

Global Shadow Banking Monitoring Report 2013

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Table of contents

Executive Summary	1
Introduction	5
1. Methodology	5
2. Overview of macro-mapping results	8
3. Cross-jurisdiction analysis	10
3.1 Structure of financial systems	11
3.2 Growth trends of non-bank financial intermediation across jurisdictions	12
4. Composition of non-bank financial intermediation	13
4.1 Breakdown by sub-sectors of non-bank financial intermediation at end-2012.....	14
4.2 Recent trends in sub-sectors	16
5. Narrowing down.....	17
5.1 Self-securitisation.....	17
5.2 Absence of direct credit intermediation role	18
5.3 OFIs prudentially consolidated into a banking group	19
6. Interconnectedness between banks and non-bank financial entities	21
Annex 1: Template used for the data collection exercise	25
Annex 2: Country case studies.....	26
Monitoring Shadow Banking in Canada – A Case for Combining Activities with Entities	26
Shadow banking case study for South Africa	30
UK-resident banks’ repo books: mapping and illustrative risks	32
US agency MBS REITs’ vulnerability to adverse market conditions.....	36
Annex 3: The growth of non-banks in direct lending and private debt markets.....	40
Annex 4: Share of total financial assets by jurisdiction.....	45

Executive Summary

The shadow banking system can broadly be described as credit intermediation involving entities and activities outside the regular banking system.¹ Intermediating credit through non-bank channels can have important advantages and contributes to the financing of the real economy, but such channels can also become a source of systemic risk, especially when they are structured to perform bank-like functions (e.g. maturity transformation and leverage) and when their interconnectedness with the regular banking system is strong. Therefore, appropriate monitoring of shadow banking helps to mitigate the build-up of such systemic risks.

The FSB set out its approach for monitoring the global shadow banking system in its report to the G20 in October 2011.² This report presents the results of the third annual monitoring exercise following this approach, using end-2012 data.^{3,4} The report includes data from 25 jurisdictions and the euro area as a whole, bringing the coverage of the monitoring exercise to about 80% of global GDP and 90% of global financial system assets.⁵

As in previous exercises, the primary focus of the monitoring is a ‘macro-mapping’ based on national Flow of Funds and Sector Balance Sheet data (hereafter Flow of Funds), that looks at all non-bank financial intermediation⁶ to provide a conservative estimate which ensures that data gathering and surveillance cover the areas where shadow banking-related risks to the financial system might potentially arise.⁷ Sections 2 to 4 and Section 6 of the report present the result of the macro-mapping, including size and growth trends of the shadow banking system, cross-jurisdiction analysis, trends in sub-sectors and interconnectedness with the banking system.

This year’s exercise also includes additional analysis in two areas:

1. In addition to the conservative estimate based on all non-bank financial intermediation, which still underpins the bulk of the analysis, this year’s report also presents a preliminary approach for narrowing down the broad estimate. This narrower measure is constructed by filtering out non-bank financial activities that have no direct

¹ Some authorities or market participants prefer to use other terms such as “market-based financing” instead of “shadow banking”. The use of the term “shadow banking” is not intended to cast a pejorative tone on this system of credit intermediation. However, the FSB is using the term “shadow banking” as this is the most commonly employed and, in particular, has been used in the earlier G20 communications.

² www.financialstabilityboard.org/publications/r_111027a.pdf.

³ Previous shadow banking monitoring reports can be found at www.financialstabilityboard.org/publications/r_121118c.pdf; and www.financialstabilityboard.org/publications/r_111027a.pdf.

⁴ The exercise was conducted by the FSB Analytical Group on Vulnerabilities (AGV), the technical working group of the FSB Standing Committee on Assessment of Vulnerabilities (SCAV), using quantitative and qualitative information.

⁵ These figures were calculated from the statistical appendix of the IMF’s Global Financial Stability Review, October 2013.

⁶ Unless otherwise mentioned, non-bank financial intermediation (or intermediaries) excludes intermediation by insurance companies, pension funds and public financial institutions.

⁷ As stated earlier, this is a conservative estimate of the shadow banking system to monitor its size and evolution over time. This also allows a global aggregated view as Flow of Funds data are available in many jurisdictions and are based on broadly consistent definitions.

relation to credit intermediation (e.g. equity investment funds) or that are already prudentially consolidated into banking groups (see Section 5). The approach is an important refinement that uses more granular data provided by some jurisdictions, but remains a work in progress that will improve over time with increased data availability and a deeper understanding of the shadow banking system.

2. The report also adopts a forward-looking view by examining in Annex 3 new and emerging trends in the non-bank financial system, such as direct lending by non-banks (e.g. insurance companies, pension funds, private equity funds) to non-financial corporates, infrastructure and real estate finance.

In addition, national authorities have performed more detailed analyses in the form of case studies, examples of which are presented in Annex 2.⁸

The main findings from the 2013 exercise are as follows:

- According to the ‘macro-mapping’ measure, based on ‘Other Financial Intermediaries’ (OFIs), non-bank financial intermediation grew by \$5 trillion in 2012 to reach \$71 trillion.⁹ This provides a conservative proxy of the global shadow banking system, which can be further narrowed down.
- By absolute size, advanced economies remain the ones with the largest non-bank financial systems. Globally OFI assets represent on average about 24% of total financial assets, about half of banking system assets and 117% of GDP. These patterns have been relatively stable since the crisis.
- OFI assets grew by +8.1% in 2012, helped by a general increase in valuation of global financial markets,¹⁰ while bank assets were relatively stable as valuation effects were counterbalanced by shrinking balance sheets. The global growth trend of OFI assets masks considerable differences across jurisdictions, with growth rates ranging from -11% in Spain to +42% in China.
- Emerging market jurisdictions showed the most rapid increases in non-bank financial system assets. Four emerging market jurisdictions had 2012 growth rates for non-bank financial intermediation above 20%. However, this rapid growth is from a relatively small base. While the non-bank financial system may contribute to financial deepening in these jurisdictions, careful monitoring is still required to detect any increases in risk factors (e.g. maturity transformation or leverage) that could arise from the rapid expansion of credit provided by the non-bank sector.
- Among the OFI sub-sectors that showed the most rapid growth in 2012 are real estate investment trusts (REITs) and funds (+30%), other investment funds (+16%) and

⁸ These case studies are examples of the application of the monitoring framework in certain member jurisdictions and do not necessarily represent the assessment of the FSB.

⁹ Unless otherwise mentioned, the aggregates presented refer to 20 non-euro area jurisdictions plus the euro area as a whole. As data for the 5 participating euro area jurisdictions (France, Italy, Germany, the Netherlands and Spain) is more granular than for the euro area as a whole, more detailed analysis is based on data for 25 jurisdictions (5 euro area jurisdictions and 20 non euro area jurisdictions).

