in the NBF1 sector to an activity-based narrow-measure of NBF1 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 NBF1 (the NBF1 sector – discussed in Section 1). Such NBF1 entities include insurance corporations, pension funds, 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 NBF1.<sup>43</sup> To accomplish this narrowing, the Experts Group classifies a subset of the NBF1 entities into the five economic functions (EFs) shown in Table 3-1.<sup>44</sup>

**Authorities assess non-bank financial entities’ business models, activities and associated vulnerabilities, and classify relevant entities into one or more of the five economic functions.** Authorities exclude entities that are either: (i) not typically part of a credit intermediation chain; or (ii) part of a credit intermediation chain but are not involved in significant

<sup>42</sup> Following a review of its classification guidance, the Experts Group reclassified certain fixed income funds previously included in EF4 into EF1. As a result, statistics for EF4 in this year’s report will not be directly comparable to prior years’ reports. See note 81.

<sup>43</sup> This second step is based on the August 2013 FSB Policy Framework.

<sup>44</sup> 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 EF. In those instances, an entity’s assets are proportionately allocated between the EFs into which it was classified so as to only count once towards the jurisdiction’s narrow measure.

maturity/liquidity transformation and do not use leverage. In some cases, the determination to exclude entities from the narrow measure incorporates authorities' supervisory judgement.

**The inclusion of non-bank financial 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 economic function does not constitute a judgement that potential policy measures to address vulnerabilities of NBFIs 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 non-bank financial 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.** The pre-mitigant approach facilitates construction of global measures of intermediation activity. However, the narrow measure may overestimate the degree to which NBFIs currently give 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 financial stability risks.<sup>45</sup>

Each economic function contains many entity types. Different entity types, and business lines within entity types, may give rise to different types of vulnerabilities (Table 3-1). For example, MMFs fall within EF1 (management of CIVs with features that make them susceptible to runs), but the susceptibility to runs may vary among different types of MMFs (see Box 3-3).

**The FSB employs a process of review and discussion among participating jurisdictions to help enhance consistency in the classification of entities and activities and shed light on new issues.** Achieving consistency of economic function classification is an iterative process, reflecting both improvements in data availability and in the assessment of non-bank financial entities' involvement in the different EFs as authorities learn from one another in successive annual exercises. New developments in financial markets may result in additional areas in which guidance may be needed. Periodic refinement of the classification guidance used in the FSB's annual monitoring exercise helps further improve accuracy and consistency in the relevant authorities' assessments going forward.

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<sup>45</sup> For example, the narrow measure currently includes certain types of investment 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).

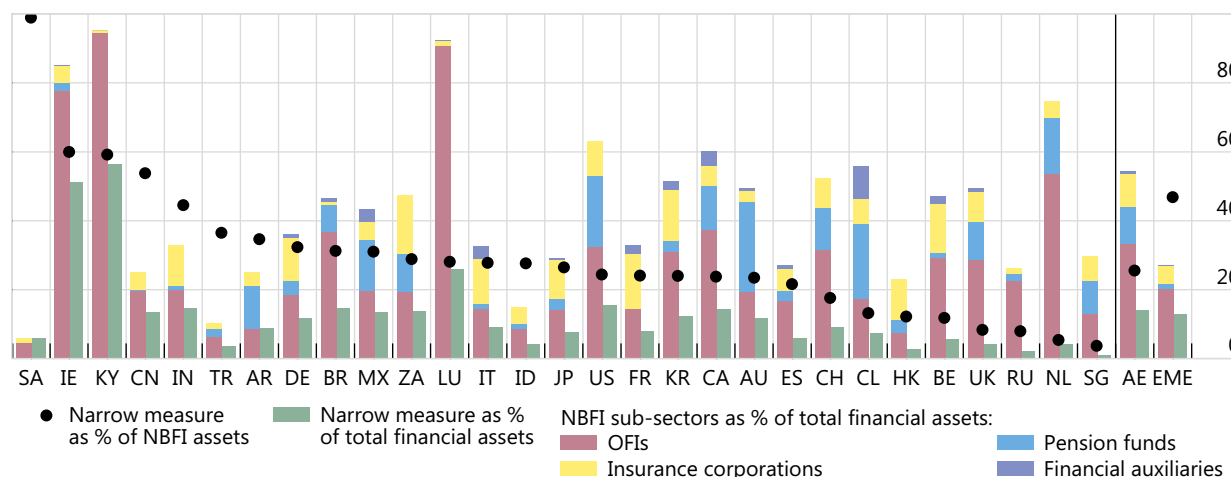
**Table 3-1: Classification by Economic Functions (EFs)**

EF	Definition	Typical entity types <sup>46</sup>
EF1	Management of collective investment vehicles with features that make them susceptible to runs	MMFs, fixed income funds, mixed funds, credit hedge funds, <sup>47</sup> real estate funds
EF2	Loan provision that is dependent on short-term funding	Finance companies, leasing/factoring companies, consumer credit companies
EF3	Intermediation of market activities that is dependent on short-term funding or on secured funding of client assets	Broker-dealers, custodial accounts, securities finance companies
EF4	Facilitation of credit creation	Credit insurance companies, financial guarantors, monoline insurers
EF5	Securitisation-based credit intermediation and funding of financial entities	Securitisation vehicles, structured finance vehicles, asset-backed securities

**The ratio of the narrow measure to NBFIs varies significantly across jurisdictions**

29-Group, end-2020; in percent

**Graph 3-1**



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

The steps used to obtain the narrow measure are detailed in Annexes 2 and 3. At a high level, the process of narrowing down involves excluding: (i) insurance corporations, pension funds, financial auxiliaries and OFIs that are not classified into any of the five EFs; (ii) entities that are

<sup>46</sup> The FSB's [Policy Framework](#) acknowledges that the narrow measure may take different forms across jurisdictions due to 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. For details, see FSB (2013).

<sup>47</sup> Credit hedge funds are hedge funds that invest primarily in credit assets (e.g. bonds, loans).



prudentially consolidated into a banking group; and (iii) the statistical residual. The relationship between the NBFIs sector (\$226.5 trillion for the 29-Group) and the economic function-based narrow measure presented in this section (\$63.2 trillion) is explained in greater detail in Annexes 2 and 3. A summary of this relationship for the main entity types classified into the narrow measure is illustrated in Table 3-2.

**The resulting narrow measure was \$63.2 trillion at end-2020, representing 27.9% of NBFIs sector assets and 13.7% of total financial assets.** Graph 3-1 compares the components of the NBFIs sector to the narrow measure by jurisdiction, each displayed as a percentage of total national financial assets. In general, the narrow measure amounted to a larger share of NBFIs sector assets in EMEs than in AEs; however, this varied significantly across jurisdictions.

**Table 3-2. Major entity types in the narrow measure (29-Group)**

	EF1				EF2	EF3	EF5	
	MMFs	FIFs <sup>1</sup>	Mixed funds <sup>2</sup>	Hedge funds <sup>3</sup>	Finance companies	Broker-dealers	SFVs	TCs <sup>4</sup>
<b>Total financial assets</b>								
Total financial assets (in USD trn)	8.5	14.9	12.8	6.3	5.6	12.1	5.7	3.9
Growth in 2020 (%)	↑ 17.4	↑ 11.2	↑ 12.2	↑ 7.5	↑ 4.8	↑ 12.4	↑ 4.7	↓ -2.8
of which: Credit assets (in USD trn)	6.5			3.2	4.3	5.9	2.9	2.0
Growth in 2020 (%)	↑ 17.1			↓ -1.8	↑ 2.4	↑ 3.6	↑ 7.5	↓ -2.0
<b>Narrow measure</b>								
Total assets classified into the respective economic functions (in USD trn)	8.5	13.3	8.5	6.3	3.4	4.1	4.1	0.6
Share of the narrow measure (%)	13.4	21.1	13.4	10.0	5.4	6.4	6.5	1.0
<b>Risk metrics</b>								
Credit intermediation	—	—	—		▼	▼	—	
Maturity transformation	—	—	▲		▲	▲	—	
Liquidity transformation	▼	▲	▲		—	▲	—	
Leverage	—	—	—		▲	▼	—	

For total financial assets, arrows pointing up (down) indicate an increase (decline) in the corresponding total assets in 2020 compared to 2019. For risk metrics, the arrows pointing up (down) indicate an increase (decline) in the median value in 2020 compared to 2019, while the horizontal bar indicates little change. The shades of blue indicate the relative degree of credit intermediation, maturity transformation, liquidity transformation and leverage across the entity types shown in the table, measured as the median value of the metric. For each risk metric, the darkest (lightest) colour correspond to the entity type with the largest (lowest) engagement in the relevant metric/activity, in the median.

<sup>1</sup> Some fixed income funds are included in the mixed funds category in the narrow measure. A small amount of fixed income funds are outside the narrow measure (around \$121 billion). <sup>2</sup> Total financial assets include other funds such as referenced investment funds, external debt investment funds, currency funds, asset allocation funds, other closed-ended funds, etc. <sup>3</sup> Risk metrics data for hedge funds in EF1 were not collected. <sup>4</sup> Risk metrics data for trust companies in EF5 were not collected.

Sources: Jurisdictions' 2020 submissions (national sector balance sheet and other data); FSB calculations

## 3.2. Narrow measure trends

### 3.2.1. *Economic functions experienced slower growth in 2020*

**The total financial assets of entities in the narrow measure in the 29-group grew by 7.4% in 2020 to reach \$63.2 trillion, compared to an 8.2% increase in total NBFIs sector assets (Graph 3-2).**<sup>48</sup> As such the growth of narrow measure assets has remained largely stable relative to the 5-year annual growth rate of the narrow measure over 2014-19 (7.3%). EMEs contributed 21.4% of the total growth in narrow measure assets in 2020, up from 9.1% in 2019, representing the highest contribution of EMEs to narrow measure growth since 2017 (see Box 3-1 for more details on the relative importance of the NBFIs sector in EMEs). As a share of total global financial assets, the narrow measure decreased slightly in 2020 to 13.7%, down from 14.1% in 2019. This is partly explained by comparatively high growth rate of bank and central bank balance sheets in 2020 (see Section 1.1).

**Since the 2008 financial crisis, growth of the narrow measure has been driven primarily by investment funds**, as opposed to pre-crisis growth, which was driven to a large degree by entity types such as SFVs and broker-dealers that often received support from banks. As a result, EF1 assets have been increasing as a share of total narrow measure assets since 2008. The impact of the COVID-19 pandemic did not change this pattern. Although investment funds experienced significant outflows in Q1 2020, the prompt recovery in the subsequent two quarters (Graph B7) meant they remained the largest contributor to narrow measure growth.

**At an aggregate level, all economic functions entities exhibited slower growth in 2020 than in 2019, although the growth rates vary greatly among entity types.** EF1, the largest component of the narrow measure, grew at the highest rate of all EFs although EF1's growth in 2020 (9.0%) was only marginally higher than its average growth rate from 2014-19 (8.7%). Total assets classified into EF5 shrank by 4.0%. The "unallocated" category grew by 20.2% in 2020, primarily driven by the US funding corporations (Graph 0-1).<sup>49</sup>

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<sup>48</sup> Analysis in Section 3 uses the 29-Group sample because it includes more granular information for non-bank financial sectors. See Introduction.

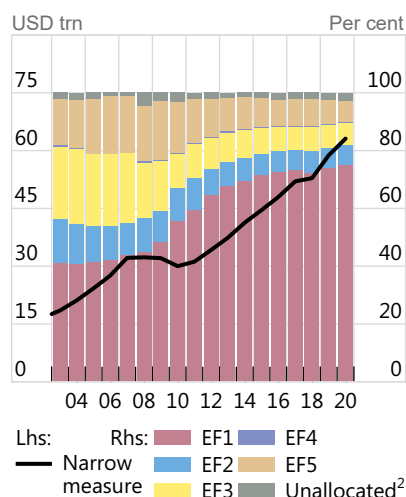
<sup>49</sup> Funding corporations represent a residual category and growth in 2020 was likely driven by an increase in debt securities and loans held on funding corporations' balance sheets.

## Classification by economic function – EF1 further increased its share of the narrow measure<sup>1</sup>

29-Group

Graph 3-2

Share of the narrow measure, per economic function



The narrow measure by economic function

	Narrow measure	EF1	EF2	EF3	EF4	EF5	Unallo-cated <sup>2</sup>
<b>Size at end-2020</b> (USD trillion)	63.2	47.4	4.3	4.9	0.2	4.7	1.7
<b>Share of narrow measure (%)</b>	100.0	75.1	6.7	7.8	0.3	7.5	2.6
<b>Growth in 2020</b> (year-over-year, %)	7.4	9.0	4.2	3.7	0.4	-4.0	20.2
<b>Growth 2014-19</b> (annualised growth, %)	7.3	8.7	4.7	2.9	0.2	1.9	18.1
<b>Share of total financial assets (%)</b>	13.7	10.3	0.9	1.1	0.0	1.0	0.4

<sup>1</sup> Net of entities prudentially consolidated into banking groups. <sup>2</sup> Unallocated = assets of entities that were assessed to be involved in NBF1, but which could not be assigned to a specific economic function.

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

### 3.2.2. Most jurisdictions experienced growth in the narrow measure

**Out of 29 jurisdictions, 11 reported a higher annual growth rate for the narrow measure in 2020 than in annualised growth rates from 2014-19** (Graph 3-3, LHS and middle panel). Indonesia, the Netherlands, and Spain reported a decline in the narrow measure, mainly due to a decrease in investment fund assets in most of these countries (discussed in more detail in Section 3.3).

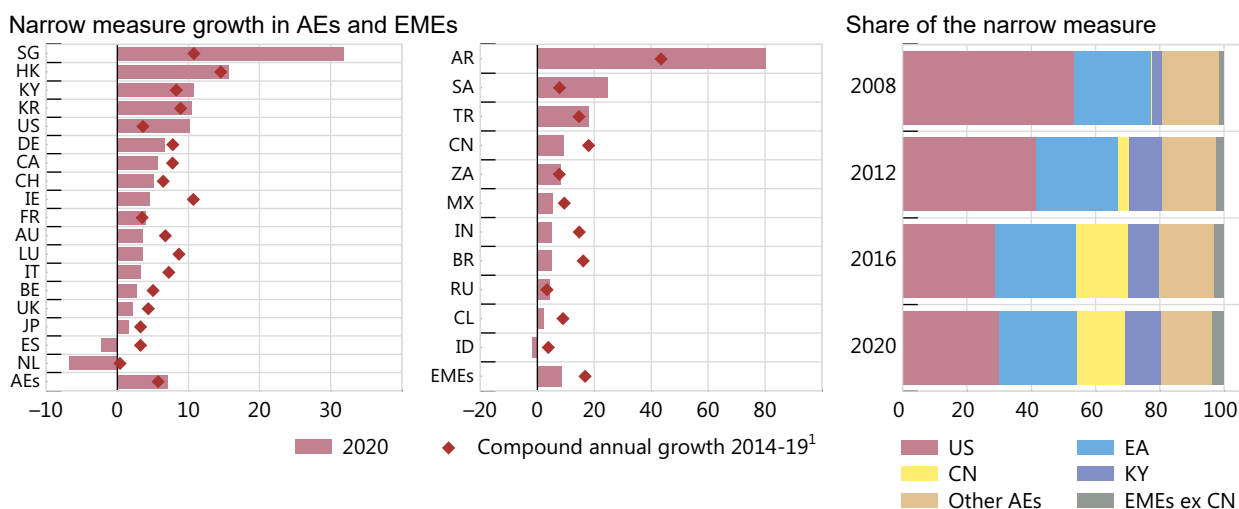
Five AEs (the Cayman Islands, Hong Kong, Korea, Singapore, and the US) and three EMEs (Argentina, Saudi Arabia and Turkey) saw their narrow measure increase by over 10%. The growth in Hong Kong, for example, is mainly due to inflows into fixed income funds (EF1) and broker-dealers (EF3). The increase in some of these jurisdictions, however, partly reflects growth from a low base, relatively high inflation rates, market valuation increases, or changes in data samples/coverage.<sup>50</sup>

<sup>50</sup> In Argentina, a managed float regime along with current regulations on FX markets and capital and financial accounts, restrain exchange rate volatility. High inflation rates are not fully adjusted when converting to USD.

## Narrow measure size and growth by jurisdiction

In per cent, 29-Group

Graph 3-3



<sup>1</sup> Growth rates in Argentina reflect a high rate of inflation. Aggregates are weighted averages based on rolling GDP weights.

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

**The US continues to account for the largest share of narrow measure assets (\$18.9 trillion in 2020) representing around 30% of the total narrow measure (Graph 3-3, RHS).**<sup>51</sup> The eight participating euro area jurisdictions comprised the second largest share (with a combined \$15.4 trillion in assets, 24.4%), followed by China (\$9.3 trillion, 14.8%), the Cayman Islands (\$7.1 trillion, 11.2%),<sup>52</sup> and Japan (\$3.5 trillion, 5.5%). The US' share of the narrow measure has declined since 2008, whereas the shares of the Cayman Islands and Ireland have increased since 2006. China's share of the narrow measure peaked in 2017 and has been decreasing in recent years. In all but two jurisdictions – Ireland and the Netherlands – the narrow measure, on average, grew at a faster pace than GDP in 2020. In 22 out of the 29 participating jurisdictions, the 5-year annual growth of the narrow measure from 2015 to 2020 exceeded 5-year annual GDP growth over the same period.

**Although EF1 assets constitute the largest portion of the narrow measure on a global level, shares of each economic function within the narrow measure vary across jurisdictions.** EF2 continued to be the largest entity type within the narrow measure in India, Indonesia, Russia and Turkey whereas EF3 constitutes the largest share of the narrow measure in Hong Kong, Japan and Korea (Graph 3-4).

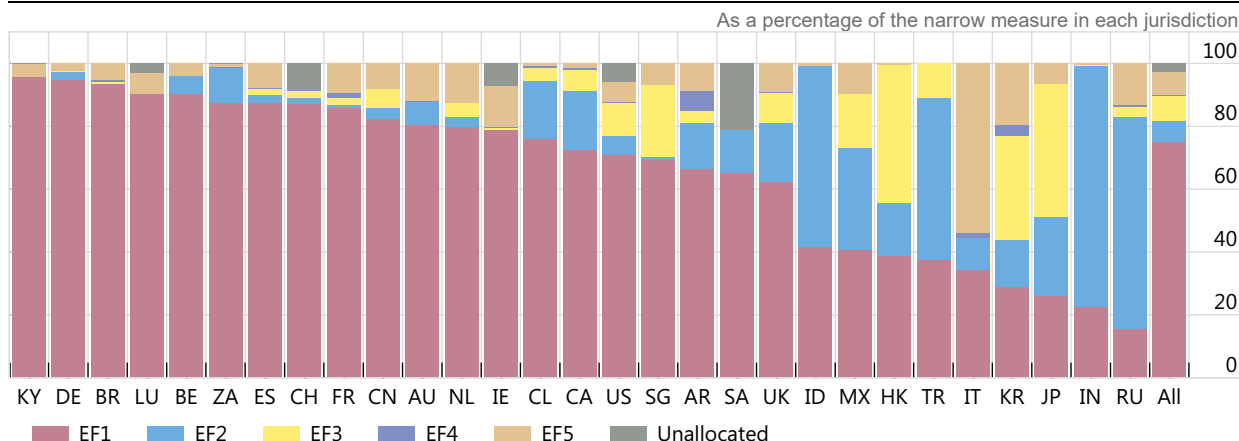
<sup>51</sup> For 20 out of the 29 participating jurisdictions, EF1 presents the largest share of the narrow measure.