¹⁰ The valuation effect on the size and growth of the shadow banking system differs across national statistics. Growth rates of non-bank financial intermediation were calculated from local currency time series to avoid capturing exchange rate movements.

hedge funds (+11%). Of note that the growth rate for hedge funds should be interpreted with caution as the FSB macro-mapping exercise significantly underestimates the size of the hedge fund sector. The results of the recent IOSCO hedge fund survey provide a more accurate picture of the size of the hedge fund sector (see below and Section 4) but do not provide an estimate of its growth.¹¹

- Using more granular data reported by 20 jurisdictions, an attempt was made to narrow down the conservative estimate of non-bank financial intermediation¹² (see Section 5). This led to a reduction of some \$20 trillion in size, therefore bringing the total OFI assets for the 20 jurisdictions that reported granular data from \$55 trillion to \$35 trillion. Using the narrowed down estimate, the growth rate of shadow banking in 2012 was +2.9%, instead of +6.4% using the conservative estimate based on OFI assets for the limited sample of jurisdictions that submitted data for narrowing down. The FSB will continue to refine the methodologies in narrowing down the estimate as well as encourage its member jurisdictions to collect the relevant data.
- There was no sizeable change in the level of interconnectedness between the banking and the non-bank financial system in 2012. However, the relevance of the findings in this area (see Section 6) is hampered by the absence of reporting of this data by a number of large jurisdictions.¹³

Going forward, the monitoring exercise should benefit from continuous improvement and thorough follow-up by jurisdictions of identified gaps and data inconsistencies. Further improvements in data availability and granularity will be essential for authorities to be able to adequately capture the magnitude and nature of risks in the shadow banking system. In particular, the following aspects would require improvement and follow-up:

1. Jurisdictions that lack official Flow of Fund statistics are encouraged to develop them. In the meantime, these jurisdictions are encouraged to report to the FSB exercise in the broadest way possible, i.e. including all non-bank financial intermediaries. Where necessary, authorities should strengthen their regulatory powers to collect missing data.
2. Jurisdictions are encouraged to devote resources to the development of data on interconnectedness between the banking and the shadow banking systems, and to the development of risk factor data (e.g. maturity transformation and leverage). The use of proxies should be considered when direct data is not available. As the monitoring develops, this type of data will be essential to judge risks and the potential systemic impact of the shadow banking system. Regarding risk factors, the implementation of

¹¹ The IOSCO report is available at: <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD427.pdf>.

¹² The proposed narrowing down consists in excluding self-securitisation, equity investment funds, and OFIs prudentially consolidated into a banking group.

¹³ China, Germany, France, Japan, Korea, Russia, United States, and South Africa.

Workstream 3 (WS3) recommendations on other shadow banking entities¹⁴ should contribute to better data availability.

3. IOSCO has shared with the FSB the aggregated results of its second hedge fund survey.¹⁵ Further refinements in the hedge fund data presented in the IOSCO survey, including the availability of time series, could provide important additions to the Global Shadow Banking Monitoring Exercise and we look forward to greater synergies in this regard.
4. REITs was one of the fastest growing sub-sectors in 2012. REITs have diverse characteristics across jurisdictions in terms of assets purchased, legal form, use of leverage and maturity transformation.¹⁶ They are also not necessarily reported as OFIs in some jurisdictions.¹⁷ Given their potential contribution to systemic risk, the FSB will assess REITs more carefully in next year's exercise in order to better understand the size, growth and risk characteristics of this heterogeneous sector. It will also be considered whether REITs can be included in the macro-mapping in a consistent way across jurisdictions.
5. Risks to financial systems arising from the links with foreign shadow banking systems (and in particular shadow banking entities in off-shore centres) are currently not captured in the FSB global monitoring, which creates a potentially large gap. The extension of the shadow banking monitoring approach to selected non-FSB member jurisdictions where shadow banking entities are domiciled (e.g. off-shore centres) would help to fill this gap. FSB Regional Consultative Groups (RCGs) are encouraged to conduct a similar exercise in their respective regions. Once these initiatives are firmly established, greater synergies with the FSB global monitoring exercise could be explored.
6. Going forward, the monitoring exercise could leverage on the regulatory workstreams and extend its scope to include regular analysis of the data collected based on the recommendations of these workstreams (e.g. data on five economic functions for WS3 on Other Shadow Banking Entities). Some other initiatives to collect data on, for example, securities financing transactions may in the future complement the entity-based focus of the report by an activity-based analysis (i.e. repo markets, securities lending, securitisation).¹⁸ In the future, improvements in data availability should allow for the mostly entity-based focus of the 'macro-mapping' to be complemented with an activity-based monitoring to cover developments in relevant markets where shadow banking activity may occur, such as repo markets, securities lending and securitisation.

¹⁴ http://www.financialstabilityboard.org/publications/r_130829c.pdf.

¹⁵ The IOSCO report is available at: <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD427.pdf>.

¹⁶ US mortgage REITs are assessed in detail in one of the case studies of this report (see Annex 2)

¹⁷ In some jurisdictions, REITs are not included in the Flow of Funds statistics because they are considered as a non-financial corporation. Their inclusion in the FSB's macro-mapping would therefore require a retreatment.

¹⁸ For example, the FSB policy recommendations to improve data reporting and market transparency in relation to securities financing transactions (e.g. repos) will help conduct activity-based analysis. For details, see http://www.financialstabilityboard.org/publications/r_130829b.pdf.

Introduction

The shadow banking system can broadly be described as the system of credit intermediation that involves entities and activities fully or partially outside the regular banking system, or non-bank credit intermediation in short.¹⁹

Efficient monitoring of the size, trends, and adaptations of the global shadow banking system is a key priority for the FSB. In its report ‘Shadow Banking: Strengthening Oversight and Regulation’ to the G20 in October 2011,²⁰ the FSB set out its approaches for effective monitoring of the shadow banking system and has committed to conduct annual monitoring exercises to assess global trends and risks in the shadow banking system.

The first attempt to map the shadow banking system was published by the FSB as part of the 2011 report, using data from eleven jurisdictions and the euro area. The approach evolved continually in the following years. The 2012 report expanded the coverage to 25 jurisdictions and the euro area as a whole, while in this latest report, the granularity of data collected has been enhanced to allow for a refinement of the estimate of the shadow banking system. More specifically, the 2013 monitoring report presents some preliminary steps to narrow down the estimated size of the shadow banking system by filtering out non-bank entities and activities that do not pose bank-like risks to financial stability.

The exercise was conducted by the Analytical Group on Vulnerabilities (AGV), the technical working group of the Standing Committee on Assessment of Vulnerabilities (SCAV) of the FSB during 2013, using end-2012 data as well as additional qualitative information and market intelligence.

1. Methodology

In its 2011 report to the G20, the FSB proposed that monitoring and assessment of the shadow banking system be guided by a practical two-step approach (Exhibit 1-1):

1. First, authorities should cast the net wide, looking at all non-bank credit intermediation to ensure that data gathering and surveillance cover all areas where shadow banking-related risks to the financial system might potentially arise.
2. Second, authorities should narrow the focus for policy purposes to the subset of non-bank credit intermediation where there are (i) developments that increase systemic risk (in particular maturity/liquidity transformation, imperfect credit risk transfer and

¹⁹ Some authorities or market participants prefer to use other terms such as “market-based financing” instead of “shadow banking”. The use of the term “shadow banking” is not intended to cast a pejorative tone on this system of credit intermediation. However, the FSB is using the term “shadow banking” as this is the most commonly employed and, in particular, has been used in the earlier G20 communications.

²⁰ See footnote 2.

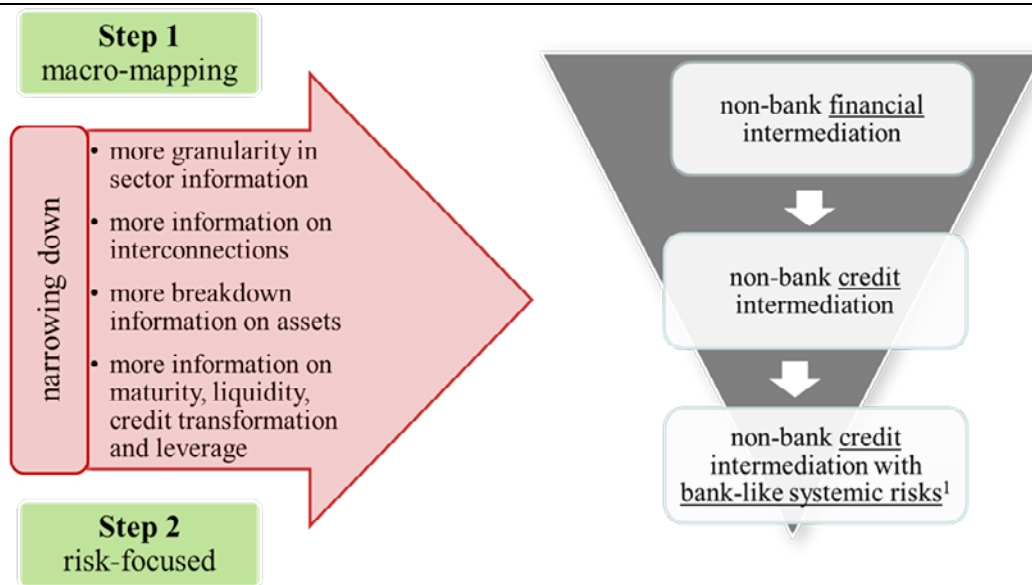
leverage), and (ii) indications of regulatory arbitrage that is undermining the benefits of financial regulation.

Based on the above approach, the FSB continues to recommend that authorities enhance their monitoring framework to assess shadow banking risks through the application of a stylised monitoring process. This would require authorities to first take a conservative view and assess the broad scale and trends of non-bank credit intermediation in their financial system (‘macro-mapping’), drawing on information sources such as Flow of Funds,²¹ and complemented with other relevant information such as supervisory data. Authorities should then narrow down their focus to credit intermediation activities that have the potential to pose systemic risk.

Measuring the shadow banking system

Simplified conceptual image

Exhibit 1-1



¹ Bank-like systemic risks include maturity transformation, liquidity transformation, imperfect risk transfer, and leverage.

Regarding the first step, the 2013 report continues to focus on the ‘macro-mapping’ exercise, which was first completed in 2011, by updating the monitoring to include data up to the end of 2012. The report also continues to enhance the depth of data granularity in order to reduce the proportion of unidentified areas of the non-bank financial system. In the 2012 monitoring exercise, more than half of non-bank financial intermediation was either categorised as ‘other investment funds’ (35%) or was put in the residual component ‘others’ (18%), which mostly reflected the lack of granularity in country data submissions. This year, the ‘macro-mapping’ template used to collect data based on Flow of Funds statistics was adjusted compared to last year. The ‘other investment fund’ sector was split into ‘equity funds’, ‘fixed income and

²¹ The FSB estimate of shadow banking by Flow of Funds data incorporates intra-financial system assets, i.e. assets of non-bank entities funding other non-banks. Other approaches using Flow of Funds focus on a measure of how much funding of nonfinancial businesses, households, and governments is provided by the domestic shadow banking system, eliminating double counting due to intra-financial system links. See for example Gallin (2013), Federal Reserve Board working paper.

bonds funds’, and ‘other funds’. ‘Broker-dealers’ and ‘financial auxiliaries’ were added as a separate column. This refinement, allowed reducing the unaccounted residual component (‘other’) to 9% this year.

In terms of the second step, this report provides for the first time a preliminary attempt to narrow down the broad estimate of the size of non-bank financial intermediation. Three new templates were devised and circulated to participating jurisdictions in order to collect the data and information that allowed the refinement of the shadow banking estimate. The approach, as discussed in greater detail in Section 5, was to focus on the subset of non-bank financial intermediation which potentially poses systemic risks to the financial system, by filtering out (a) financial assets linked to self-securitisation,²² (b) non-bank financial entities not involved in bank-like intermediation, such as equity investment funds, and (c) those non-bank financial activities that were prudentially consolidated into a banking group. The methodology and data availability for narrowing down the broad estimate of non-bank financial intermediation is still preliminary at this stage (see Section 5). Therefore, the figures presented in sections 2 to 4 of this report do not take into account this potential refinement in the shadow banking monitoring.

For the 2013 shadow banking monitoring exercise, data and information were collected from 25 jurisdictions²³ and the euro area as a whole from the following sources:

- i) Flow of Funds data as of end-2012 based on the template recommended in the October 2011 report with some improvements (see Annex 1).
- ii) A short analysis of national trends in shadow banking.
- iii) Additional information on self-securitisation and non-bank financial entities prudentially consolidated into a banking group for jurisdictions in which this is relevant.

Flow of Funds data are a useful source of information in mapping the scale and trends of non-bank credit intermediation. They provide generally high quality, consistent data on the bank and non-bank financial sectors’ assets and liabilities, and are available in a large number of jurisdictions.²⁴ The Flow of Funds components related to the non-bank financial sector, and especially the ‘Other Financial Intermediaries (OFIs)’ sector can be used to obtain a conservative proxy for the size of the shadow banking system and its evolution over time.