<sup>52</sup> Growth in the narrow measure experienced by the Cayman Islands in 2020 reflects classification of "Limited Investor Funds" a category of open-ended investment funds, and some "Private Funds", a category of closed-ended investment funds, in EF1. The Cayman Islands required limited investor funds and private funds to register for the first time in 2020, so these assets do not appear in estimates of NBF1 sector, narrow measure, or EF1 assets before 2020.

## EF1 remained the largest economic function in 20 jurisdictions at end-2020<sup>1</sup>

Economic function classification by jurisdiction at end-2020

Graph 3-4



Unallocated = assets of entities that were assessed to be involved in NBF1, but which could not be assigned to a specific economic function.

<sup>1</sup> Net of entities prudentially consolidated into banking groups.

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

### Box 3-1: Non-bank financial intermediation in emerging market economies

This box provides a brief update on developments in the NBF1 sector in EMEs.

**While the share of global NBF1 sector assets held by EMEs has increased over time, it remains small relative to global NBF1 financial assets.** The share of global NBF1 assets held by EMEs amounts to around 11%, which includes a 7.7% share held by China.

**Nevertheless, the relative importance of NBF1 continued to increase at a faster pace in EMEs than in AEs.** As a percentage of EME financial assets, the share of financial assets held by the NBF1 sector increased at a faster pace in EMEs than AEs between 2013 and 2020. While this was mostly driven by NBF1 asset growth in China, growth in the relative importance of the NBF1 sector in other EMEs remains higher than in AEs (Graph B4, LHS). The same trend is observed in the narrow measure of NBF1 (Graph B4, LHS). In 2020, growth of the NBF1 sector and the narrow measure in EMEs outpaced growth in AEs.

**This increase in the relative importance of the NBF1 sector is observed in the majority of EMEs,** with relatively large increases between 2013 and 2020 in the assets held by the NBF1 sector seen in China, Russia, and Brazil.<sup>53</sup> In contrast, South Africa showed a decrease in the relative importance of NBF1 in the same period – mainly as a result of an increase in the share of assets held by public financial institutions in South Africa. In Chile, the reduction in the relative size of the NBF1 sector was mainly due to expansion in bank and central bank balance sheets since 2017.

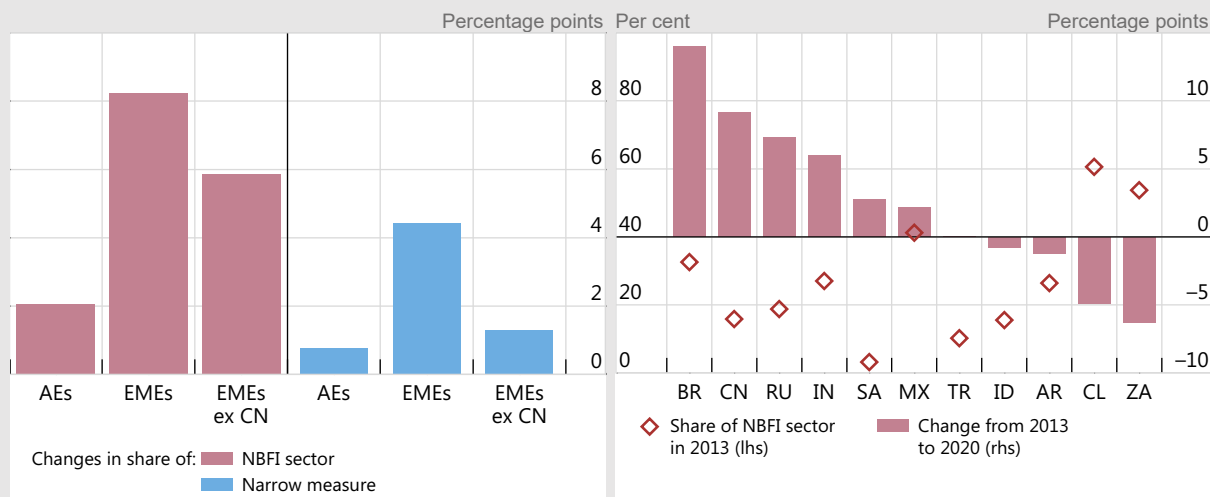
<sup>53</sup> Inclusion of funds of funds in Brazil's NBF1 sector in 2020 biases the change in NBF1 sector share between 2013 and 2020 upwards. Excluding fund of funds from Brazil's NBF1 sector suggests an increase in the NBF1 sector share of total financial assets, from 32.5% in 2013 to 39.2% in 2020, for a change of 6.7 percentage points.

## The relative importance of NBFIs has increased in EMEs

Graph B4

Changes in the share<sup>1</sup> of NBFi sector and narrow measure as a percentage of total financial assets for AEs and EMEs between 2013 and 2020

Change in the share<sup>2</sup> of NBFi assets in each EME between 2013 and 2020



<sup>1</sup> 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. <sup>2</sup> Shares of the NBFi sector for each jurisdiction are calculated as financial assets of the NBFi sector of a jurisdiction divided by total financial assets of the jurisdiction.

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

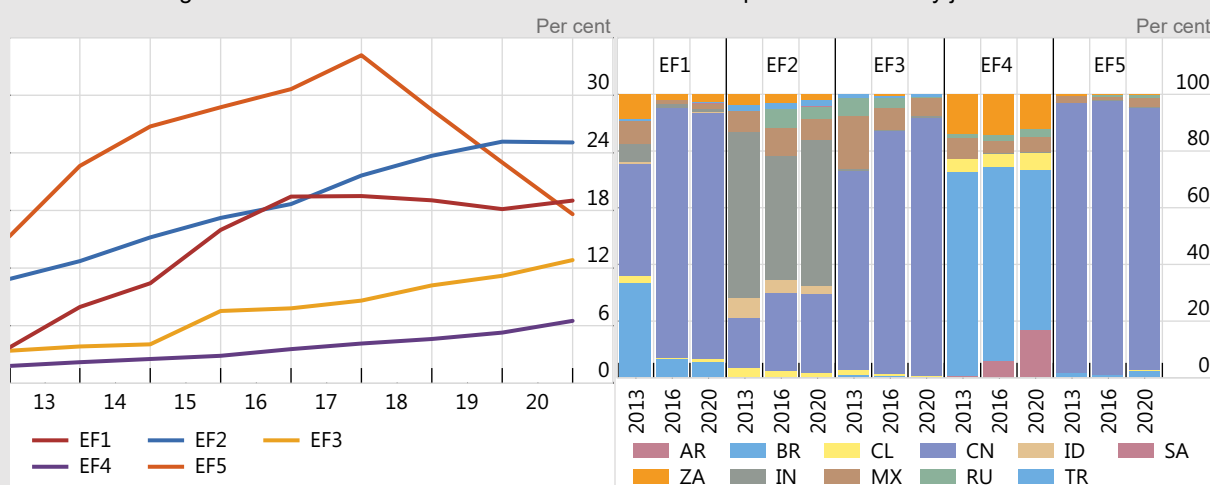
Although the relative share of assets classified under economic functions held by EMEs continued to increase across most economic functions in 2020, the share of EF5 assets held by EMEs continued to decrease (Graph B5 LHS). This is mainly attributable to the decrease in assets held by trust companies in China since 2017 (see Section 3.7.1). Similarly, total SFV assets in EMEs have decreased by 10.7% in 2020, amounting to \$198.6 billion at end-2020. Among EME jurisdictions, China is responsible for the largest share of assets classified in EF1, EF3, and EF5, while India dominates EF2, and Brazil dominates EF4 (Graph B5 RHS).<sup>54</sup> These shares have remained generally stable since 2013.

## The share of the narrow measure assets held by EMEs has increased since 2013

Graph B5

EMEs' share of global EF assets

Breakdown per EF in EMEs by jurisdiction



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

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

EF1 comprises collective investment vehicles (CIVs) with features that make them susceptible to runs (e.g., fixed income funds (including fixed income exchange traded funds (ETFs)), mixed funds (including mixed ETFs), MMFs, credit hedge funds, and real estate funds.). Funds are a means for investors to efficiently diversify risk exposures by pooling their resources with those of other investors to purchase portfolios of assets. CIVs can dampen shocks to the financial system by allocating losses from an entity's distress or insolvency or from adverse financial market conditions among a group of investors. In extreme circumstances, however, some CIVs that engage in maturity/liquidity transformation or employ leverage can be susceptible to runs. To address potential run risk, many jurisdictions have mandated structural features to address potential vulnerabilities related to liquidity transformation for some or all entities they classify into EF1, often based on or consistent with policy recommendations made by the FSB, IOSCO and other standard-setting bodies.<sup>55</sup>

#### Box 3-2: Flow vs valuation effects in investment funds

**Investment funds have been a primary driver of the increase in assets of the NBF1 sector over the past decade.** The FSB's annual monitoring exercise collects data for MMFs, hedge funds, and other investment funds, which comprise equity funds, fixed income funds, mixed funds and other funds. In this year's exercise, jurisdictions were asked for the first time to provide separate, granular data on MMFs that invest primarily in short-term government securities (short-term government MMFs) and MMFs that invest primarily in non-government securities or in longer maturity MMFs (non-government or longer maturity MMFs)

**Following the 2020 global monitoring exercise, jurisdictions contributed quarterly data up to and including Q1 2021 to attribute changes in MMFs', equity funds', fixed income funds' and mixed funds' assets under management (AUM) to flows and valuation effects.** The contribution of valuation effects to growth of funds' assets is estimated as the residual from subtracting the cumulative flows from total assets. Twenty-two jurisdictions reported data on the split between valuation and flows but not for all fund types. Nevertheless, data for these fund types represent 65% of global assets of equity funds, 78% of fixed income funds, 56% of mixed funds' and 81% of MMFs, respectively (Graph B6, LHS and middle panel).<sup>56</sup>

**Against the backdrop of the COVID-19 pandemic most funds experienced positive asset growth in 2020.** The largest increases in net assets were seen in equity funds and were primarily due to positive valuation effects. Valuation effects also contributed to a large portion of asset growth in mixed funds. In contrast, flow effects contributed more than valuation effects to growth in the net assets in fixed income funds, and growth in MMFs was attributable solely to flows (Graph B6, RHS).

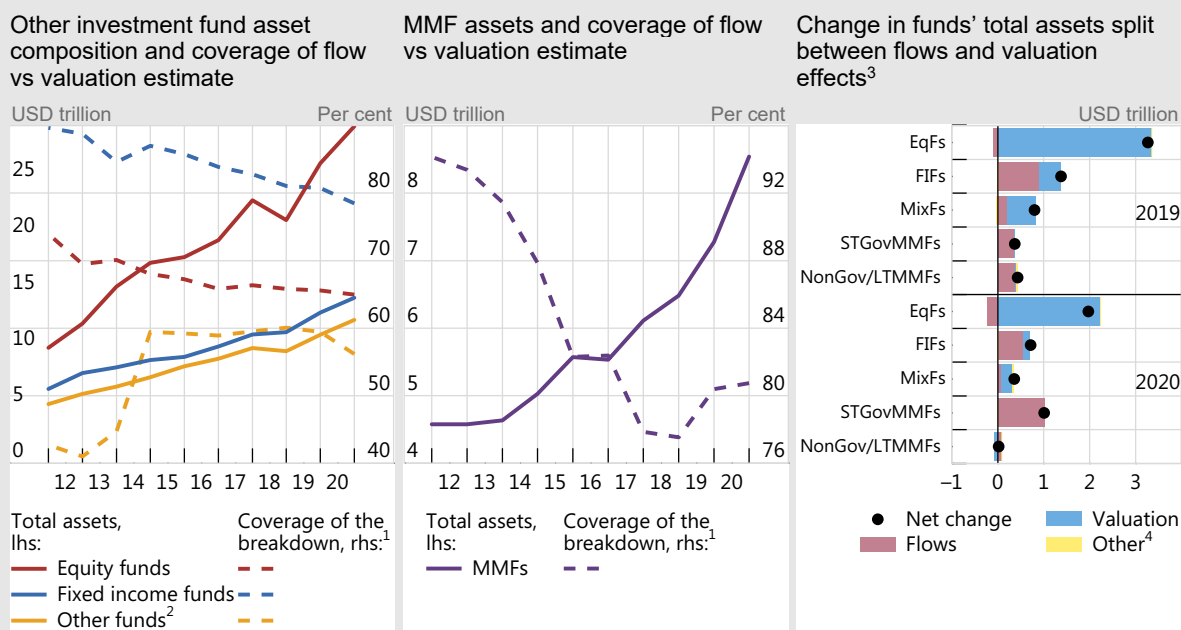
<sup>54</sup> In Brazil, insurance corporations provide credit enhancements to loans. Credit insurance (\$7 billion in 2020) applies to a small fraction of bank loans (\$633 billion). Although Brazil's EF4 stands out among EMEs, it is only a very small share of global EF4 assets.

<sup>55</sup> For example, structural features to address potential vulnerabilities related to liquidity transformation include asset allocation requirements, liquidity risk management requirements, minimum allocations to liquid assets, ex-ante anti-dilution tools that limit the externalities that redeeming investors impose on other investors (e.g. swing pricing), and leverage limits. In addition, tools designed to limit the probability of stressed scenarios include redemption fees, and tools designed to limit the impact of stressed scenarios include suspension of redemptions and withdrawal gates.

<sup>56</sup> Out of the 24 jurisdictions that reported quarterly AUM as part of the annual monitoring exercise, 22 were able to supply the quarterly information about investor flows to separately identify flow and valuation effects.

## Funds experienced positive asset growth in 2020 despite the flight to safety during Q1 2020.

Graph B6



EqFs = Equity funds; FIFs = Fixed income funds; MixFs= Mixed funds; MMFs = Total money market funds, STGovMMFs = Short-term government MMFs, NonGov/LTMMFs = non-government/ longer maturity MMFs. Annual data (end of period) provided by 29 reporting jurisdictions.

<sup>1</sup> Total AUM of each fund type from jurisdictions reporting the breakdown between flows and valuations divided by total assets of each fund type reported in the monitoring exercise by all jurisdictions. <sup>2</sup> 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. <sup>3</sup> Estimated based on the data reported by a sub-sample of jurisdictions. <sup>4</sup> Other represents changes attributable to factors other than fund flows and valuation (e.g. changes in leverage and sample adjustments).

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

**The contribution of flows and valuation effects to growth in assets following the March 2020 market turmoil differed across fund types** (Graph B7). For total MMFs (including both short-term government and non-government/longer maturity MMFs), the changes in AUM are mainly explained by flow effects as these funds typically hold fixed income assets of a shorter maturity. In 2020, short-term government MMFs saw net inflows of \$1.0 trillion (approximately 34% of 2019 AUM) while non-government/longer maturity MMFs had net inflows of \$87.2 billion (approximately 3% of 2019 AUM) (Box 3-3).<sup>57</sup> The inflows to short-term government MMFs in Q1 2020 were nearly as high as those in 2016, although inflows in 2016 were driven by a change in US regulation.<sup>58</sup> The increases in AUM of mixed funds and equity funds since Q1 2020 were mostly driven by valuation effects, although less so in mixed funds. The larger role of valuation effects as compared with flow effects for mixed funds may be explained by these funds' equity allocations.

<sup>57</sup> FSB (2020b) and FSB (2020c).

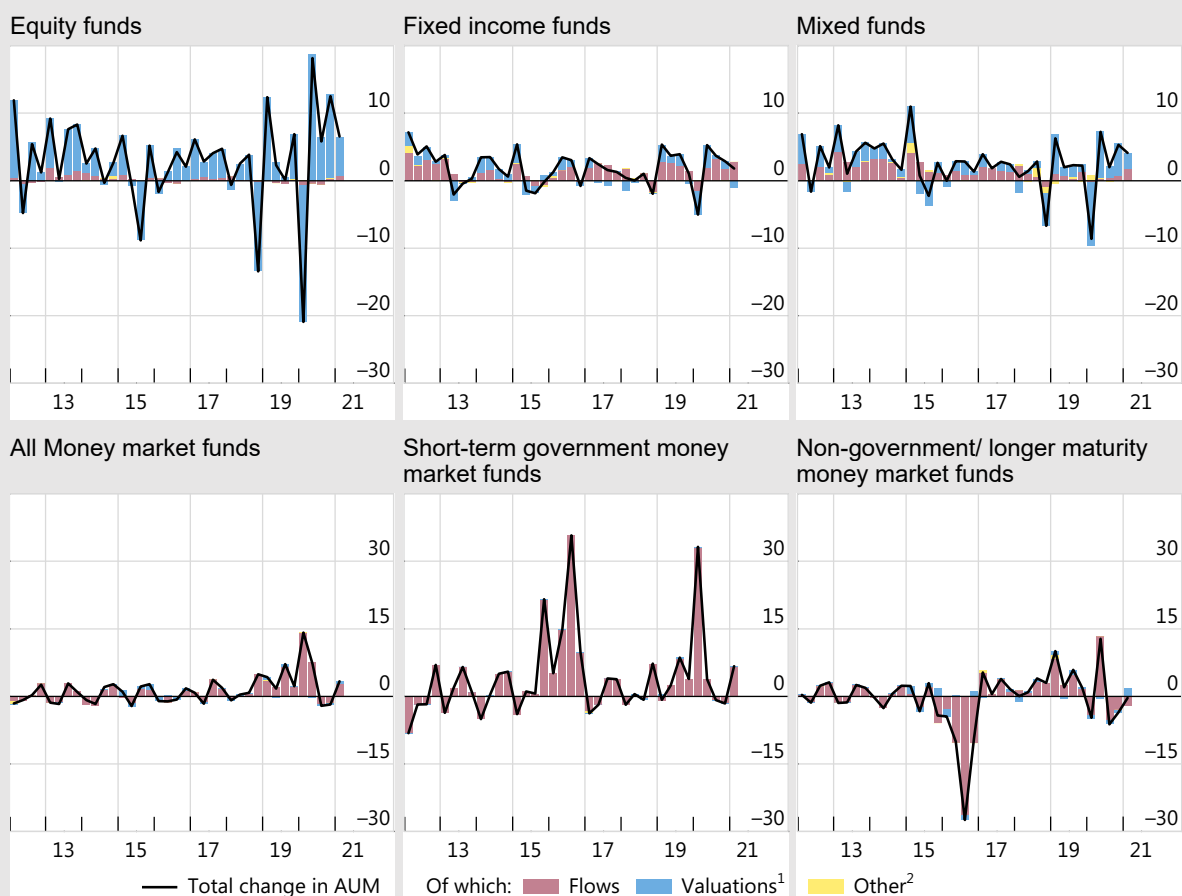
<sup>58</sup> See note 61.



**Changes in AUM of equity funds tend to be driven by valuation effects, while fixed income and mixed funds are driven by both flow and valuation effects.**

% of AUM

**Graph B7**



<sup>1</sup> Quarterly data up to Q1 2021. Equity funds include 19 jurisdictions. Fixed income funds include 20 jurisdictions. Mixed funds include 18 jurisdictions. MMFs include 19 jurisdictions. <sup>2</sup> Other represents change attributable to factors other than fund flows and valuation (e.g. changes in leverage and sample adjustments).

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

### 3.3.1. EF1 assets increased significantly in 2020 due to flows into MMFs and fixed income funds

With growth of 9.0% to \$47.4 trillion, EF1 grew faster in 2020 than the overall narrow measure but slower than the rates of asset growth seen in 2019 (Graph 3-5 LHS). As in 2019, assets in all EF1 categories grew in 2020, with MMFs being the largest contributor to growth, followed by fixed income funds. In 2020, valuation played a substantial role in the growth of fixed income and mixed funds (although more so in mixed funds,) and growth in MMFs was due to inflows (See Box 3-2). EF1 accounted for three quarters of the narrow measure in 2020, which was largely unchanged compared to 2019.