In addition, several institutions provided case studies on specific entities or activities involved in shadow banking in their jurisdictions (Annex 2).

²² Self-securitisation (retained securitisation) is defined as those securitisation transactions done solely for the purpose of using the securities created as collateral with the central bank in order to obtain funding, with no intent to sell them to third-party investors. All of the securities issued by the Structured Finance Vehicle (SFV) for all tranches are owned by the originating bank and remain on its balance sheet.

²³ The 25 jurisdictions included in this year’s exercise are Argentina, Australia, Brazil, Canada, Chile, China, Germany, France, Hong Kong, Indonesia, India, Italy, Japan, Korea, Mexico, Netherlands, Russia, Saudi Arabia, Singapore, Spain, Switzerland, Turkey, United Kingdom, United States, and South Africa.

²⁴ Some jurisdictions still lack Flow of Funds statistics, and have to use other data sources which may be less consistent. Even when Flow of Funds data are available, their granularity and definitions differs across jurisdictions and have been adjusted as necessary.

2. Overview of macro-mapping results

Non-bank financial intermediation in a broad sense continued to grow in 2012. Aggregating Flow of Funds data from 20 jurisdictions plus the euro area as a whole using data from the European Central Bank (ECB) shows that financial assets of ‘other financial intermediaries’ (OFIs)²⁵ increased by \$5 trillion in 2012, reaching \$71.2 trillion at the end of the year.²⁶ The left panel of Exhibit 2-1 also shows that in aggregate size, non-bank financial intermediation remains roughly half the size of the banking system in terms of assets.

The growth of OFI assets in 2012 can partly be attributed to the general increase in valuation of global financial markets. Against the backdrop of a perceived reduction in financial tail risks following central bank actions, financial market participants’ risk appetite returned and inflows into credit markets have generally increased. The resulting increase in asset prices also affected asset price valuations in the non-bank financial system and thereby contributed to its expansion compared to 2011.²⁷

Further results of the 2013 shadow banking monitoring exercise are summarised below:

- **As a share of total financial intermediation, non-bank financial intermediation has been broadly steady over recent years at about 24%, below the level seen at the onset of the crisis.** After having peaked at 27% in 2007, the non-bank financial intermediation’s share of total financial intermediation has declined to 24% at the end of 2012, which is 0.7 percentage points up from 2011. This compares with a share of total financial intermediation of 46.7% for the banking system (Exhibit 2-1 right panel).

²⁵ ‘Other financial intermediaries’ comprise all financial institutions that are not classified as banks, insurance companies, pension funds, public financial institutions, central banks, or financial auxiliaries. Unless otherwise mentioned, ‘other financial intermediaries’ (OFIs) is used as a conservative proxy for the shadow banking system.

²⁶ Compared to last year’s shadow banking monitoring exercise, the availability and quality of data changed in some jurisdictions. As a consequence, the results presented in this report cannot strictly be compared to the results presented in last year’s report.

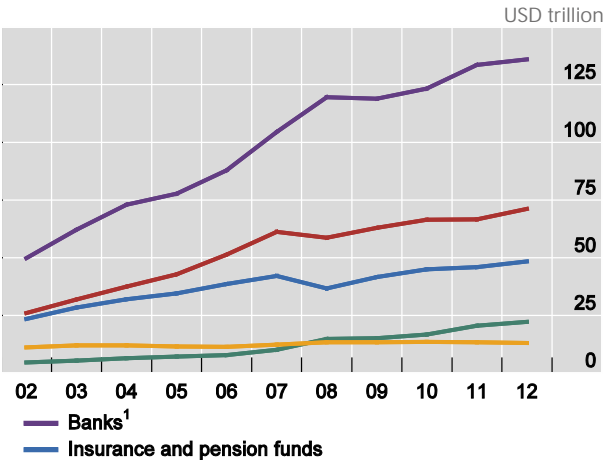
²⁷ The valuation effect on the size of the shadow banking system differed across national statistics. The growth rate of OFIs calculated after removing some sub-components that may be particularly influenced by valuation effects, such as equity funds, was +2.9% in 2012, which is lower than the growth rate of +6.4% calculated for total OFIs for the sample of jurisdictions that submitted data for narrowing down (see Section 3.2 and 5). The difference shows that valuation effects played a role in 2012. In addition to valuation effects, exchange rate movements can also be important drivers of changes in asset valuations (when measured in US\$), given that data from individual jurisdictions are converted in US\$.

Assets of financial intermediaries

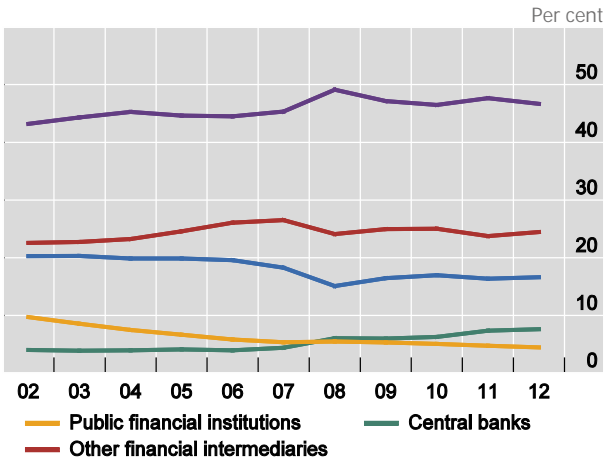
20 jurisdictions and euro area

Exhibit 2-1

Total financial assets



Share of total financial assets



¹ Note that 'banks' refer to the broader category of 'deposit-taking institutions'.

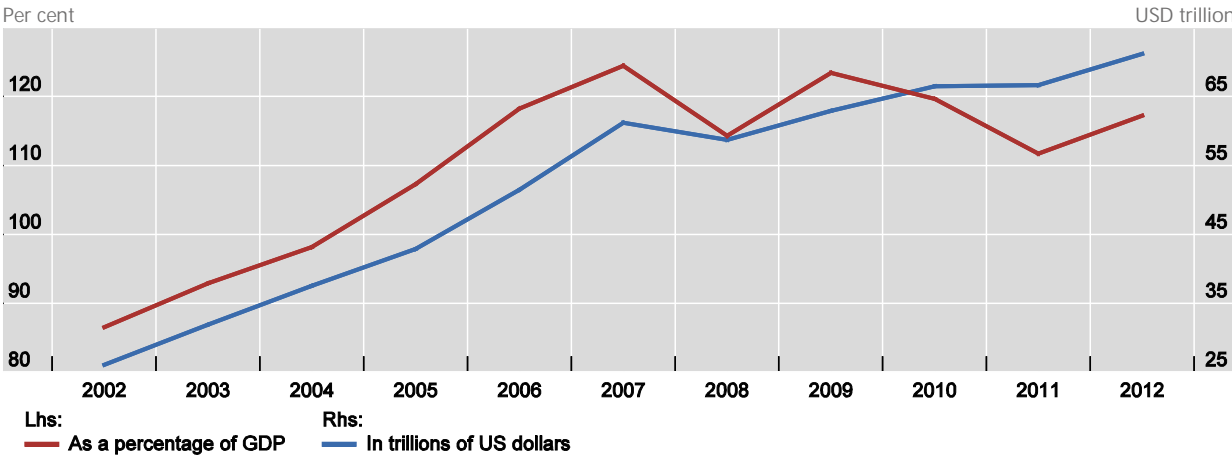
Sources: National flow of funds data; other national sources.

- **The size of non-bank financial intermediation was equivalent to 117% of GDP in aggregate at the end of 2012 for 20 jurisdictions and the euro area, which is still well below the peak level of 125% in 2007. Compared to the end of 2011, non-bank financial intermediation as a share of GDP increased by 6 percentage points in 2012 (Exhibit 2-2).**

Assets of non-bank financial intermediaries

20 jurisdictions and euro area

Exhibit 2-2



Sources: National flow of funds data; other national sources.

- **The US had the largest system of non-bank financial intermediation at the end of 2012 with assets of \$26 trillion, followed by the euro area (\$22 trillion), the UK**

(\$9 trillion) and Japan (\$4 trillion). Compared to 2011, the US share of total non-bank financial intermediation for 20 jurisdictions and the euro area increased from 35% to 37%, whereas the UK's share decreased from 14% to 12% (Exhibit 2-3).

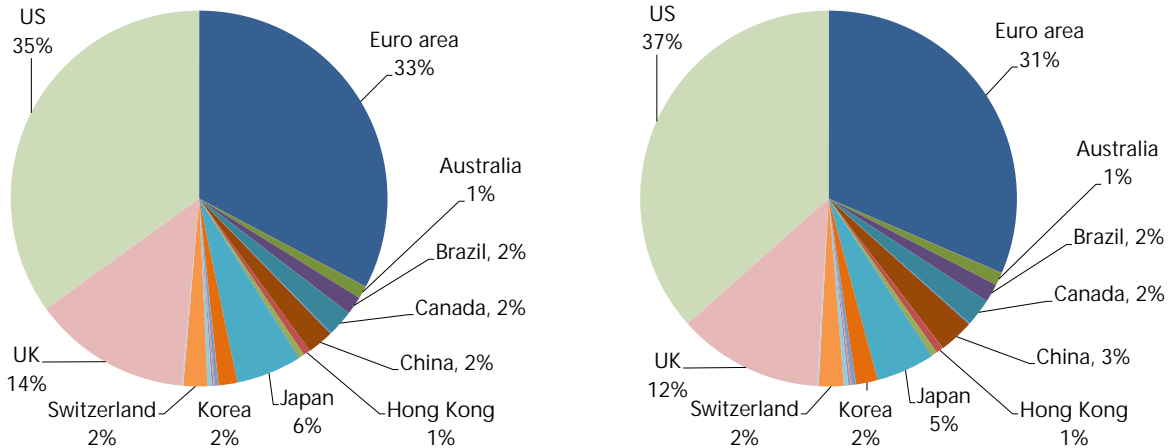
Share of assets of non-bank financial intermediaries

20 jurisdictions and euro area

Exhibit 2-3

At end-2011

At end-2012



Sources: National flow of funds data; other national sources.

These aggregated numbers can be seen as a *conservative* estimate of the size of the global shadow banking system. The category ‘other financial intermediaries’ used as a proxy for the shadow banking system may include entities that are not engaged in credit intermediation (as discussed in Section 5). For some investment funds, the place where the fund is legally domiciled differs to where the fund’s assets are managed. Consistent with the focus on residence in Flow of Fund statistics and to avoid double counting, this report concentrates on financial assets of funds incorporated in participating jurisdictions. As a result, assets that are managed in a participating jurisdiction but incorporated in a country not covered by this monitoring exercise are ignored, unless authorities are able to provide information on the place of incorporation of locally managed funds, so that double counting can be avoided. In addition, in many cases total assets were reported rather than financial assets, because of data limitations.

3. Cross-jurisdiction analysis

The aggregated numbers presented in the previous section mask considerable heterogeneity between jurisdictions in terms of the importance and recent evolution of shadow banking in the respective domestic financial and economic systems.²⁸ Jurisdictions in which the non-

²⁸ Changes in the national numbers may also reflect shifts in exchange rates and changes in accounting treatments.

bank financial intermediation’s share of the total financial system is relatively large and/or in which it has experienced rapid growth in recent years may deserve special attention and more in-depth investigation from domestic policy makers.

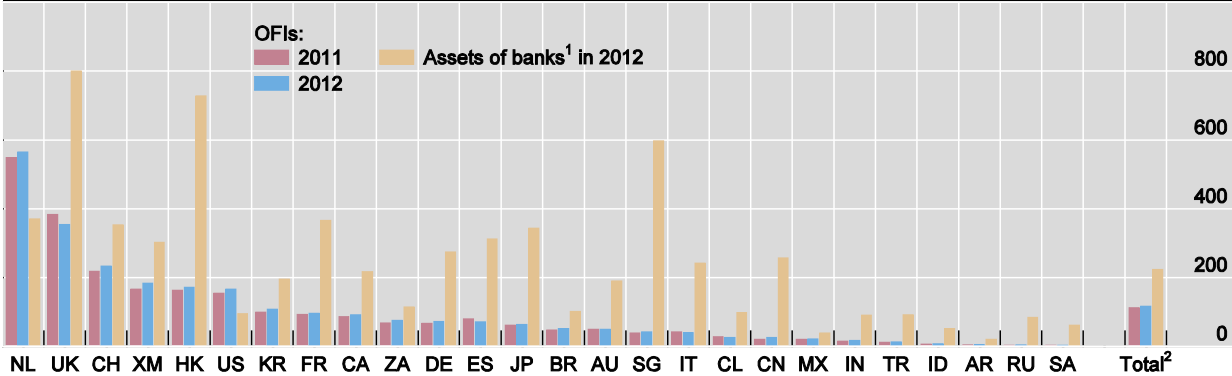
3.1 Structure of financial systems

Globally OFI assets represent on average about 24% of total financial assets, but analysis of individual country data reveals significant differences. Exhibit 3-1 contrasts the size of OFIs at the end of 2011 and 2012 with the size of the banking sector in 2012 for 25 jurisdictions and the euro area as a whole.²⁹

Size of non-bank financial intermediaries

As a percentage of GDP, by jurisdiction

Exhibit 3-1



AR = Argentina; AU = Australia; BR = Brazil; CA = Canada; CH = Switzerland; CN = China; CL = Chile; DE = Germany; ES = Spain; FR = France; HK = Hong Kong; ID = Indonesia; IN = India; IT = Italy; JP = Japan; KR = Korea; MX = Mexico; NL = Netherlands; RU = Russia; SA = Saudi Arabia; SG = Singapore; TR = Turkey; UK = United Kingdom; US = United States; XM = Euro area; ZA = South Africa.