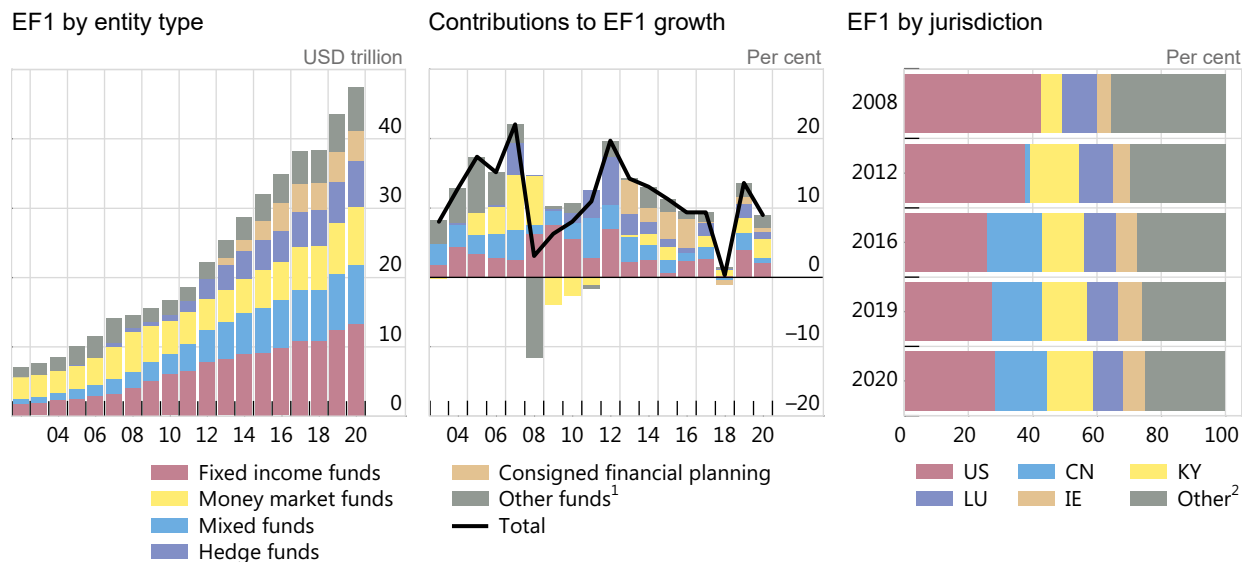
**Growth in EF1 assets was broad-based across entity types, mainly driven by MMFs and fixed income funds (Graph 3-5, middle panel).** Fixed income funds remained the largest EF1 entity type with 28.0% of total EF1 assets, their classified assets growing by 7.4% in 2020. MMFs

and mixed funds each represented approximately 17.9% total EF1 assets. Hedge funds' share of EF1 assets remained largely stable in 2020.<sup>59</sup>

## MMFs and fixed income funds were the main contributors to Economic Function 1 growth

29-Group

Graph 3-5



<sup>1</sup> 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-ended funds, and funds of funds. Equity funds include open-ended equity funds holding more than 20% credit assets. <sup>2</sup> Other jurisdictions in 29-Group not displayed separately.

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

**Growth in mixed fund, fixed income fund, and other fund assets in 2020 contrasts sharply with declines in investment fund assets observed during Q1 2020 (Graph 3-5 and B7).** Substantial and sustained official sector support likely contributed to higher valuations across asset classes and encouraged inflows into fixed income funds during Q2-Q4 2020.

**EF1 assets increased in 25 out of 29 jurisdictions in 2020 (Graph 3-6).** Fixed income fund assets grew in many advanced economies, while MMF growth appeared to contribute substantially to EF1 asset growth in emerging economies. In Argentina, the growth in EF1 in nominal terms reflects the high inflation rate experienced in 2020,<sup>60</sup> as well as, in the case of MMFs, an increasing demand for liquid ARS-denominated products with better returns than cash. The Netherlands saw substantial shifts in the composition of EF1 assets, as fixed income funds' assets continued to decline, a trend that began in 2015, and the wind-down of a fund of funds reduced hedge fund assets. In Turkey, investors shifted from MMFs to hedge funds and other funds. The decline in EF1 assets in Japan reflected a reallocation from bond and mixed funds to equity funds.

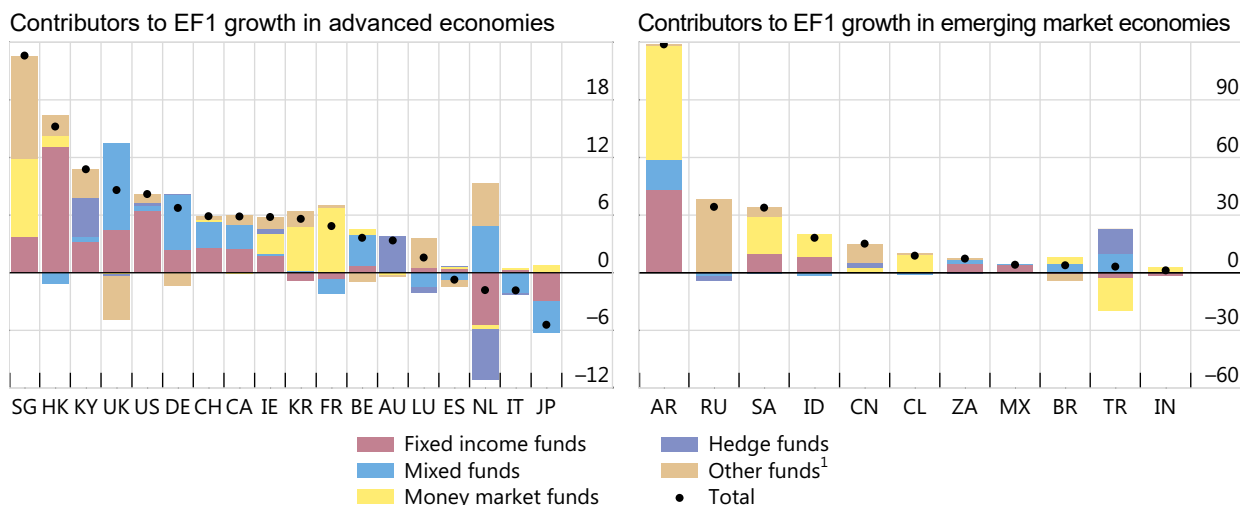
<sup>59</sup> Hedge funds are usually marketed by way of "private placement" to sophisticated, institutional or professional investors. They are often not subject to certain regulations designed to protect retail investors and typically can employ more flexible investment strategies than mutual funds or other registered funds.

<sup>60</sup> See note 50.

## Contributions to EF1 growth varied across jurisdictions with fixed income funds and MMFs as being the main drivers

In per cent

Graph 3-6



<sup>1</sup> 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-ended funds, and funds of funds. Equity funds include open-ended equity funds holding more than 20% credit assets.

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

### Box 3-3: Recent trends in the MMF sector

In 2020, MMFs globally saw an annual increase of 17.4% to \$8.5 trillion, the highest increase in AUM since the global financial crisis, and nearly twice the average annual growth observed between 2017 and 2019 (9.2%). Moreover, March 2020 saw dramatic shifts in MMF assets and, in some of the largest jurisdictions, rebalancing between different types of MMFs.<sup>61</sup>

**A new feature of the FSB monitoring exercise highlights differences in trends between different types of MMFs, specifically short-term government MMFs and non-government/longer maturity MMFs.**<sup>62</sup> This granularity provides additional insights into investor behaviour and divergent trends within the MMF category. Disaggregated data was available for 12 jurisdictions that represent around 80% of global MMF assets included in the 2021 monitoring exercise.

<sup>61</sup> Following the 2008 global financial crisis, the US Securities and Exchange Commission (SEC) adopted regulatory reforms for MMFs in 2010 and 2014. The most recent of these reforms went into effect in 2016 and among other things, required institutional prime MMFs to price their shares using mark-to-market valuation and float their net asset values (NAVs). Government and retail MMFs are allowed to use amortized cost for valuation and maintain a stable NAV. As the 2014 regulatory reforms came into effect, there was a shift of assets in the US from prime MMFs to government MMFs.

In the European Union (EU), the Money Market Funds Regulation was adopted in 2017, with full entry into force in July 2018. This regulation introduced four main types of MMF: Constant NAV funds (CNAV funds) that invest in short-term public debt, use amortized cost valuation, and are almost exclusively dollar-denominated; Low Volatility NAV funds (LVNAV funds) that invest in short-term private debt, are allowed to use amortized cost valuation, and are generally dollar- or GBP-denominated); short-term Variable NAV funds (short-term VNAV funds), that invest in private debt and use marked-to-market valuations; and standard variable NAV funds (standard VNAV funds) that invest in longer maturity assets and use marked-to-market valuation.

<sup>62</sup> Short-term government MMFs invest at least 99.5% of fund assets in short-term government securities or repos collateralised by those securities. "Non-government/longer maturity MMFs" invest predominantly in securities that are not issued by governments or in government and/or non-government securities that have maturities longer than 397 days and up to two years.

## A higher proportion of global MMFs are held in short-term government MMFs

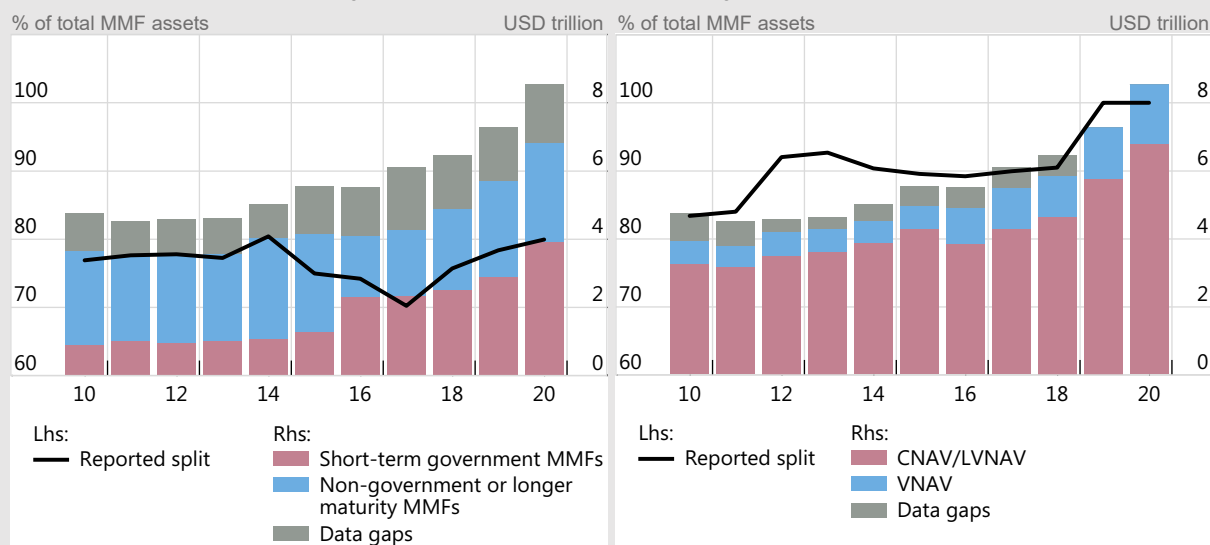
MMFs

29-group

Graph B8

New feature of the FSB reporting

Accounting split between MMFs



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

As reflected in the granular data in Graph B8, short-term government MMFs experienced growth in assets in 2020, reaching \$4.0 trillion, (34.5% growth), as four jurisdictions reported double-digit growth, and one reported negative growth.<sup>63</sup> Within non-government/longer maturity MMFs lower growth was reported, ending 2020 at an AUM of \$2.9 trillion (3.8% growth), as eight jurisdictions reported growth while four jurisdictions reported contraction. The increases in both categories across these jurisdictions were generally driven by inflows and not by changes in the value of MMF assets (Box 3-2).<sup>64</sup>

The FSB monitoring exercise also collected data on MMFs that have a constant NAV and those that have a variable NAV; these data provide consistent coverage, with few data gaps in recent years.<sup>65</sup>

**Disaggregation of risk metrics hints at a lower risk profile of short-term MMFs** (Graph B9). Compared to non-government/longer maturity MMFs, short-term government MMFs appear to engage in less liquidity transformations as measured by LT2.<sup>66</sup>

The disaggregated data on these categories of MMFs provides valuable information for purposes of monitoring trends and potential risks. The FSB plans to include this additional data granularity as a regular feature of the monitoring exercise going forward.

<sup>63</sup> One jurisdiction only reported a 2020 short-term government MMF asset number and thus was not included in the jurisdiction count.

<sup>64</sup> US government MMFs, which represented 69% of US MMF assets at the end of February, experienced substantial inflows in excess of \$838 billion (or over 30% of their net assets in February). In the EU, short-term public debt MMFs, which represent less than 10% of the market and invest mostly in assets denominated in USD, also had similar flow. FSB NMEG Report 2020 Case Study on MMF, *Money market funds during the COVID-19 shock*.

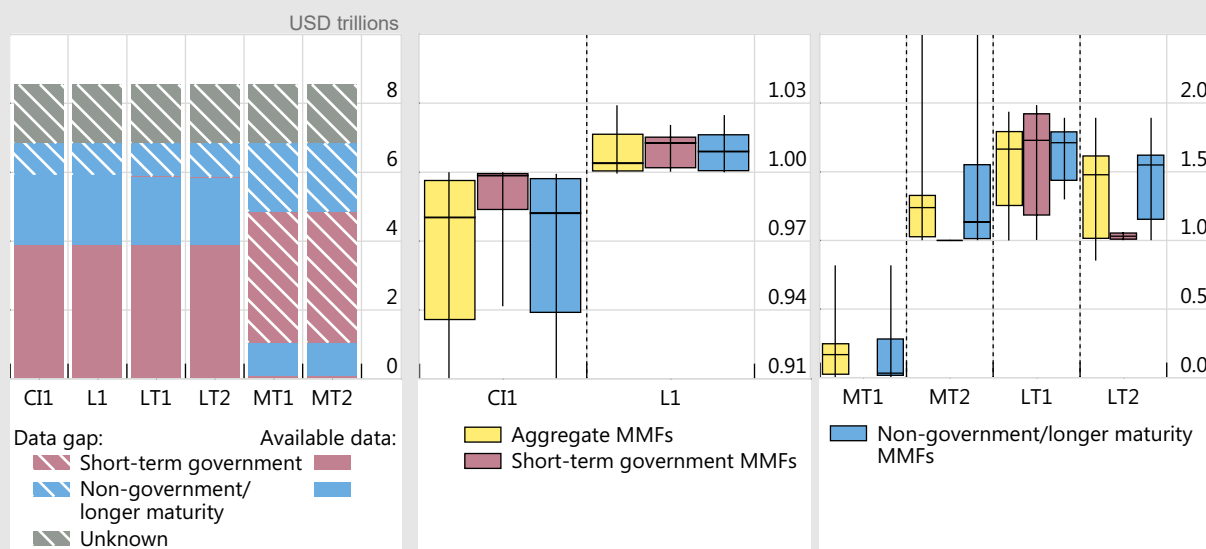
<sup>65</sup> See NMEG 2020 MMF Case Study.

<sup>66</sup> Due to lower data coverage for short-term government MMFs, it is difficult to directly compare maturity transformation across MMF types.

## Risk metrics for MMFs and the MMF-split need to be interpreted against the background of their respective data coverage

Graph B9

Risk metrics sample size relative to total assets<sup>1</sup>      Value of risk metrics for 2020 by MMF category<sup>2</sup>



<sup>1</sup> The graph represents the sample sizes in terms of total assets for each of the risk metrics for 2020. It also identifies data gaps in the split across MMFs categories, which can provide context in terms of the extent to which risk metrics in the (RHS) can be interpreted. For example, the FSB was able to collect on a best efforts basis a representative sample in terms of AUM for C1 through LT2. However, large data gaps remain for MT1 and MT2. <sup>2</sup> The box and whisker plots represent the 25%, 50% (cross), and 75% percentiles, while the lines indicate variability outside the upper and lower quartiles.

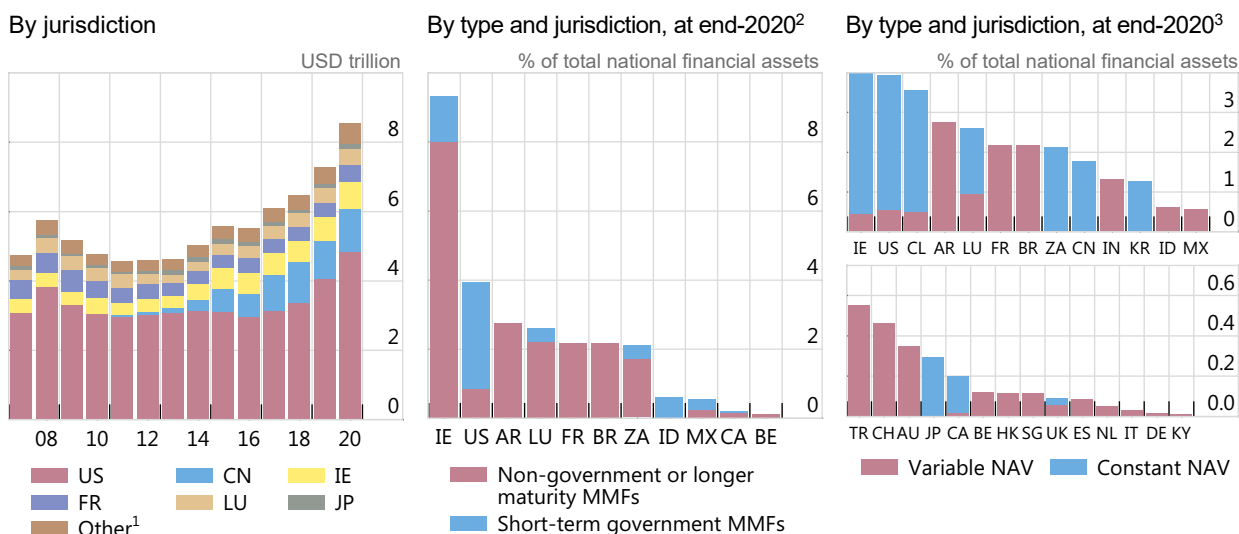
Sources: Jurisdictions' 2021 submissions (national sector balance sheet and other data); FSB calculations.

**In 2020, MMF asset growth continued, largely driven by growth in MMF assets in the US and the participating euro area jurisdictions, contributing 61.0% and 17.8% to overall MMF asset growth, respectively.** The majority of MMF assets classified in EF1 are held in the US which accounts for 57.0% of global MMF assets or \$4.8 trillion, China (14.5% or \$1.2 trillion) and Ireland (9.1% or \$773.4 billion) (Graph 3-7, LHS). Funds offering constant (stable) net asset value (NAV) accounted for 79.5% of global MMF assets and represented the largest type of MMFs in nine jurisdictions (Graph 3-7, RHS).

## Constant NAV MMFs account for the majority of global MMF assets.

29-Group

Graph 3-7



<sup>1</sup> Other jurisdictions in 29-Group not displayed separately. <sup>2</sup> Jurisdictions with total MMF assets of less than 0.1 per cent as a share of total national financial assets are not displayed. <sup>3</sup> The bar for Ireland's constant NAV (9%) is not shown entirely because it is particularly high compared to the rest of the jurisdictions.