¹ Note that 'banks' refer to the broader category of 'deposit-taking institutions'. ² 20 jurisdictions and euro area.

Sources: National flow of funds data; other national sources; IMF.

Three jurisdictions (the Netherlands, the UK, and Switzerland) featured non-bank financial systems that are more than twice as large as their respective GDP. These jurisdictions also have relatively large banking systems relative to their GDP. Part of this concentration is attributable to these jurisdictions’ role as financial centres or hosts to financial activities carried out by foreign-owned institutions. These activities are important to monitor and need to be overseen not only by the host supervisor on an individual basis, but also by their home supervisor on a consolidated basis. Bilateral MoUs and supervisory colleges should play an important role in this regards.

²⁹ For some jurisdictions, the size of the OFI sector decreased substantially compared to last year’s report, which is the result of a stricter application of the residence principle to investment funds this year. Consistent with the focus on residence in Flow of Funds statistics and to avoid double counting, this report excludes assets that are managed in participating jurisdictions but incorporated in a country not covered by this monitoring exercise. This adjustment led to a substantial reduction in the OFI figure compared to last year’s report in particular for Hong Kong and Singapore.

On average, the size of non-bank financial intermediation in terms of assets was equivalent to 52% of the banking system in the sample of 20 jurisdictions and the euro area as a whole. However, there were significant cross-country differences, ranging from below 10% to 152% in the Netherlands and 174% in the US at the end of 2012.³⁰

For a number of emerging market economies, non-bank financial intermediation remained relatively small compared to the level of GDP. In India, Turkey, Indonesia, Argentina, Russia and Saudi Arabia the amount of non-bank financial activity remained below 20% of GDP at the end of 2012. However, the sector was growing rapidly in some of these jurisdictions.

In addition to the (relative) size of non-bank financial intermediation, authorities should also monitor trends in financial intermediation outside of the banking sector, even if growth rates take place from a low base, in order to become aware of emerging risks at an early stage.

3.2 Growth trends of non-bank financial intermediation across jurisdictions

Non-bank financial intermediation grew in most jurisdictions in 2012. Only three jurisdictions (Spain, the UK, and Italy) reported a decline in non-bank financial activity during 2012, when controlling for exchange rate movements.³¹ The growth rate for the total sample, calculated as a weighted average for 20 jurisdictions plus the euro area, increased from 0.6% in 2011 to 8.1% in 2012.

The global trend masks considerable differences in growth trends of non-bank financial intermediation across jurisdictions, which ranged from -11% in Spain to +42% in China in 2012. Exhibit 3-2 shows that year-on-year growth rate of OFI assets for 2011 and 2012 for 25 jurisdictions and the euro area as a whole.

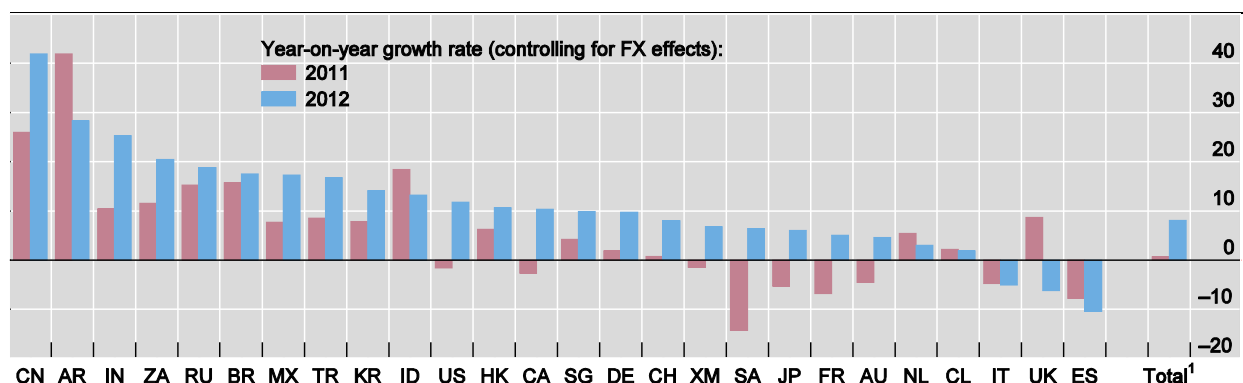
³⁰ In the Netherlands, Special Financial Institutions (SFIs) comprise about two-thirds of the 'other financial intermediaries' sector and thereby explain most of the size of the shadow banking sector. There are about 14 thousand SFIs, which are typically owned by foreign multinationals who use these entities to attract external funding and facilitate intra-group transactions.

³¹ Growth rates of non-bank financial intermediation were calculated from local currency time series in order to avoid capturing the effects of exchange rate movements. The growth rates presented in the global shadow banking monitoring report published in 2012 did not control for movements in the exchange rate and can therefore not be compared to the results presented in this report.

Annual growth of non-bank financial intermediaries

By jurisdiction, in per cent

Exhibit 3-2



AR = Argentina; AU = Australia; BR = Brazil; CA = Canada; CH = Switzerland; CN = China; CL = Chile; DE = Germany; ES = Spain; FR = France; HK = Hong Kong; ID = Indonesia; IN = India; IT = Italy; JP = Japan; KR = Korea; MX = Mexico; NL = Netherlands; RU = Russia; SA = Saudi Arabia; SG = Singapore; TR = Turkey; UK = United Kingdom; US = United States; XM = Euro area; ZA = South Africa.

¹ Weighted average of 20 jurisdictions and euro area.

Sources: National flow of funds data; other national sources.

In particular, emerging market jurisdictions³² showed the most rapid increases of non-bank financial intermediation in 2012. The 10 countries with the highest growth rates were emerging markets, four of them with growth rates above 20% (China, Argentina, India, and South Africa). For these jurisdictions, the OFI sector is mostly growing from a relatively small base, but still requires careful monitoring to detect any increases in risk factors (e.g. maturity transformation or leverage) that could arise from the rapid expansion of the non-bank sector, including through banks evading increased regulation by shifting activities to the non-bank sector. Appropriate monitoring will help to ensure that the non-bank sector continues to contribute to an increase in financial inclusion and the broadening of access to credit, without excessively increasing financial stability risks.