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

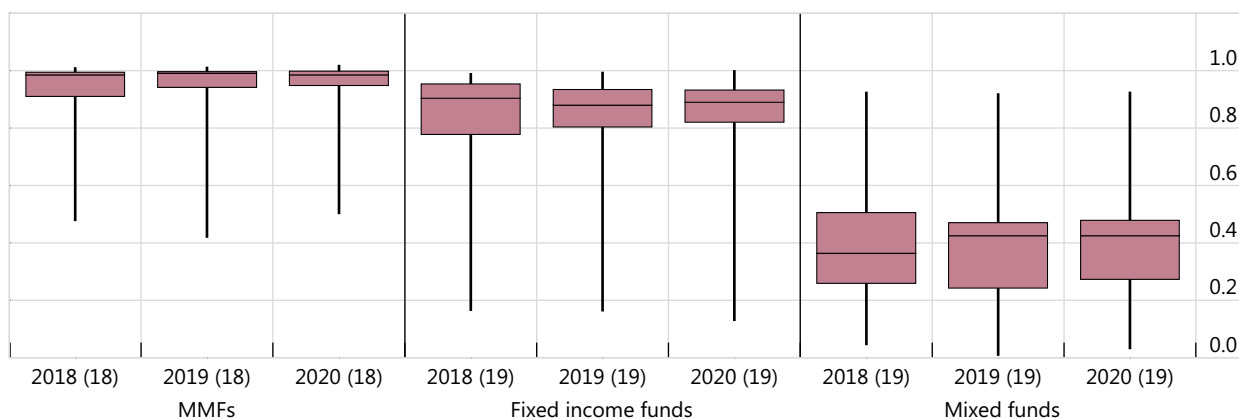
### 3.3.2. Financial stability risk metrics for EF1 are stable year-on-year

**Risk metrics measuring credit intermediation, maturity transformation, liquidity transformation and leverage vary across EF1 entity types, depending on their business models.** For instance, MMFs and fixed income funds show higher levels of credit intermediation than mixed funds because the latter also invest in equity instruments, which do not constitute credit assets. In general, fixed income funds also display higher levels of maturity and liquidity transformation than mixed funds and MMFs, because mixed funds typically allocate a smaller proportion of assets to credit assets and MMFs have limits on the maturity of assets that they hold. Funds engaging in liquidity or maturity transformation that do not effectively manage liquidity risk may face greater liquidity strains if they experience large and unexpected redemptions, especially under stressed market conditions.

**Trends in risk metrics computed using annual data do not reflect notable volatility observed during 2020.** Measures of credit intermediation, maturity transformation, and liquidity transformation by fixed income funds dipped sharply in Q1 2020 before rebounding in Q2 2020, consistent with these funds' increasing allocations to cash, lower duration, and more liquid assets in Q1 2020 before increasing exposures to credit risk, interest rate risk, and reducing portfolio liquidity as official sector intervention calmed financial markets.<sup>67</sup>

**Credit intermediation remained high for MMFs and fixed income funds in 2020 (Graph 3-8).** The median values of credit intermediation (CI) as measured by credit assets over total financial assets (CI1) also appeared stable for mixed funds. The bulk of the credit assets held by EF1 entities are debt securities as reflected by the ratio of loans to total financial assets (CI2 – see Annex 4,) that are close to zero.

<sup>67</sup> Observations in Q1 and Q2 of 2020 were analysed by the FSB in targeted studies. See, note 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 between years might be related to changes in the sample of jurisdictions that provided data.

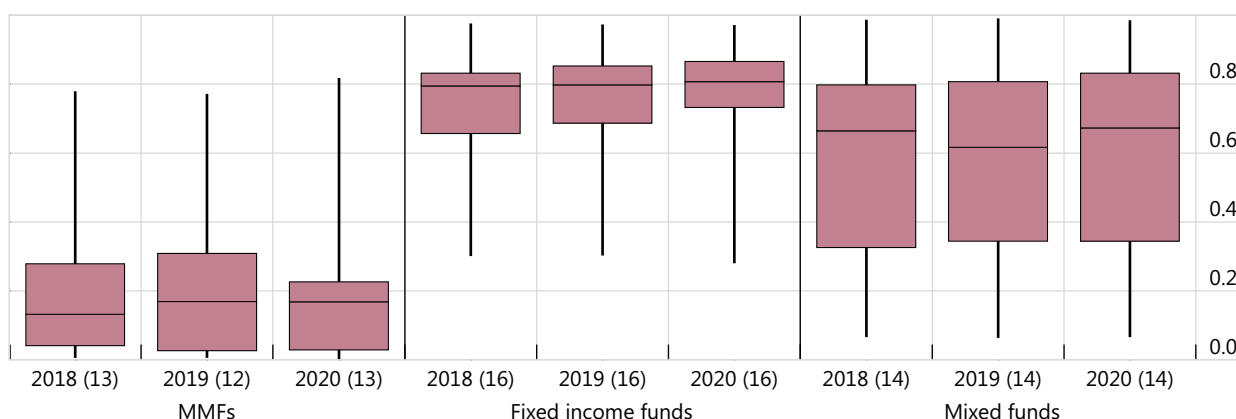
<sup>1</sup> Credit assets / total financial assets (C11). The sample size indicates the number of jurisdictions submitting the relevant data per year. Each jurisdiction's data submission reflects data from many individual entities within that jurisdiction. The sample of reporting jurisdictions in 2020 represents 84% of total MMF assets and more than 100% of total fixed income funds' and mixed funds' assets, respectively. The coverage of these risk metrics is higher than 100% due to some jurisdictions using a sample that includes entities prudentially consolidated into banking groups to calculate risk metrics, while such entities are excluded from those classified into the narrow measure.

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

**Maturity transformation by MMFs was largely unchanged in 2020, while increasing slightly for fixed income funds and mixed funds.** All EF1 entity types were involved in some degree of maturity transformation. The median MT1 value of 0.81 for fixed income funds (the ratio of long-term assets minus long-term liabilities and redeemable equity to total financial assets,) indicates that these entities mainly hold long-term assets funded by short-term liabilities and shares issued. Such funds may be vulnerable to periods of diminishing short-term funding liquidity and redemption pressure if they do not effectively manage liquidity risk.

The very low median MT1 value for MMFs (0.17) suggests that MMFs do not perform maturity transformation. This reflects the short-term nature of their holdings and the fact that many MMFs are limited in the extent to which they can invest in securities with a residual maturity of more than 397 days (Graph 3-9).<sup>68</sup>

<sup>68</sup> Among European MMFs, however, standard VNAV MMFs are limited to holding assets with maturities up to 2 years.



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.

<sup>1</sup> (Long-term assets – equity – long-term liabilities) / total financial assets (MT1). The sample size indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission reflects data from many individual entities within that jurisdiction. <sup>2</sup> The sample of reporting jurisdictions in 2020 represents 84%, 84% and 90% of total MMFs', fixed income funds' and mixed funds' assets, respectively.

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

**Liquidity transformation changed slightly from 2019. Fixed income funds, mixed funds and MMFs continued to have high liquidity transformation metrics (Graph 3-10).** The median value of the ratio of less-liquid assets funded by short-term liabilities, using a narrow definition of liquid assets (LT1)<sup>69</sup> was near the upper limit of two for MMFs (1.69), fixed income funds (1.93) and mixed funds (1.92) in 2020. In all jurisdictions that reported the relevant data, LT1 is larger than 1, indicating that short-term liabilities and redeemable equity exceeded fund holdings of liquid assets (Graph 3-9).<sup>70</sup>

Median values for the ratio of less-liquid assets funded by short-term liabilities, using a broad definition of liquid assets (LT2) were higher than one, suggesting some degree of liquidity transformation for MMFs (1.49), fixed income funds (1.67) and mixed funds (1.70).

In general, the relatively high LT1 and LT2 measures for EF1 entities can be attributed to the open-ended structure of most of the funds classified into EF1 by jurisdictions – i.e. these funds offer investors daily redemptions and hold assets that may be less liquid.<sup>71</sup>

**Reported balance sheet leverage, as measured by total financial assets divided by equity (L1) continued to be low across the largest EF1 entity types (Graph 3-11):** Median values of this ratio were close to one for MMFs, fixed income funds and mixed funds, with little change from the prior year. Most jurisdictions limit the amount of balance sheet leverage that investment funds other than hedge funds can employ. This measure of leverage only provides a partial view

<sup>69</sup> LT1 relies on a narrow definition of liquid assets that includes only cash and cash equivalents. For further details on the definition of liquid assets, see Annex 4. As highlighted earlier, part of the variation in the risk metrics may also be caused by differences in data submission across participating jurisdictions.

<sup>70</sup> This ratio will be biased upwards for jurisdictions that reported total NAV in the total assets field, instead of total AUM without netting off any liabilities.

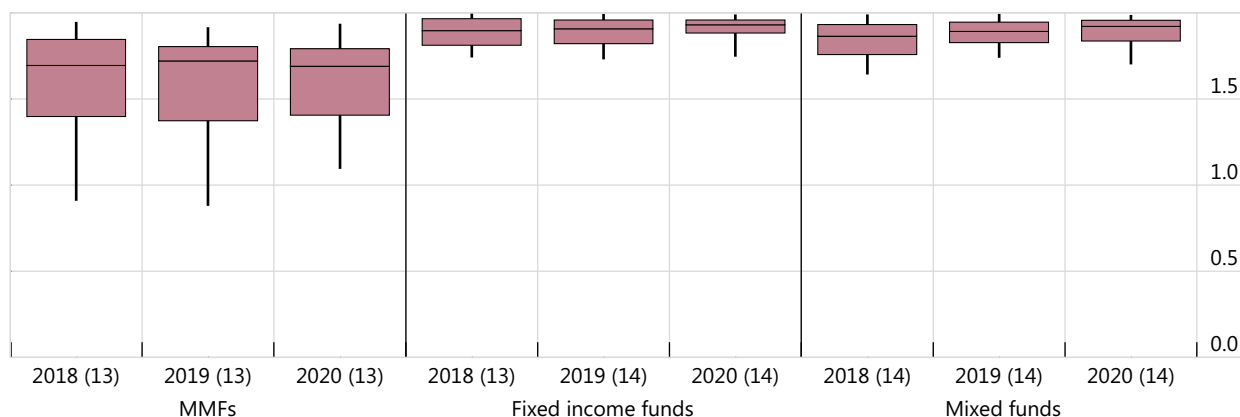
<sup>71</sup> Some jurisdictions included closed-ended funds in EF1 for various reasons, such as insufficient information on the redemption structures of certain entity types, because the funds are leveraged, or because the jurisdictions' regulations allow closed-ended funds to operate more like open-ended funds.



of the leverage obtained by the relevant EF1 entities, given that it does not consider synthetic leverage arising from derivatives transactions.<sup>72</sup>

### EF1: Liquidity transformation<sup>1</sup> was little changed in 2020

Graph 3-10



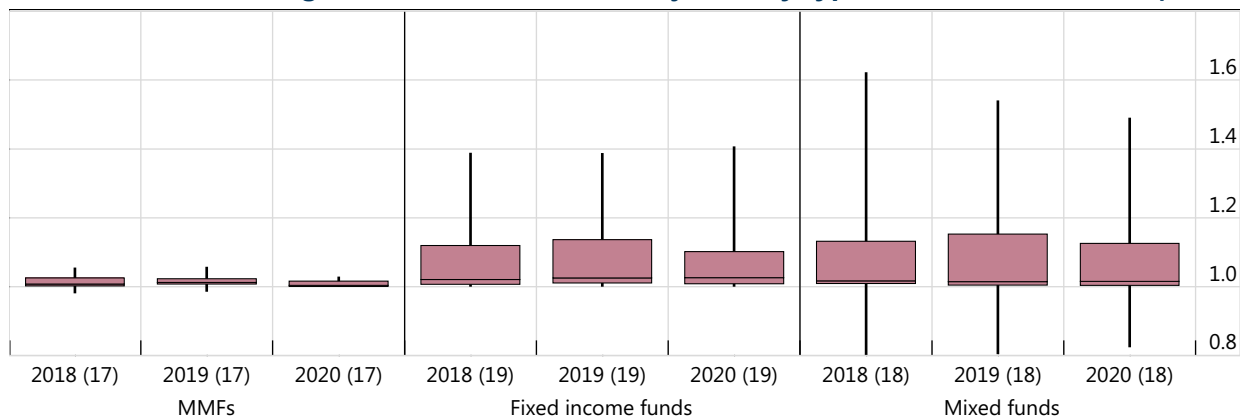
The median value is represented by a horizontal line, with 50% of the values falling in the 25th to 75th percentile range shown by the box. The upper and lower end points of the thin vertical lines show the range of the entire sample. Changes in the distribution across years might be related to changes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

<sup>1</sup> (Total financial assets- liquid assets + short-term liabilities + redeemable equity) / total financial assets (LT1). The sample size indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission reflects data from many individual entities within that jurisdiction. The sample of reporting jurisdictions in 2020 represents 81%, 83% and 92% of MMFs, fixed income funds and mixed funds total assets, respectively.

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

### Balance sheet leverage<sup>1</sup> remains low across major entity types

Graph 3-11



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

<sup>1</sup> Total financial assets / equity (leverage 1). The sample size indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission reflects data from many individual entities within that jurisdiction. The sample of reporting jurisdictions in 2020 represents 83% of total MMF assets and more than 100% of total fixed income funds' and mixed funds' assets, respectively. The coverage of these risk metrics is higher than 100% due to some jurisdictions using a sample that includes entities prudentially consolidated into banking groups to calculate risk metrics, while such entities are excluded from those classified into the narrow measure.

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

<sup>72</sup> For example see Box 2-3 of FSB (2018a) or IOSCO (2017) for synthetic leverage estimates for hedge funds in some jurisdictions.

### 3.3.3. Concentration

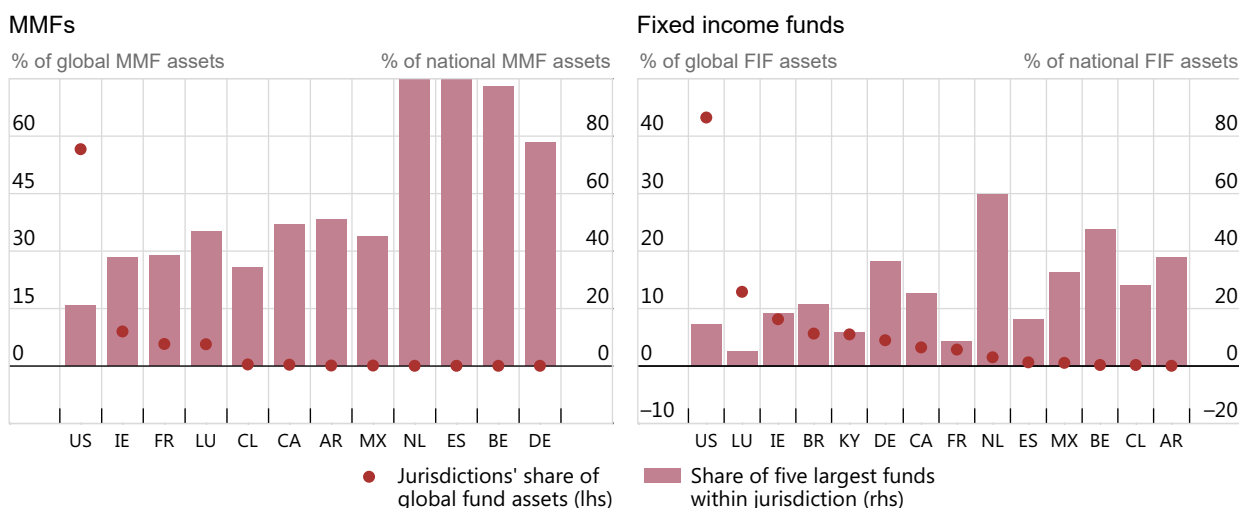
Data for the largest five EF1 entities in each jurisdiction within each entity type can help to assess market concentrations.

**Similar to the results from previous years, concentration levels in MMFs are generally higher than those in fixed income funds in 2020, ranging from 20.9% to 100% (Graph 3-12).** The largest five MMFs accounted for over 40% of total MMF assets in eight out of the 12 jurisdictions reporting the relevant data. In jurisdictions with at least six MMFs, the market share of the top five MMFs ranges from 20.9% in the US to 51.0% in Argentina. Jurisdictions with greater concentration in domestic MMF sectors tend to have smaller domestic MMF sectors. Fixed income funds, on the other hand, were less concentrated in most jurisdictions, with only Belgium and the Netherlands exhibiting concentration levels above 40%, and Luxembourg having the least concentrated sector with a market share of only about 5.0% for the top five fixed income funds. Concentration of mixed funds across jurisdictions was similar to that of fixed income funds, ranging from 7.4% to 65.0%.

#### Concentration among MMFs appears higher than concentration among fixed income funds

29-Group

Graph 3-12



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

### 3.4. Loan provision that is typically dependent on short-term funding (EF2)

EF2 entities engage in loan provision that is typically dependent on short-term funding. Finance companies, the long-standing dominant EF2 entity type, often specialise in areas such as consumer finance, auto finance, retail mortgage provision, commercial property finance, and equipment finance. Entities engaged in these activities tend to either compete with banks or offer services in niche markets where banks are not active players, and often concentrate their lending activities in specific sectors due, in part, to expertise. As a result of such specialisation, finance companies may become highly exposed to cyclical sectors. Finance companies that rely on short-term or wholesale funding may amplify cycles in these sectors or serve as a means of shock transmission to the sectors they serve if they are unable to roll over these short-term

liabilities. Further, finance companies that offer deposit-like products to the retail sector may raise further risks for households and creditors especially as such products may not be covered by jurisdictions' deposit insurance schemes and may be susceptible to runs. Where data permits, finance companies that are consolidated within banking groups are excluded from EF2.

### 3.4.1. EF2 assets continue to grow relative to the narrow measure

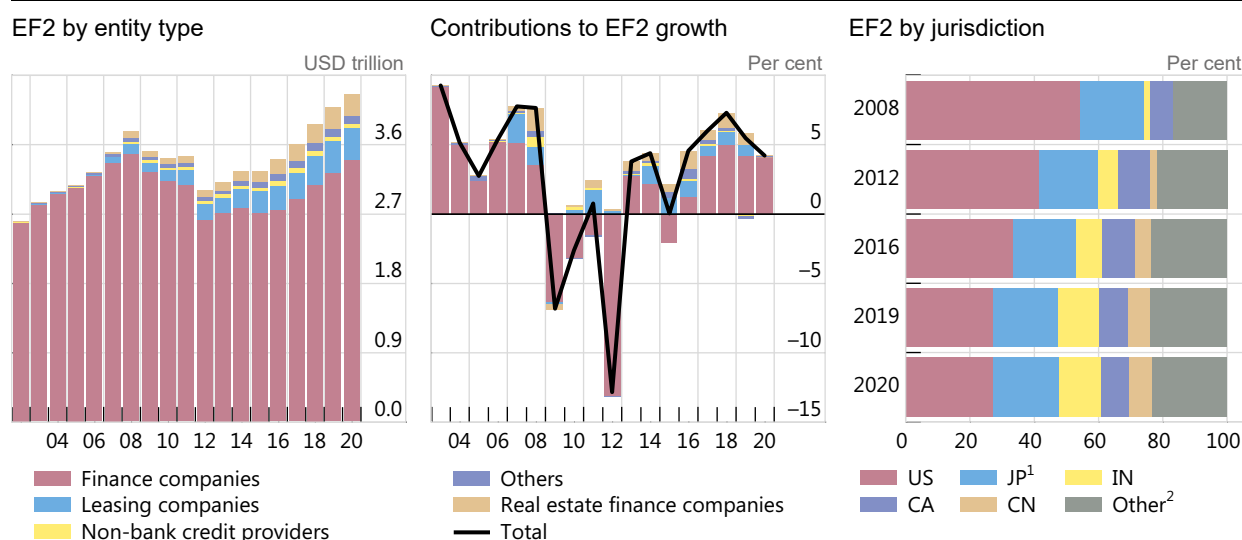
**Global EF2 grew by 4.2% to \$4.3 trillion in 2020, slightly increasing its share of the narrow measure although growth of assets supporting EF2 lagged growth in previous years (Graph 3-13).** The composition of EF2 entities remained stable with finance companies accounting for 80.1% of global EF2 assets, followed by leasing companies (9.6%) and real estate finance companies (6.5%).<sup>73</sup>

**As in 2019, the US, Japan, India, and Canada contributed the most to global EF2 asset growth.** In aggregate, EF2 assets in these four jurisdictions increased by \$138.5 billion which constitutes 80.3% of the net increase in global EF2 assets. Overall, 18 jurisdictions, representing around 90% of global assets, reported growth in EF2 assets. The US and Japan account for the largest share of EF2 assets with 27.2% and 20.5%, respectively. In 2020, EF2 assets in these jurisdictions grew by around 4%. In contrast, several jurisdictions experienced very large decreases in EF2 assets, namely Chile (17.2%), Hong Kong (15.5%), and Indonesia (12.3%).<sup>74, 75</sup>

#### Finance companies continue to be the main contributor to EF2 asset growth

29-Group

Graph 3-13



<sup>1</sup> Japan's share of global EF2 assets is likely to be significantly overestimated given that, among the finance companies classified by Japan, there are several large entities that are prudentially consolidated into banking groups (and should be excluded from EF2) but given the lack of granular information on their balance sheet assets they are still reported in EF2. <sup>2</sup> Other jurisdictions in 29-Group not displayed separately.

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

<sup>73</sup> Furthermore, although the jurisdictions accounting for the largest share of global EF2 assets remain unchanged, their relative share shifted slightly. In 2020, the US accounted for 27.1% of global EF2 shares, down by almost 2 percentage points from its share in 2019. Japan's share of global EF2 assets increased slightly to 20.5%, whereas Canada's share remained the same (9.0%).

<sup>74</sup> Following assessment in 2021, Indonesia determined that finance companies met the criteria for classification into EF2.

<sup>75</sup> The decrease in EF2 assets in Hong Kong continues a downward trend from 2019 and reflects continued economic uncertainties that have encouraged finance companies to become more prudent in granting loans which constitute a major component of their

Finance companies continue to be the largest component of EF2 and are the main driver of the growth in assets supporting EF2 (Graph 3-13 left and middle panels). Moreover, finance companies are the only entities classified into EF2 in the US and Japan (see Graph 3-13, RHS).

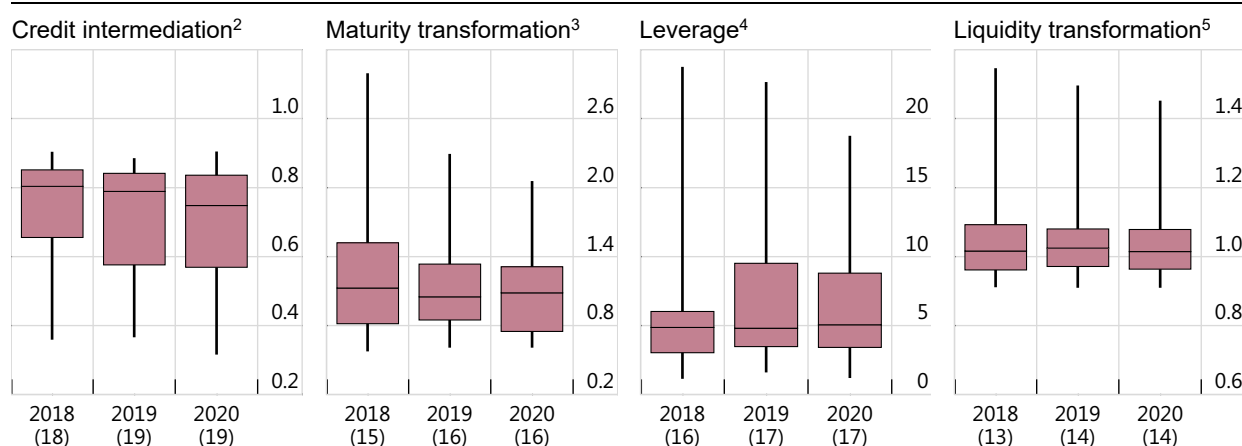
### 3.4.2. Risk metrics for finance companies remained largely stable

Risk metrics for EF2 appear stable compared to results from the previous two years, especially when focusing on the median ratios (Graph 3-14). EF2 entities are active in credit intermediation and are the non-bank intermediaries most like banks in terms of their business models and scope of activities.

#### Risk metrics for finance companies did not change significantly from 2019<sup>1</sup>

Ratios for the last three years

Graph 3-14



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.

<sup>1</sup> 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. <sup>2</sup> loans / total financial assets (CI 2). The sample of reporting jurisdictions in 2020 represents more than 100% of finance companies total assets. The coverage of this risk metrics is higher than 100% due to some jurisdictions using a sample that includes entities prudentially consolidated into banking groups to calculate risk metrics, while such entities are excluded from those classified into the narrow measure. <sup>3</sup> Short-term liabilities / short-term assets (MT 2). The sample of reporting jurisdictions in 2020 represents 87% of finance companies total assets. <sup>4</sup> Total liabilities/equity (L4). The sample of reporting jurisdictions in 2020 represents 87% of finance companies total assets. <sup>5</sup> (Total financial assets – liquid assets (narrow) + short-term liabilities) / total financial assets (LT1). The sample of reporting jurisdictions in 2020 represents 85% of finance companies total assets.

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

The distributions for maturity transformation (MT2), leverage (L4), and liquidity transformation (LT2) in 2020 largely resemble those in 2019, albeit with notable declines in the maximum values of these metrics. Median maturity transformation – measured as the ratio of short-term liabilities to short-term assets (MT2) – remained largely stable in 2020. Out of 16 reporting jurisdictions, nine exhibited decreases in MT2 although these were small in magnitude. The median level of liquidity transformation – measured as the ratio of less-liquid assets funded by short-term liabilities – decreased slightly in 2020 and remained close to one in 10 reporting jurisdictions.

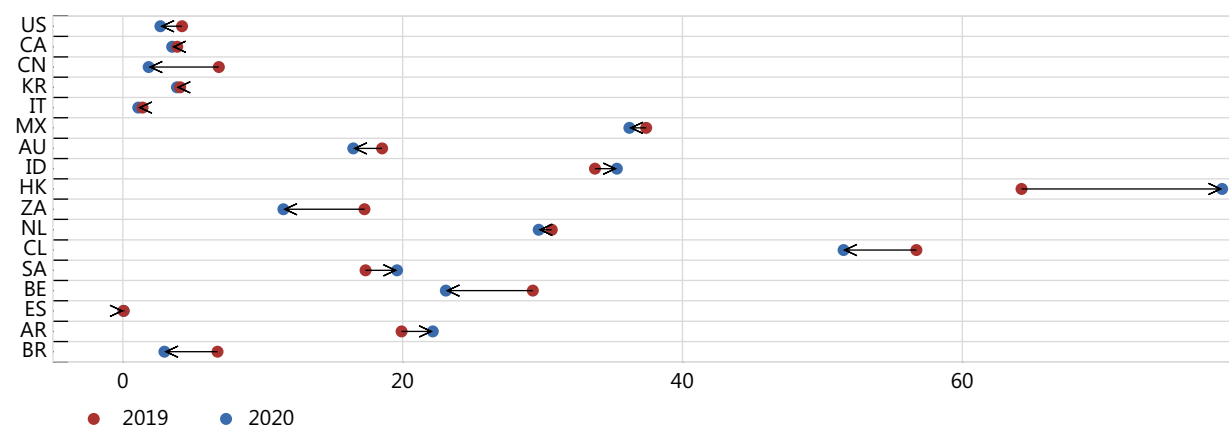
balance sheet. In Chile, mergers between banks and non-bank credit card issuers meant that assets of the latter came under prudential consolidation and are now outside of the narrow measure. Indonesia's reduction in finance company assets was attributed to the Covid-19 pandemic.

The use of short-term wholesale funding by finance companies remained largely the same in 2020, with large increases only seen in Hong Kong (Graph 3-15). EF2 entities in Hong Kong and Chile continue to be heavily dependent on short-term wholesale funding, although this dependence decreased somewhat in 2020 for Chile.<sup>76</sup>

### The use of short-term wholesale funding by finance companies changed little in most reporting jurisdictions in 2020<sup>1</sup>

As a percentage of total assets

Graph 3-15



<sup>1</sup> Only includes jurisdictions that provided short-term wholesale funding data for both years.

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

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

EF3 includes intermediation activities that are dependent on short-term funding, including secured funding of client assets, and securities borrowing and lending. EF3 activities are predominantly performed by broker-dealers, which 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 corporates. Where data permits, broker-dealers that are owned by (and hence consolidated within) banking groups are excluded from EF3. Given that broker-dealers are the predominant EF3 type, the risk metrics analysed in this section focuses exclusively on broker-dealers.

### 3.5.1. EF3 asset growth moderated in 2020

EF3 assets grew by 3.7% to \$4.9 trillion in 2020, exhibiting slower growth than in 2019 (Graph 3-16 LHS). In contrast, EF3 assets' share of the narrow measure decreased slightly from 8.0% in 2019 to 7.8% in 2020. Entities included in EF3 are broker dealers (82.7% of EF3 assets), custodial accounts (15.4%), and securities finance companies (1.6%). In 2020 overall EF3 growth was driven by custodial accounts (\$68.1 billion) and broker-dealers (\$84.8 billion) (Graph 3-16, middle panel).

<sup>76</sup> For Hong Kong in 2020, the amount of finance obtained from parent companies increased by 7.4% which may partly explain the rise in the use of short-term wholesale funding. However, the ratio of short-term assets to short-term liabilities of money lenders continued to be close to 1 meaning little maturity transformation by finance companies in Hong Kong in 2020.

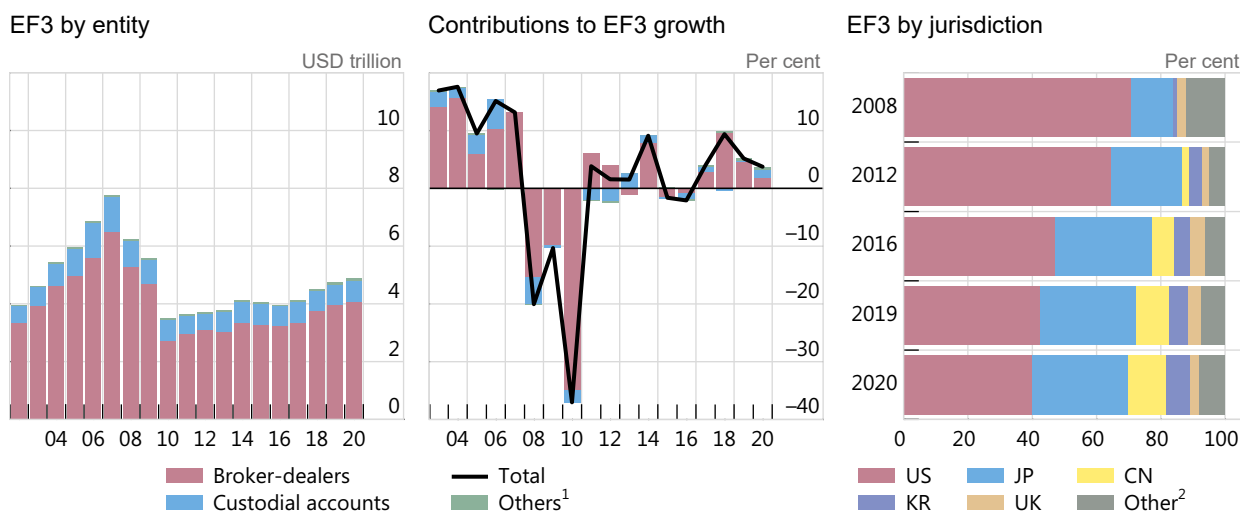
**Broker-dealer assets reached \$12.1 trillion in 2020, up by 12.4% relative to end-2019 (for the 29-Group).** Of these assets, \$4.1 trillion or 33.5% were classified in EF3. The annual growth of broker-dealer assets classified into EF3 in 2020 (2.1%) was lower than the 5-year annual rate of 3.5% between 2014 and 2019. Broker-dealer asset growth was driven by China and Korea, with \$87.8 and \$78.4 billion, respectively. Growth in custodial accounts, in contrast, was attributed to the US.

**Growth in broker-dealer assets classified in EF3 during 2020 varied across jurisdictions with assets in EMEs growing while assets in AEs declined.** In both EMEs and AEs, total broker-dealer assets exhibited strong growth of 18.8% and 12.0%, but assets classified in EF3 grew in EMEs (18.7%) and shrank in AEs (-0.4%). Among EMEs, most broker-dealer asset growth was attributable to China which represented 88.6% of the total increase in EME broker-dealer assets classified in EF3.

**Broker-dealer assets continue to be the largest EF3 entity type, but custodial accounts' contribution to EF3 asset growth increased in 2020.**

29-Group

Graph 3-16



<sup>1</sup> Others include securities finance companies and dealers. <sup>2</sup> Other jurisdictions in 29-Group not displayed separately.

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

**The vast majority of EF3 assets continue to be located in the US, Japan, and China (Graph 3-16 RHS).** These three jurisdictions accounted for 81.7% of global EF3 assets. China's share of global EF3 assets increased from 6.7% in 2016 to 11.6% in 2020. Japan's share of global EF3 assets remained constant at around 30% over the last five years, whereas the US share of EF3 continued to decrease from 47.1% in 2016 to 40.1% in 2020. In Hong Kong, Japan and Korea, EF3 constitutes the largest share of the narrow measure with 43.8%, 42.3% and 33.4% of narrow measure assets, respectively.

**3.5.2. Financial stability risk metrics for EF3 remained broadly stable in 2020**

Broker-dealers are a critical part of financial intermediation chains. As a result, broker-dealers may be vulnerable because they use significant amounts of leverage or engage in a significant degree of maturity/liquidity transformation. In some circumstances, such vulnerabilities could

amplify shocks or cause them to spill over to impact the wider economy.<sup>77</sup> Depending on these entities' funding models, their intermediation activities may involve liquidity risk. These entities may also be vulnerable to roll-over risk or runs by lenders if they are leveraged, particularly if their funding is primarily dependent on short-term wholesale funding (e.g., repos). Such entities are exposed more generally to the risk of dysfunction in short-term funding markets.

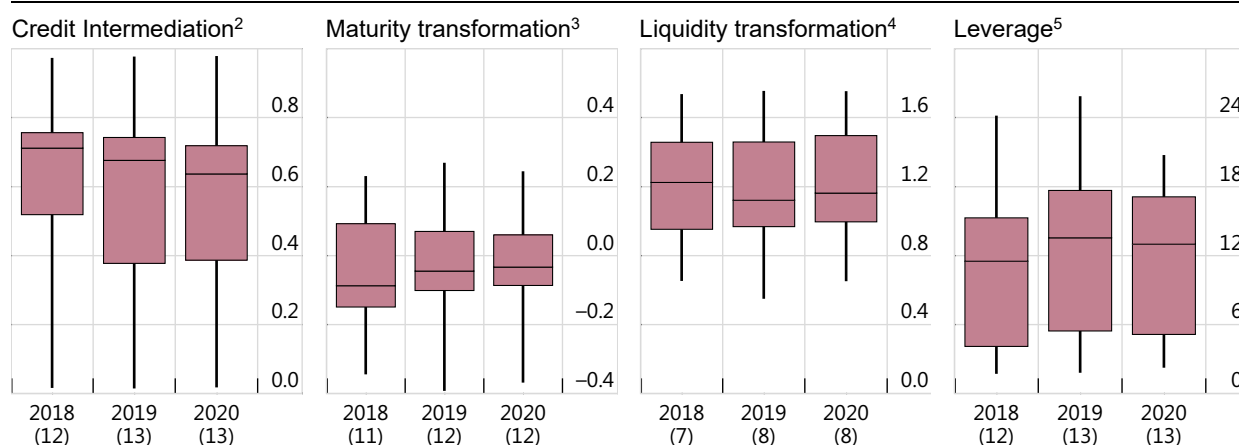
**Credit intermediation of broker-dealers decreased slightly for the second consecutive year in 2020 (Graph 3-17 LHS).** In several jurisdictions, broker-dealers' credit intermediation activities continue to be mainly through debt securities and reverse repos, with only a small fraction involved in direct lending. The median ratio of CI1 – credit assets to total financial assets – for broker-dealers was slightly lower than in the previous year at 0.63 in 2020 compared to 0.67 in 2019.<sup>78</sup>

**In 2020, maturity transformation for broker-dealers showed a slight increase in the median compared to 2019 (Graph 3-17, middle left).** Similarly, the median ratio of long-term assets funded by short-term liabilities (MT1) remained largely stable.<sup>79</sup>

### Liquidity transformation for broker-dealer assets increased slightly in 2020

Risk metrics for broker dealers<sup>1</sup>

Graph 3-17



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.

<sup>1</sup> 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 risk metrics is higher than 100% due to some jurisdictions classifying higher total assets in the risk metrics data than in the classification data, after subtracting prudentially consolidated entities into banking groups from the latter. <sup>2</sup> Credit assets / total financial assets (CI1). The sample of reporting jurisdictions in 2020 represents more than 100% of broker-dealers' total assets. <sup>3</sup> (Long-term assets – equity – long-term liabilities) / total financial assets (MT1). The sample of reporting jurisdictions in 2020 represents more than 100% of broker-dealers' total assets. <sup>4</sup> (Total financial assets – liquid assets (narrow) + short-term liabilities) / total financial assets (LT1). The sample of reporting jurisdictions in 2020 represents more than 100% of broker-dealers' total assets. <sup>5</sup> Total financial assets/equity (L1). The sample of reporting jurisdictions in 2020 represents more than 100% of broker-dealers' total assets.

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

<sup>77</sup> In some jurisdictions these vulnerabilities of broker-dealers are generally mitigated by the fact that the transactions are secured with liquid securities (i.e., securities that have a ready market) as collateral and the balance sheet of the broker-dealer are composed almost exclusively of cash and liquid securities.

<sup>78</sup> Risk metrics are calculated using net of prudentially consolidated assets.

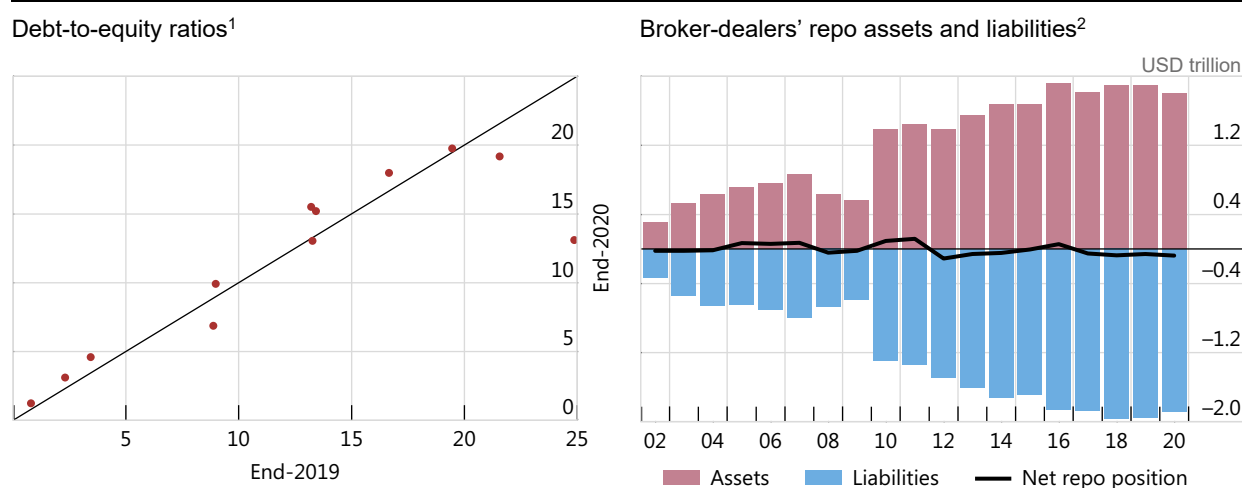
<sup>79</sup> As in 2019, the median ratio of short-term liabilities to short-term assets (MT2 – see Annex 4) remained below one, indicating negative maturity transformation in general, with the exception of three jurisdictions, which continued to have short-term funding dependencies.