4. Composition of non-bank financial intermediation

This section offers a detailed analysis of the components of non-bank financial intermediation and the growth trends of the different sub-sectors comprising the OFI category.

The analysis in this section, in contrast to the rest of the report, is mostly based on data from 25 jurisdictions, instead of 20 jurisdictions and the euro area, because data from the five largest euro area jurisdictions participating in the shadow banking monitoring exercise is more granular than the aggregate data from the ECB.³³

³² Emerging market jurisdictions covered in this report include Argentina, Brazil, China, Chile, Hong Kong, India, Indonesia, Korea, Mexico, Russia, Turkey, Saudi Arabia, Singapore, and South Africa.

³³ The participating euro area countries are France, Germany, Italy, the Netherlands, and Spain.

4.1 Breakdown by sub-sectors of non-bank financial intermediation at end-2012

The data submitted by participating jurisdictions for the 2013 shadow banking monitoring exercise varied in terms of the granularity of OFI sub-sectors. A number of jurisdictions were able to provide data for most of the sub-sectors specified in the template, while others filled in only a few columns.³⁴

The OFI sector can be split into nine major sub-sectors of varying significance (Exhibit 4-1 left-hand panel):

- The largest sub-sector, representing \$21 trillion and 35% of assets of OFIs in 2012, was that of ‘other investment funds’, which includes funds other than MMFs or hedge funds. This year’s expanded data template asked jurisdictions for a breakdown of the ‘other investment funds’ category into ‘equity funds’, ‘fixed income/bond funds’, and ‘other funds’. The right-hand panel of Exhibit 4-1 shows that 44% of this particular OFI sub-sector consisted of equity funds, which corresponds to \$9 trillion. And 34% (\$7 trillion) were fixed income/bond funds, 15% (\$3 trillion) were identified as neither equity nor bond funds, and for the remaining 7% (\$1 trillion) jurisdictions were not able to split other investment funds into the three components.
- Broker-dealers were the second largest identified sub-sector with \$7 trillion of assets corresponding to 12% of OFIs. At the end of 2012, the sector was essentially concentrated in the UK (39%), US (28%), Japan (21%), Canada (6%) and Korea (4%).³⁵ The broker-dealers sub-sector has been added as a separate item in the template used for this year’s data collection, which has improved the reporting of this category (from 5% of OFIs in last year’s report to 12% of OFIs this year).³⁶
- Structured finance vehicles are the third largest sub-sector. Total financial assets were \$5 trillion at the end of 2012, corresponding to 8% of OFIs. The sector was concentrated in the US (35%) and the UK (13%).
- Finance companies and money market funds made up 8% and 6% of total OFI assets, respectively, corresponding to \$4.5 trillion and \$3.8 trillion. Money market funds are mainly concentrated in the US and the euro area, which together represented almost 80% of all money market funds globally at the end of 2012.
- Hedge funds were the smallest sub-sector, making up only \$0.1 trillion, according to information submitted by jurisdictions for the macro-mapping. However, the share of hedge funds is significantly underestimated in the macro-mapping, which is due to several factors. Most importantly the data collected in this exercise is based on the domicile of hedge funds. In many cases hedge funds are domiciled in offshore jurisdictions not covered in this exercise. Another important factor is the lack of

³⁴ The following OFI sub-sectors (template columns) were considered: money market funds, finance companies, structured finance vehicles, hedge funds equity funds, bond funds, other funds, and broker-dealers. The set of jurisdictions that was able to submit at least 75% of the OFI sub-sectors is comprised of Argentina, Australia, Brazil, Canada, Chile, France, Germany, Hong Kong, Indonesia, Italy, Japan, Mexico, Netherlands, Russia, Singapore, Spain, UK, and the US. Countries submitting 25% or less of the OFI sub-sectors include China, Saudi Arabia, and Switzerland.

³⁵ The numbers for broker-dealers include assets prudentially consolidated into a banking group. Excluding those assets would change the figure to 0.4% for the UK (down from 39%) and 2% for Canada (down from 6%).

³⁶ The data template includes a ‘XX’ column which jurisdictions can use to submit data in addition to the specified columns. Some jurisdictions used this column last year to provide data on broker-dealers.

granularity in many jurisdictions' Flow of Fund statistics, which does not allow the separation of hedge funds from other categories.

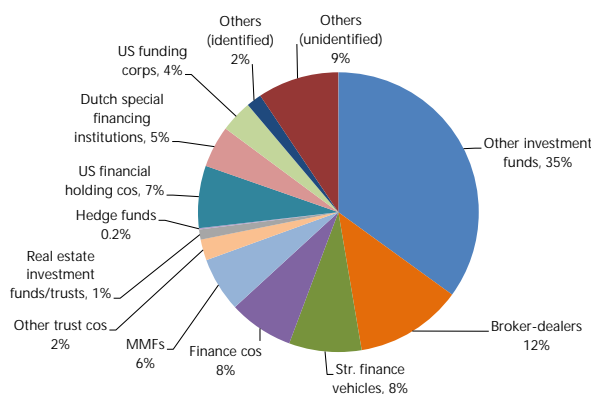
Estimates from the hedge fund survey conducted and compiled by IOSCO this year provide a more representative global picture.³⁷ The amount of assets managed by hedge funds captured in the IOSCO survey represented \$1.94 trillion in September 2012.³⁸ The majority of these funds were domiciled in offshore jurisdictions which are not covered in the FSB shadow banking monitoring exercise. The global estimate provided in the IOSCO report should therefore be largely but not completely additive to the \$0.1 trillion of hedge fund assets reported by participating jurisdictions in the FSB exercise.³⁹ However, the IOSCO survey only provides a snapshot for 2012 and hence could not be incorporated in the time series analysis presented in this report. In the future, further refinements in the hedge fund data presented in the IOSCO survey could provide important additions to the Global Shadow Banking Monitoring Exercise and we look forward to greater synergies in this regard.

Sub-sectors of non-bank financial intermediaries

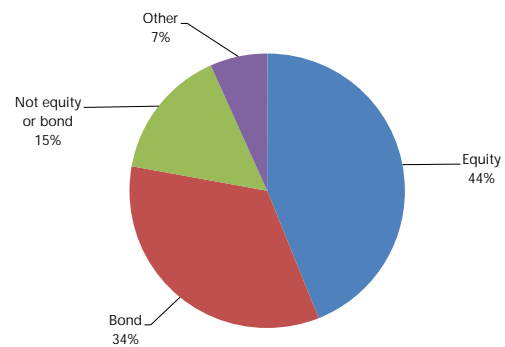
25 jurisdictions, at end-2012

Exhibit 4-1

Decomposition by sub-sector¹



Other investment funds by type



¹ Adding the results published in the 2013 IOSCO Hedge Fund Survey Report and the number reported by participating jurisdictions in the FSB exercise would increase the share of hedge funds to 3%.