**The median level of broker-dealers' liquidity transformation increased slightly (Graph 3-17, middle right).** LT1 for 2 out of the 7 reporting jurisdictions (comprising 7.5% of global EF3 assets), however, were significantly higher than the median ratio (around 1.2) indicating substantial levels of liquidity transformation.

**Out of 12 reporting jurisdictions, eight jurisdictions observed higher broker-dealer leverage in 2020 (Graph 3-18, LHS).** Reductions reported in the other jurisdictions, however, were substantial and thus led to a decrease in aggregate leverage. The median value of the ratio of total financial assets to equity capital (L1) remained largely stable at around 13.6 in 2020 (Graph 3-17, RHS).

**Broker-dealers continued to be net recipients of funding from repo markets in 2020 although the size of the net position appears modest (Graph 3-18, RHS).** Amongst the jurisdictions that show a net repo lending position are Brazil, France, Indonesia, the Netherlands, and Spain. Furthermore, since 2011, EMEs consistently exhibit net lending, whereas AEs demonstrate net borrowing. In aggregate, asset and liability side levels were slightly lower in 2020 than in 2019 with repo assets decreasing by 4.4% and repo liabilities by 3.3%.

**Broker-dealers continued to be net recipients of funding from repo markets in 2020** Graph 3-18



<sup>1</sup> Includes data from 12 jurisdictions. <sup>2</sup> Includes data from 13 jurisdictions.

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

### 3.6. Insurance or guarantees of financial product (EF4)

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



**If credit, liquidity or counterparty risks are mispriced, or incentives are misaligned, EF4 entities may contribute to excessive risk-taking, potentially contributing to boom-bust cycles.** The pricing of credit protection should reflect the creditworthiness of both the borrower and guarantor, but asymmetric information or other market frictions can cause imperfect credit risk transfer. In booms, these inefficiencies could result in an oversupply of credit to the real economy, whereas in busts, they could overly restrict credit supply.

**EF4's impact and importance may be significantly understated due to the difficulty of adequately capturing off-balance sheet exposures.** The analysis in this section relies on credit insurers' balance sheets, which are often modest. Balance sheets may not reflect the nominal value of credit exposure when entities offer credit protection using derivatives contracts. Only four jurisdictions included off-balance sheet assets into EF4.

Risk metrics for EF4 are not published due to the difficulty in interpreting the relatively sparse risk data provided by jurisdictions. Due to the small size of EF4 assets as a proportion of financial assets in reporting jurisdictions, reporting of risk metrics data for EF4 is particularly sparse.<sup>80</sup>

### *3.6.1. EF4 assets remained stable in 2020*

**Insurance corporations and mortgage insurers together make up more than 50% of EF4 assets, with shares of 26.7% and 24.7%, respectively.** Ten jurisdictions classified insurance corporations into EF4. Five jurisdictions reported financial guarantors as EF4 entities.

**Other identifiable entity types engaged in EF4 are broker-dealers and financial guarantors.** Broker-dealers account for 20.1% of EF4 assets. In Korea, EF4 is composed exclusively of broker-dealers that provide securitisation services to SFVs as well as guarantees, credit, and liquidity lines as part of this service. Financial guarantors account for another 1.7% of EF4 assets.

**The assets of mortgage insurers/guarantors continued to increase, a trend that started in 2017, while assets of credit insurers have declined.** The US, which accounts for the largest share of global EF4 assets (29.9%) and of insurance corporations' assets within EF4 (45.9%), has driven this decline in credit insurers assets. Mortgage insurers have been growing since 2014 and are the dominant EF4 entity type in the US since 2018. This development was driven by the diminishing returns and role of financial guarantee companies after the 2008 financial crisis. The decline in broker-dealer assets in Korea also led to a decline in broker-dealers' share in global EF4 assets.

**Assets classified into EF4 in 2020 remained close to their 2019 value of \$170.0 billion, and EF4 continues to be the smallest economic function in the narrow measure** (Graph 3-19 LHS).<sup>81</sup> Modest increases in mortgage insurers' and financial guarantors' assets were largely

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<sup>80</sup> The Experts Group establishes a threshold for reporting of risk metrics and requests risk metrics data from a jurisdiction only if an entity type's aggregate assets represent more than 1% of the jurisdiction's total financial assets or 1% of total global assets for the specific entity type classified in the narrow measure.

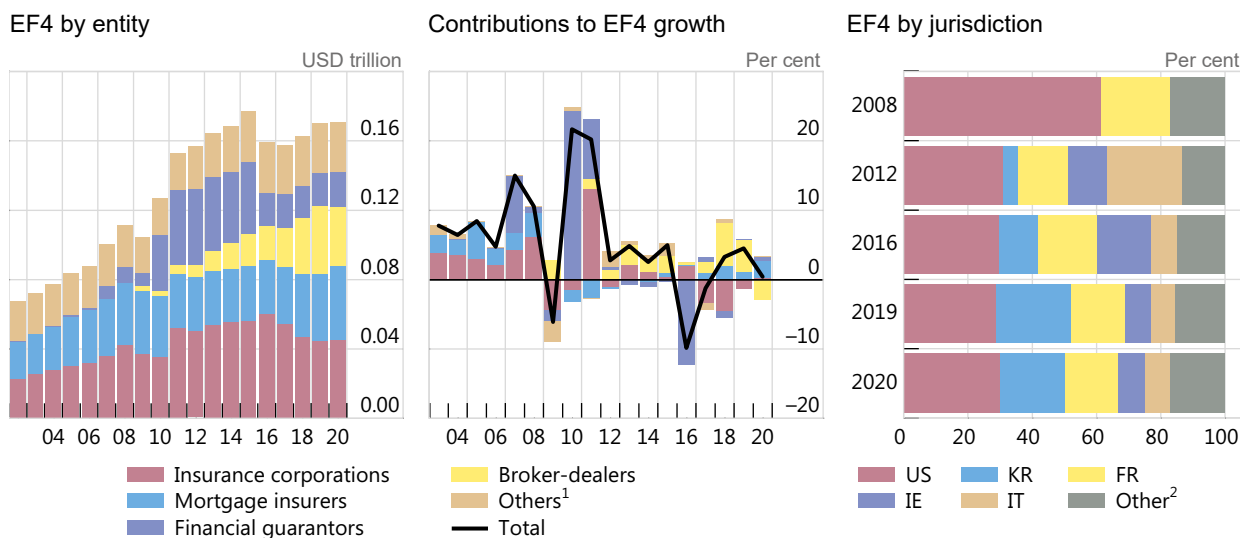
<sup>81</sup> The Experts Group has reviewed its classification guidance and determined that, to narrow the assets classified the economic function to reflect activities that facilitate credit creation, investment funds that use credit derivatives to obtain or hedge credit exposure should not be classified under Economic Function 4. These activities are likely related to investment strategies and not provision of guarantees to facilitate lending or security issuance. As a result, certain fixed income funds in Ireland, previously recorded in EF4, have been reclassified under EF1.

offset by decreases in broker-dealers' assets.<sup>82</sup> EF4's share in the narrow measure remained generally stable at 0.3% in 2020.

### Mortgage insurers contributed to most of the growth in EF4 and have been steadily growing since 2014

29-Group

Graph 3-19



<sup>1</sup> Includes SFVs and SPVs. <sup>2</sup> Other jurisdictions in 29-Group not displayed separately.

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

## 3.7. 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) or funding of financial entities through investment funds or trust companies to finance illiquid assets by raising funds from markets. Both banks and non-bank financial 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.<sup>83</sup> By facilitating the transfer of credit risk off-balance sheet, securitisation reduces funding costs for both bank and non-bank financial 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.

### 3.7.1. EF5 decreased significantly due to jurisdictions' tighter regulations and enhanced monitoring

**Global EF5 assets shrunk by 4.0% in 2020, reducing EF5's share of the narrow measure to 7.5%** (Graph 3-20, middle panel). EF5's share of the narrow measure declined for the eleventh year in a row and is down from 20.3% in 2009. EF5 is composed primarily of SFVs and

<sup>82</sup> Only Korea classifies broker-dealers into EF4.

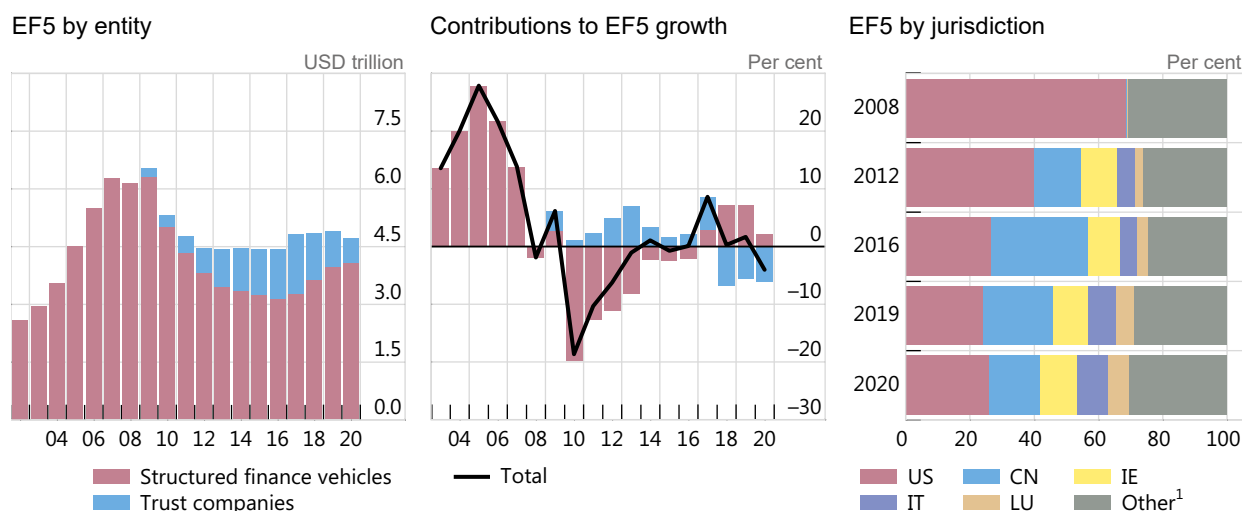
<sup>83</sup> See IOSCO's Report on asset securitisation incentives (IOSCO 2011).

trust companies, and these two entity types represent 86.7% and 13.3% of EF5 assets, respectively. Additionally, the proportion of trust companies in EF5 has shrunk since 2018, as a result of a sustained decline in the assets of Chinese trust companies after the introduction of tighter regulations on trust companies as well as enhanced monitoring of them in recent years.<sup>84</sup>

## A decline in trust company assets continues to weigh on EF5

29-Group

Graph 3-20



<sup>1</sup> Other jurisdictions in 29-Group not displayed separately.

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

**SFV assets classified into EF5 grew by 2.6% in 2020, continuing a growth trend that started in 2016.** Growth rates varied across jurisdictions. Increases in SFV assets in the US, Italy, and Luxembourg (3.6%, 5.9% and 12.8%, respectively) were largely offset by decreases in SFV assets in China and the Netherlands (-16.5% and -35.8%, respectively).<sup>85</sup> The increase in Italian SFV assets is explained by a higher level of securitisation of non-performing loans. The reduction in Netherlands SFV assets is partly attributable to an adverse tax ruling that imposes taxes on CLO management fees, and encouraged CLO managers to move to other jurisdictions, including Ireland. In Q4 2020, 79 CLO-issuing SFVs domiciled in the Netherlands moved to Ireland, and while this added less than 1% to the size of the SFV sector overall in Ireland, it produced a significant growth in the SFV segment that issues CLOs. Financial stability risk metrics for EF5 increased slightly in 2020

**SFVs classified into EF5 continue to engage in a significant degree of credit intermediation, particularly through issuance of debt securities backed by loan portfolios.** The median ratio of loans on the asset side of the balance sheet to total financial assets, or CI2, stayed largely unchanged at 0.78 (Graph 3-21, LHS). The high values for CI2 indicate that SFVs typically intermediate more loans than bonds. However, in some jurisdictions SFVs also engage to a significant extent in credit intermediation through the securitisation of debt securities.

<sup>84</sup> In November 2017, a new policy was issued by the Chinese authorities to regulate banks and trust corporations, requiring that trust companies do not provide financial institutions with a conduit service for the purpose of avoiding regulations such as investment or leverage constraints. This policy was followed by a series of guidelines for regulating the asset management businesses of financial institutions that were released jointly in April 2018 by the Chinese authorities. Meanwhile, the China Banking and Insurance Regulatory Commission strengthened the monitoring of conduit trusts and took enforcement action against violations.

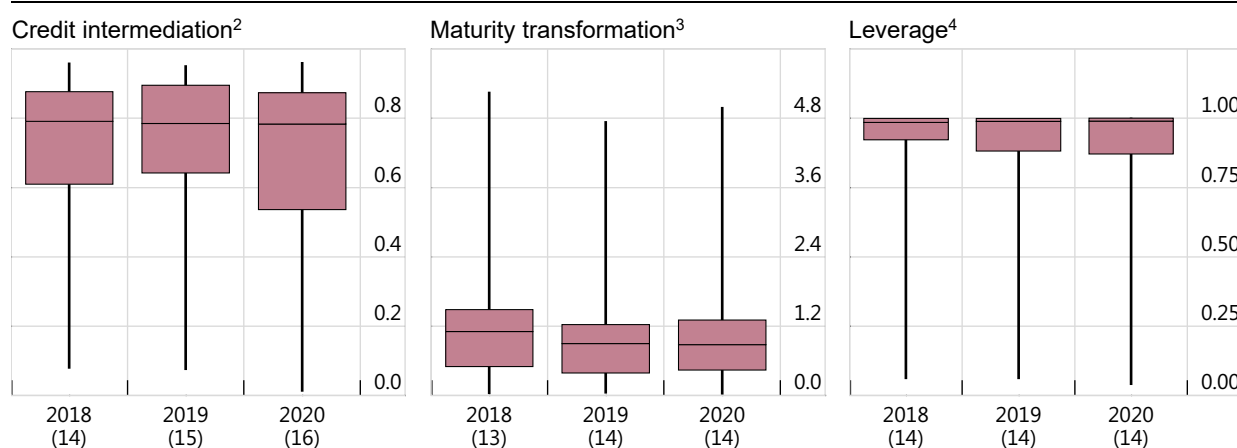
<sup>85</sup> The observed decreases in UK SFV assets are due to a break in the data series.

**Maturity transformation of SFVs has remained low in most jurisdictions, indicating that liabilities and assets closely match in maturities** (Graph 3-21, middle panel). The median ratio of short-term liabilities (<12 months) to short-term assets (<12 months) (MT2) stayed slightly below one across the 14 reporting jurisdictions.

**Leverage, measured as the ratio of total liabilities to total financial assets, increased in seven reporting jurisdictions in 2020.** Most jurisdictions presented a ratio higher than 0.9 and the median remained close to one. In some jurisdictions, however, SFVs appear to issue substantial equity, explaining low minimum levels of leverage (Graph 3-21, RHS). One example is Brazil, where EF5 comprises receivables investment funds (FIDCs) whose use of leverage is restricted by regulation.

**Credit intermediation dispersion increased in 2020 while maturity transformation and leverage remained stable<sup>1</sup>**

**Graph 3-21**



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

<sup>1</sup> The number in parenthesis indicates the number of jurisdictions submitting the relevant data. Each jurisdiction's data submission reflects data from many individual entities within that jurisdiction. <sup>2</sup> Loans / total financial assets (CI2). The sample of reporting jurisdictions in 2020 represents 66% of SFVs total assets. <sup>3</sup> Short-term liabilities / short-term assets (MT2). The sample of reporting jurisdictions in 2020 represents 59% of SFVs total assets. <sup>4</sup> (Total financial assets – equity)/total financial assets (L5). The sample of reporting jurisdictions in 2020 represents 59% of SFVs total assets.

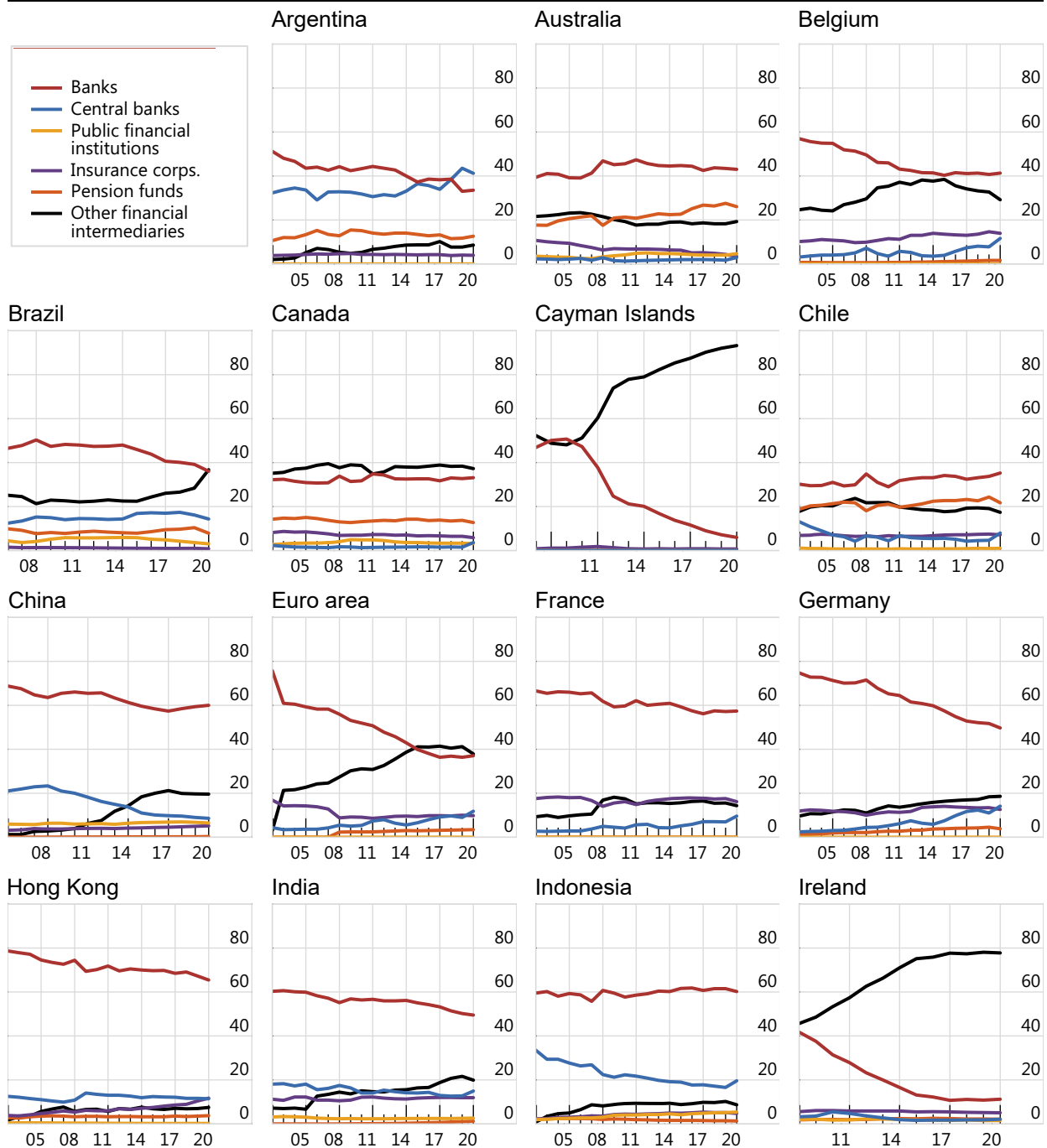
Sources: Jurisdictions' 2021 submissions (national sector balance sheet and other data); FSB calculations.

# Annex 1: Jurisdiction-specific financial sectors

## Share of total national financial assets by jurisdiction<sup>1</sup>

In per cent

Graph A1-1



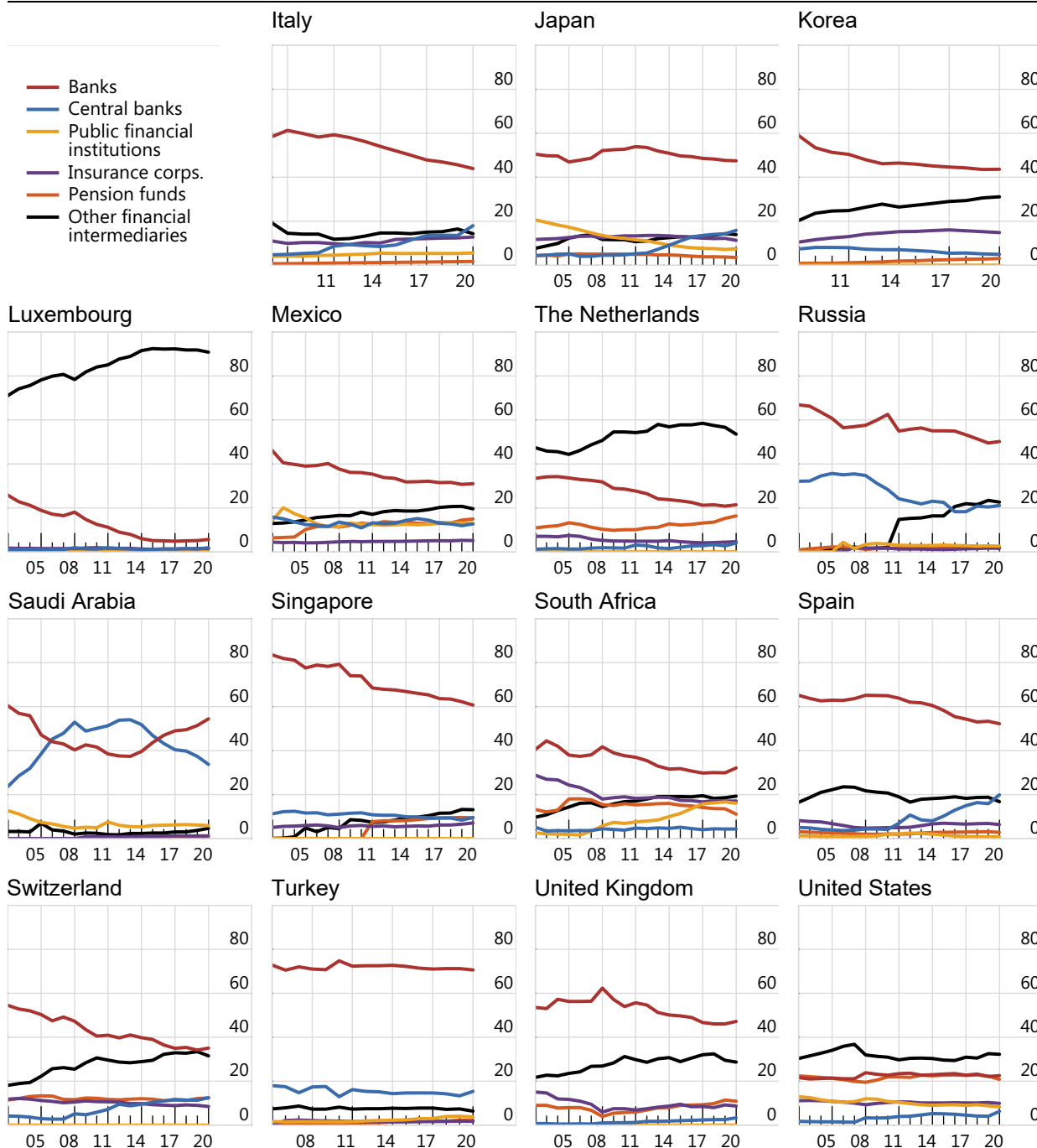
<sup>1</sup> Based on historical data included in jurisdictions' 2019 submissions. Exchange rate effects have been netted out by using a constant exchange rate (from 2020).

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

# Share of total national financial assets by jurisdiction<sup>1</sup>

In per cent

Graph A1-2



<sup>1</sup> Based on historical data included in jurisdictions' 2019 submissions. Exchange rate effects have been netted out by using a constant exchange rate (from 2020).

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

## Annex 2: Summary table

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

NBFI sector	NBFI components				Excluded from narrow measure <sup>1</sup>	Narrow measure of NBFI	Narrow measure components (by economic function (EF))						
	ICs	PFs	OFIs	FAs			EF1	EF2	EF3	EF4	EF5	Unallocated	
<b>2007</b>	104.6	21.2	21.4	60.6	1.3	64.7	32.0	14.1	3.5	7.8	0.1	6.3	0.2
<b>2008</b>	103.0	20.1	20.2	61.3	1.4	60.3	32.3	14.6	3.8	6.2	0.1	6.1	1.5
<b>2009</b>	108.4	21.8	21.9	62.9	1.8	67.2	32.1	15.5	3.5	5.6	0.1	6.5	0.8
<b>2010</b>	116.7	23.3	23.9	67.7	1.9	73.1	30.0	16.7	3.4	3.5	0.1	5.3	0.9
<b>2011</b>	121.1	24.1	24.9	70.3	1.8	75.9	31.2	18.6	3.4	3.6	0.2	4.8	0.6
<b>2012</b>	131.7	25.9	26.7	77.1	2.0	83.3	34.3	22.2	3.0	3.7	0.2	4.5	0.7
<b>2013</b>	143.3	27.2	29.5	84.7	2.0	92.3	37.4	25.4	3.1	3.8	0.2	4.4	0.6
<b>2014</b>	157.6	29.3	31.3	94.9	2.0	101.8	41.3	28.7	3.3	4.1	0.2	4.5	0.6
<b>2015</b>	165.8	30.2	32.1	101.3	2.2	107.9	44.6	31.9	3.3	4.0	0.2	4.4	0.8
<b>2016</b>	178.4	31.9	34.0	110.1	2.4	119.1	48.0	34.9	3.4	3.9	0.2	4.4	1.1
<b>2017</b>	191.5	33.4	36.3	119.2	2.6	128.4	52.0	38.2	3.6	4.1	0.2	4.8	1.1
<b>2018</b>	191.3	33.6	36.6	118.4	2.7	127.0	52.9	38.3	3.9	4.5	0.2	4.8	1.2
<b>2019</b>	209.3	36.8	40.1	129.4	2.9	138.3	58.8	43.5	4.1	4.7	0.2	4.9	1.4
<b>2020</b>	226.5	39.2	42.4	141.8	3.1	147.3	63.2	47.4	4.3	4.9	0.2	4.7	1.7

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. Some exchange rate effects have been netted out by using a constant exchange rate (from 2019). 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).

<sup>1</sup> Includes NBFI entities classified outside the narrow measure, prudentially consolidated into banking groups, or that are part of the statistical residual.

Sources: Jurisdictions' 2021 submissions (national sectoral balance sheet and other data); FSB calculations.

## Annex 3: Exclusion of NBF entity types from the narrow measure of NBF

Obtaining the narrow measure involves the following steps:

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 \$150.0 trillion at end-2020. OFIs not classified into any EFs in the 2021 monitoring exercise include mainly CFIMLs (\$21.6 trillion) and equity funds, including equity ETFs (\$29.3 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 II/III framework), including for maturity/liquidity transformation, leverage, and imperfect credit risk transfer, and are therefore excluded from the narrow measure.<sup>86</sup> 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.<sup>87</sup> The amount of prudentially consolidated assets, including self-securitisation, as of end-2020 was \$11.4 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 \$1.9 trillion at end-2020 (0.9% of NBF 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.<sup>88</sup>

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<sup>86</sup> 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 in this step.

<sup>87</sup> 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.

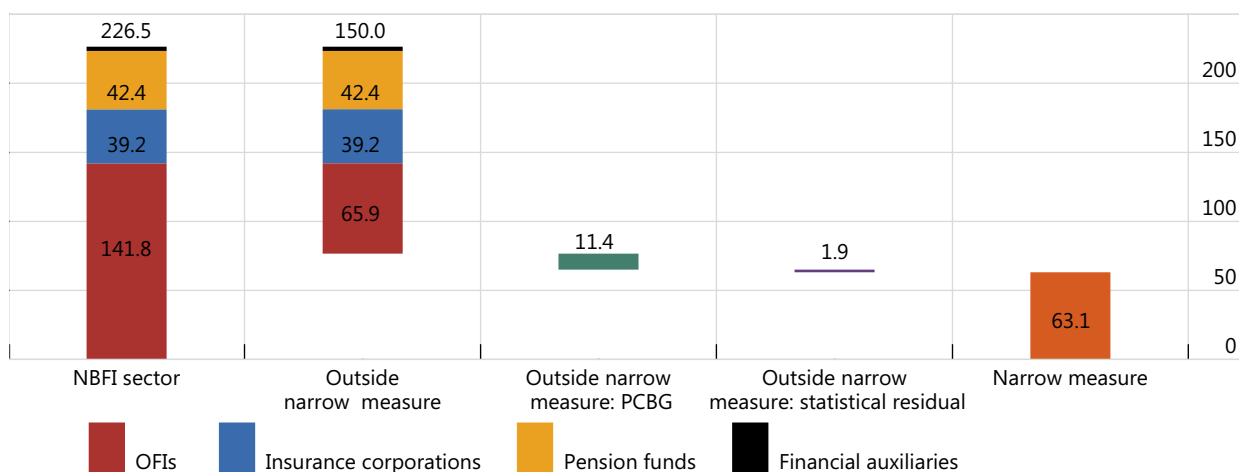
<sup>88</sup> Residuals were reported by Argentina, Switzerland, China, Germany, France, Italy, Japan, Korea, the Cayman Islands, Luxembourg, Russia, and South Africa. The \$1.9 trillion includes assets of OFIs that were neither classified into the narrow measure nor identified by jurisdictions as being outside the narrow measure. However, if conservatively assessed, this statistical residual of \$1.9 trillion may be added to the \$63.2 trillion narrow measure. The statistical residual should be distinguished from the unallocated category described below, through which authorities included entities in the narrow measure that could not clearly be assigned to a specific EF.



## Narrowing down the NBF sector

29 jurisdictions at end-2020, in trillions of US dollars

Graph A3-1



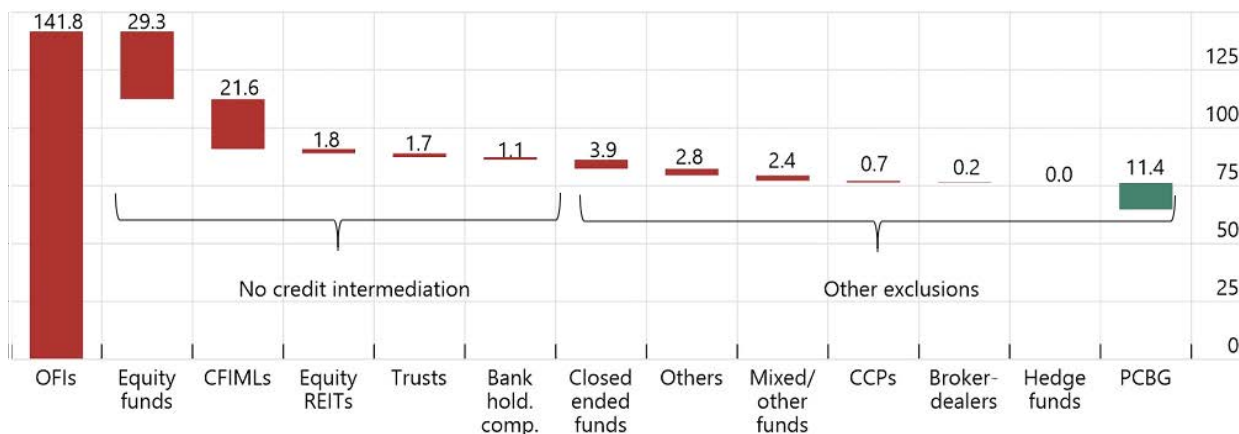
PCBG = assets of classified entity types which are prudentially consolidated into a banking group; Statistical residual = reported residual for OFIs generated by the difference between total OFIs and the sum of all known sub-sectors therein.

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

## Exclusion of OFI entity types from the narrow measure

USD trillion, for 29 jurisdictions, end-2020

Graph A3-2



OFIs also includes CFMILs; CFMILs = 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.

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

**In addition to the five EFs, the narrow measure also includes \$1.7 trillion of assets which are included in an “unallocated” category.** This category includes non-bank financial entities that authorities did not assign to a specific economic function, but either assessed these entities

to be involved in credit intermediation or could not determine that they should be excluded from the narrow measure.<sup>89</sup>

The FSB's monitoring methodology allows for excluding from the narrow measure entities included in NBFIs 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 2020 monitoring exercise, authorities performed a classification assessment and a series of mutual reviews to arrive at the narrow measure and excluded \$55.5 trillion of OFI assets that were included in the NBFIs sector. This Annex provides a breakdown of those non-bank entity types that were excluded from the narrow measure and the reasons for exclusion.

- **CFIMs** 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.
- **Trust companies** exist in several jurisdictions. In Singapore and South Africa, they provide a range of administrative and advisory services to individual clients but are not CIVs. Korean trust accounts are separately managed (not CIVs) and closed-ended 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 only invest in non-financial assets), some non-bank-affiliated single money trusts and collective investment trusts (unleveraged, closed-ended 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: the European Financial Stability Facility (Luxembourg); 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 Turkey); 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 Turkey were assessed to be either not engaged in material credit

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<sup>89</sup> Over time the size of this unallocated NBFIs category may decrease to some extent as authorities, with better data and analysis, will be able to classify them into one of the five EFs 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 EFs.

intermediation, or presenting only negligible liquidity and maturity transformation risks and with immaterial leverage, or are not CIVs. For example, Discretionary Funds in Indonesia have been assessed not to be CIVs 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 due to 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-ended 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. In 2020, a new law was introduced in the Cayman Islands requiring registration of closed-end funds (“Private Funds”). Private Funds that do not take on material amounts of leverage have been classified outside of the narrow measure for the 2021 annual monitoring exercise.<sup>90</sup>
- 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 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 Netherlands that largely do not engage in credit intermediation are excluded from the narrow measure. A small portion of hedge funds in Luxembourg was excluded from the narrow measure as they are closed-ended and employ no leverage, and thus were assessed to not pose significant financial stability risks from NBFIs.

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<sup>90</sup> The Experts Group will review classification of Private Funds in future monitoring exercises as more information on these funds becomes available.

## Annex 4: Risk metrics

### Box A4-1: Financial stability risk metrics

#### On- and off-balance sheet items and risk metrics\*

Examples of risk metrics	Definition and range
<p><b>Credit intermediation (CI)</b></p> $CI1 = \frac{\text{credit assets}}{\text{total financial assets}}$ $CI2 = \frac{\text{loans}}{\text{total financial assets}}$	<p>These metrics compare the amount of credit assets and loans held by a particular entity type to its total assets (<b>CI1</b> and <b>CI2</b>, respectively). As loan assets are part of wider credit assets, CI2 can be viewed as a sub-set of CI1.</p> <p>These metrics fall between 0 and 1, with higher values showing more involvement in credit intermediation while “0” indicating no involvement in credit intermediation.</p>
<p><b>Maturity transformation (MT)</b></p> $MT1 = \frac{(\text{long-term assets} - \text{equity}) - \text{long-term liabilities}}{\text{total financial assets}}$ $MT2 = \frac{\text{short-term liabilities}}{\text{short-term assets}}$	<p><b>MT1</b> is the portion of long-term assets (&gt;12 month maturity) funded by short-term liabilities (≤ 30 days) (i.e. not funded by equity or long-term liabilities), 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.</p> <p><b>MT2</b> is the ratio of short-term liabilities (plus redeemable equity in the case of EF1 entity types) 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.</p>
<p><b>Liquidity transformation (LT)</b></p> $LT1 = \frac{(\text{total financial assets} - \text{liquid assets (narrow)}) + \text{short-term liabilities}}{\text{total financial assets}}$ $LT2 = \frac{(\text{total financial assets} - \text{liquid assets (broad)}) + \text{short-term liabilities}}{\text{total financial assets}}$	<p><b>LT</b> 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 CIVs), approximated by short-term liabilities minus liquid assets (under a narrow definition for <b>LT1</b> and a broad definition for <b>LT2</b>).** 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.</p>
<p><b>Leverage (L)</b></p> $L1 = \frac{\text{total financial assets}}{\text{equity}}$ $L2 = \frac{\text{total financial assets} + \text{total off balance sheet exposures}}{\text{equity}}$ $L3 = \frac{\text{gross notional exposure (GNE)}}{\text{net asset value (NAV)}}$ $L4 = \frac{\text{total liabilities}}{\text{equity}}$ $L5 = \frac{(\text{total financial assets} - \text{equity})}{\text{total financial assets}}$	<p><b>L1</b> 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, <b>L2</b> 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 based on data availability. For example, a non-equity ratio (<b>L5</b>) was used for SFVs instead.</p>

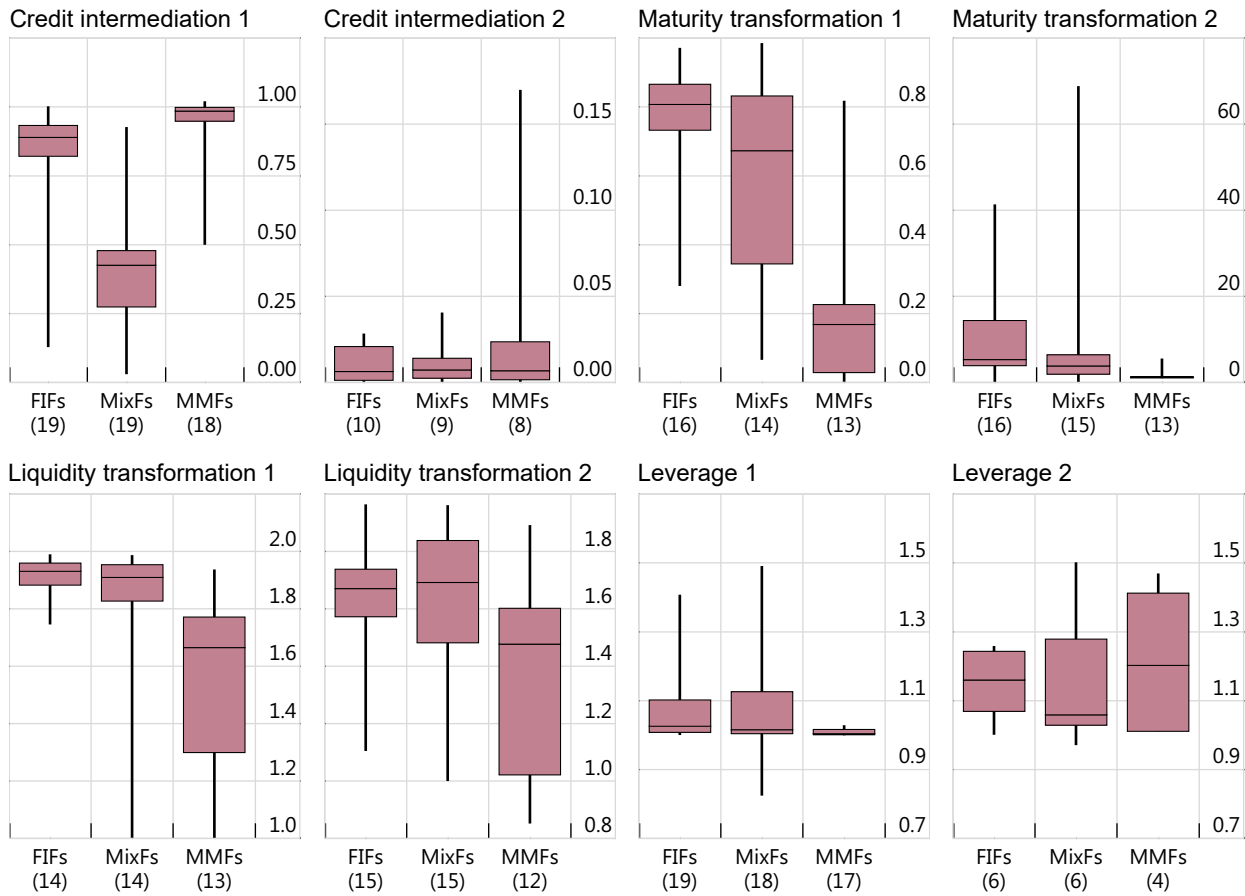
\* For EF1 entity types, the collected balance sheet data and calculated risk metrics were expanded to also include assets under management (AUM) instead of total financial assets, Gross Notional Exposure and Net Asset Value (to calculate leverage ratios), and non-/redeemable equity (as a form of long-/short-term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

\*\* Liquid assets are difficult to measure as the liquidity of an asset at any given time is contingent on a number of external factors. For the purposes of the FSB’s monitoring exercise, liquid assets are considered to be all assets that can be easily and immediately converted into cash at little or no loss of value during a time of stress (see also characteristics and definition of High Quality Liquid Assets (HQLAs) in Part 1, Section II.A in BCBS (2013). Two definitions of liquid assets are used in this exercise: in the narrow definition, liquid assets only include 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: Risk metrics for MMFs, fixed income funds and mixed-funds

At end-2020

Graph A4-1



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 vertical lines show the range of the entire sample. In some cases, arrows at the top of the vertical line indicate jurisdictions with ratios outside the range shown in the graph.

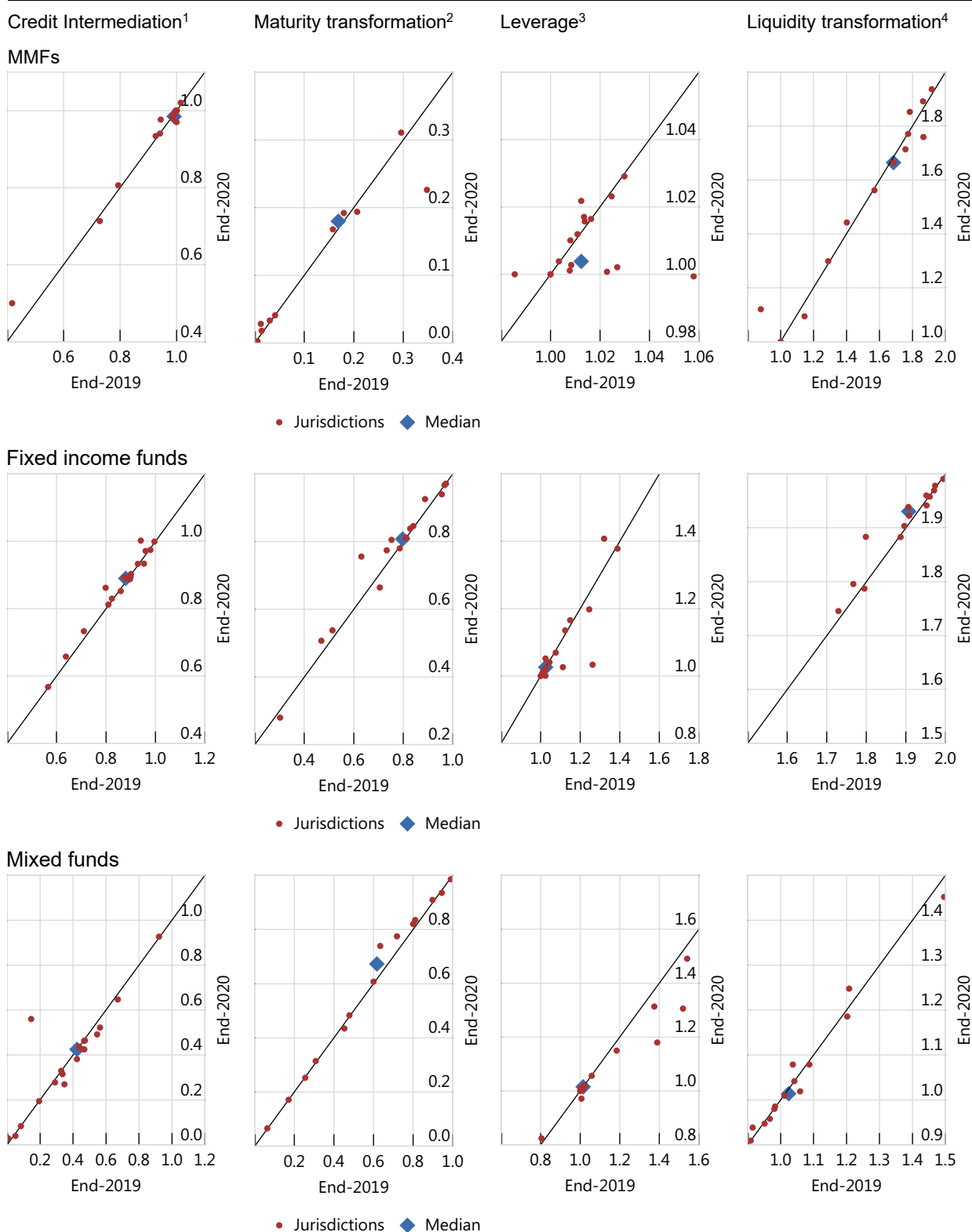
See Box A4-1 for metrics definitions.

Sources: Jurisdictions' 2021 submissions (national sector balance sheet and other data); FSB calculations

## EF1: Focus on selected risk metrics for investment funds in 2019 and 2020 across jurisdictions

End-2020 versus end-2019

Graph A4-2



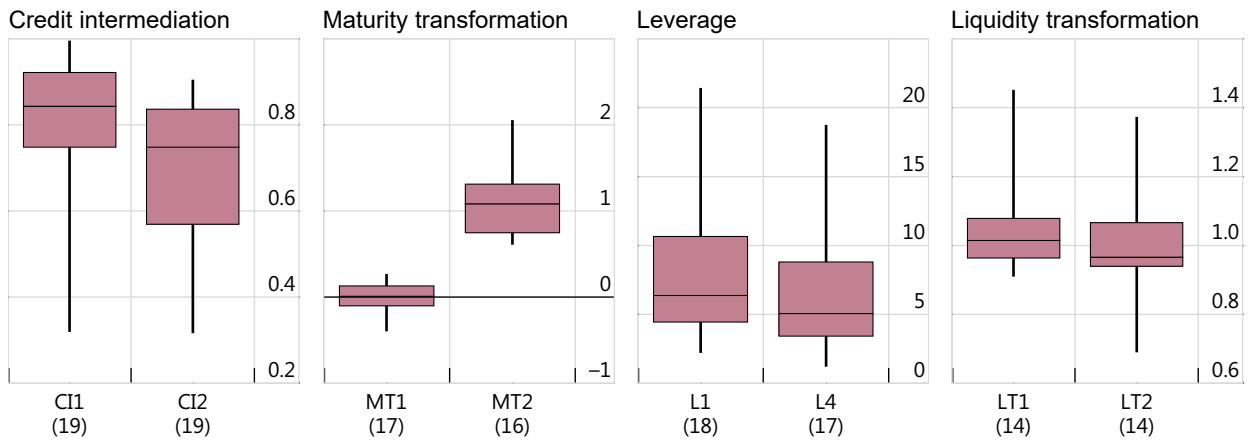
<sup>1</sup> Credit assets / total financial assets (CI1). <sup>2</sup> (Long-term assets – equity – long-term liabilities) / total financial assets (MT1). <sup>3</sup> Total financial assets / equity (leverage 1). <sup>4</sup> Long-term assets – equity – long-term liabilities) / total financial assets (LT1).

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

## EF2: Risk metrics for finance companies

At end-2020

Graph A4-3



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 vertical lines show the range of the entire sample. In some cases, arrows at the top of the vertical line indicate jurisdictions with ratios outside the range shown in the graph.

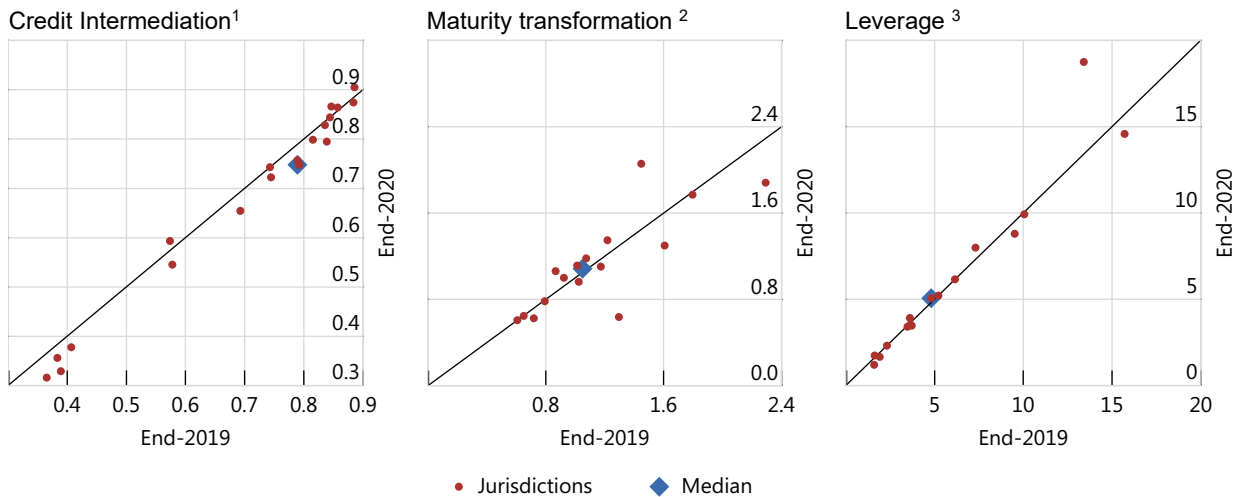
See Box A4-1 for metrics definitions.

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

## EF2: Focus on selected risk metrics for finance companies in 2019 and 2020 across jurisdictions

End-2020 versus end-2019

Graph A4-4



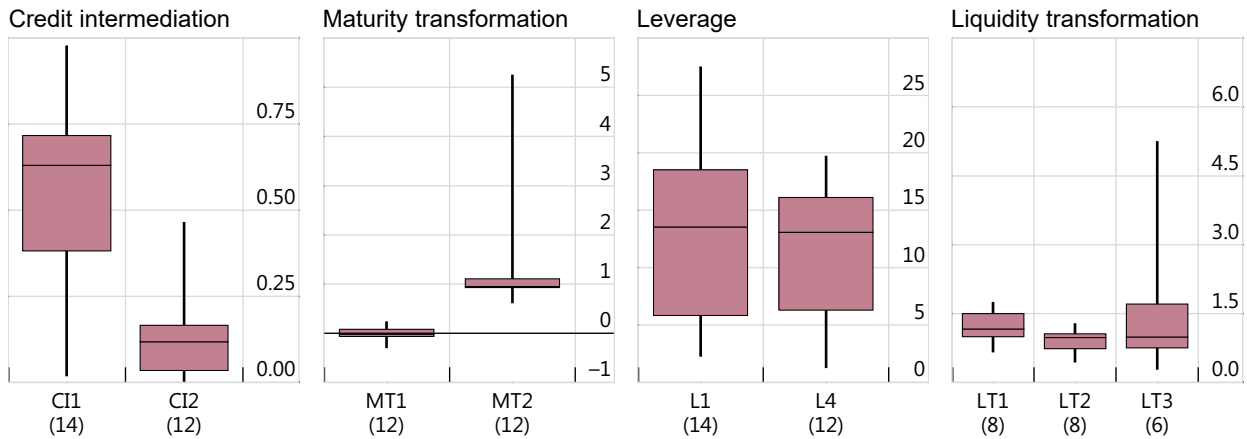
<sup>1</sup> Credit assets / total financial assets (CI2). <sup>2</sup> Short-term liabilities / short-term assets (MT2). <sup>3</sup> Total liabilities/equity (L4).

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

### EF3: Risk metrics for broker-dealers

At end-2020

Graph A4-5



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.

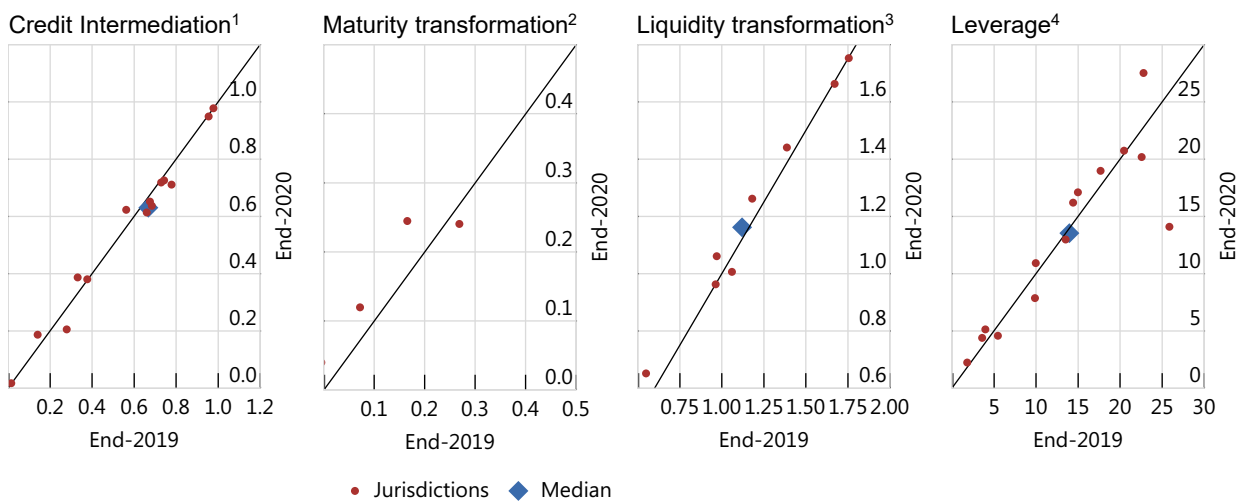
See Box A4-1 for risk metrics definitions.

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

### EF3: Focus on selected risk metrics for broker-dealers in 2019 and 2020 across jurisdictions

End-2020 versus end-2019

Graph A4-6



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

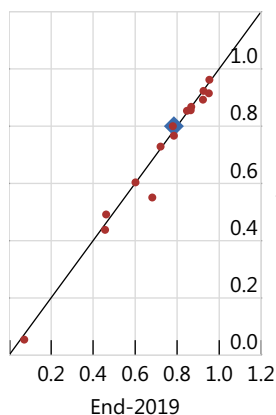
Sources: Jurisdictions' 2021 submissions (national sector balance sheet and other data); FSB calculations.



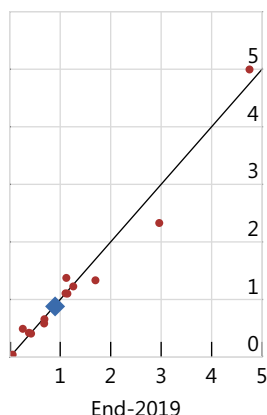
**EF5: Focus on selected risk metrics for structured finance vehicles in 2019 and 2020 across jurisdictions**

Graph A4-7

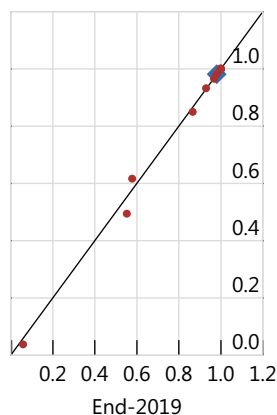
Credit intermediation<sup>1</sup>



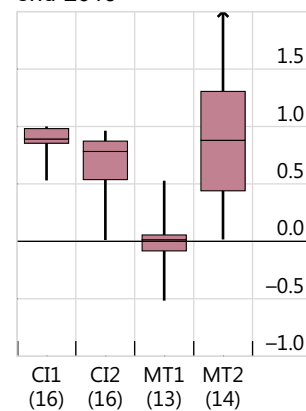
Maturity transformation<sup>2</sup>



Leverage<sup>3</sup>



Selected risk metrics at end-2019<sup>4</sup>



• Jurisdictions ◆ Median

<sup>1</sup> Loans / total financial assets (CI2). <sup>2</sup> Short-term liabilities / short-term assets (MT2). <sup>3</sup> (Total financial assets – equity)/total financial assets (L5). <sup>4</sup> 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. In some cases, arrows at the top of the vertical line indicate jurisdictions with ratios outside the range shown in the graph. The numbers in parenthesis indicates the number of jurisdictions that reported such risk metrics.

See Box A4-1 for risk metrics definitions.

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

## Abbreviations

AEs	Advanced economies
BDs	Broker-dealers
CIVs	Collective investment vehicles
CCPs	Central counterparties
CFIMLs	Captive financial institutions and money lenders
CLOs	Collateralised loan obligations
EFs	Economic functions
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
MMFs	Money market funds
NBFI	Non-bank financial intermediation
OFIs	Other financial intermediaries
PFs	Pension funds
PFIs	Public financial institutions
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

## Bibliography

Basel Committee on Banking Supervision (2013): *Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools*, January.

European Central Bank (2021): *Financial Stability Review*, May.

Financial Stability Board (2011): *Shadow Banking: Strengthening Oversight and Regulation*, October.

FSB (2013): *Strengthening Oversight and Regulation of Shadow Banking: Policy Framework for Strengthening Oversight and Regulation of Shadow Banking Entities*, August.

FSB (2018a): *Global Shadow Banking Monitoring Report 2017*, March.

FSB (2018b): *Crypto-asset markets: Potential channels for future financial stability implications*, October.

FSB (2019a): *Decentralised financial technologies: Report on financial stability, regulatory and governance implications*, June.

FSB (2019b): *Vulnerabilities associated with leveraged loans and collateralised loan obligations*, December.

FSB (2020a): *COVID-19 pandemic: Financial stability implications and policy measures taken*, April.

FSB (2020b): *Holistic review of the March market turmoil*, November.

FSB (2020c): *Global Monitoring Report on Non-Bank Financial Intermediation 2020*, December.

FSB (2021a): *COVID-19 support measures: Extending, amending and ending*, April.

FSB (2021b): *Promoting Global Financial Stability: 2021 FSB Annual Report*, October.

International Organization of Securities Commissions (2017): *Report on the Fourth IOSCO Hedge Funds Survey*, November.

Wall Street Journal (2021): *Behind Greensill's Collapse: Detour Into Risky Loans*, March.

Wu, Wong, and Fong (2021): *An assessment on the vulnerabilities of open-ended funds to leveraged loans*, HKMA Research Memorandum, August.