Sources: National flow of funds data; other national sources.

³⁷ The Second IOSCO Hedge Fund Survey can be obtained at <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD427.pdf>.

³⁸ This number captures assets under management (AUM) from funds with total global net AUM of at least \$500 million and therefore does not cover the whole global spectrum of hedge funds. One private sector source (Hedge Fund Research, <https://www.hedgefundresearch.com>) finds that assets under management in this industry amounted to \$2.25 trillion at the end of 2012.

³⁹ If the figure for hedge fund assets estimated by IOSCO is added to the existing estimate of the shadow banking sector in this report there would likely be some small areas of overlap or double counting. For instance, hedge funds incorporated in Australia would have already been counted in the existing estimate. Going forward, greater granularity would allow for these concerns to be addressed.

- The remaining part of the OFI sector is represented by jurisdiction-specific entities such as Dutch Special Financial Institutions (SFIs) US funding corporations, and US financial holding companies.
- Country submissions using the revised data template for the 2013 shadow banking monitoring exercise significantly improved the granularity of the OFI sub-sectors. The share of ‘other-unidentified’ OFIs dropped from 18% of total OFI assets in the 2012 report to 9% in this year. This can mainly be attributed to more systematic reporting of broker-dealers by jurisdictions.

4.2 Recent trends in sub-sectors

Global growth rates of OFI sub-sectors are shown in Exhibit 4-2, taking as a sample 25 jurisdictions.

Structured finance vehicles and finance companies contracted by 9.9% and 0.6% during 2012, respectively.⁴⁰ Other OFI sub-sectors, including MMFs (+1.8%), US funding corporations (+1.5%), Dutch SFIs (+1.6%), and Broker-Dealers (+3.7%) were broadly stable. However, some OFI sub-sectors experienced rapid growth in 2012: other trust companies grew by 50%,⁴¹ real estate investment funds and trust by 30%,⁴² US financial holding companies by 29%,⁴³ other investment funds by 16% and hedge funds by 11%.

However, this picture masks considerable difference across jurisdictions in the growth rates of the various sub-sectors. In addition, in some cases part of the growth may be explained by a broadening of coverage over time, rather than by an increase in the actual series. In particular, building up the ‘other financial intermediaries’ time series by summing up all the components available along the time series (i.e. from 2002 to 2012) may lead to false conclusions as to increases in the size of the shadow banking sector, because of missing data points going backwards. Aggregating across jurisdictions then potentially further amplifies the problem.⁴⁴

An important message arising out of the analysis is the need to improve the granularity of the available data, in particular with respect to the OFI sub-sectors, in order to more consistently capture fast growing sub-sectors in future shadow banking monitoring exercises.

⁴⁰ For structured finance vehicles, most of this change in 2012 was driven by the US. For finance companies, most of the contraction in 2012 can be explained by changes in Japan, the UK, and the US. In China, finance companies grew by 24% in 2012.

⁴¹ Data for ‘other trust companies’ (other than real estate) was supplied by China, Korea, Turkey, and South Africa.

⁴² Note that there was only partial reporting on the ‘real estate investment funds and trusts’ sub-sector, also because REITs is a heterogeneous category across jurisdictions. In some jurisdictions, REITs are not included in the Flow of Funds statistics because they are considered as a non-financial corporation.

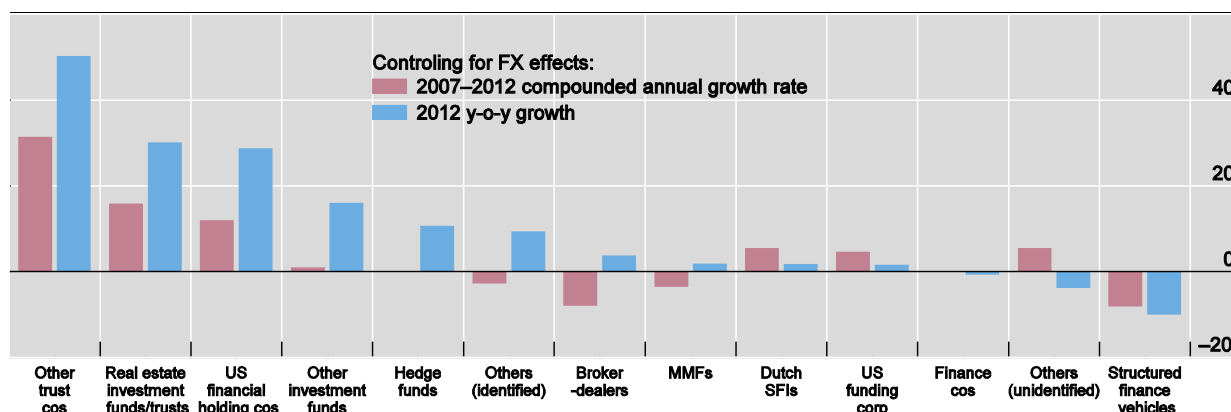
⁴³ This high growth in US financial holding companies may reflect an increase in coverage and re-classifications, rather than asset growth.

⁴⁴ Changes in OFI sub-sectors can also reflect valuation effects and changes in accounting treatments.

Annual growth of sub-sectors of non-bank financial intermediaries

25 jurisdictions, in per cent

Exhibit 4-2



Sources: National flow of funds data; other national sources.

5. Narrowing down

The second part of the practical two-step approach proposed by the FSB in its 2011 report to the G20,⁴⁵ as depicted in Exhibit 1-1 of this report, involves the preliminary attempt to narrow-down the broad shadow banking sector estimate by filtering out non-bank financial activities that have no direct relation to credit intermediation (e.g. equity investment funds) or that are already prudentially consolidated into banking groups.

The data collected from participating jurisdictions for the 2013 shadow banking monitoring exercise allows filtering out:

- i) financial assets related to self-securitisation,
- ii) financial assets of entities that are not involved in credit intermediation, and
- iii) financial assets that are consolidated into a banking group.

5.1 Self-securitisation

The numbers for OFIs presented in sections 2 to 4 of this report include all financial assets of Structured Finance Vehicles (SFVs), regardless of who holds the securitised products. However, in a number of jurisdictions, some of these products are returned back onto the balance sheet of the bank that originally provided the asset to be securitised. This so called self-securitisation, or retained securitisation, is defined as those securitisation transactions done solely for the purpose of using the securities created as collateral with the central bank in order to obtain funding, with no intent to sell them to third-party investors. All of the securities issued by the SFV for all tranches are owned by the originating bank and remain on the bank's balance sheet, so that third-party investors do not own any of the securities issued by the SFV. These assets should not be included in the shadow banking figure, as prudential

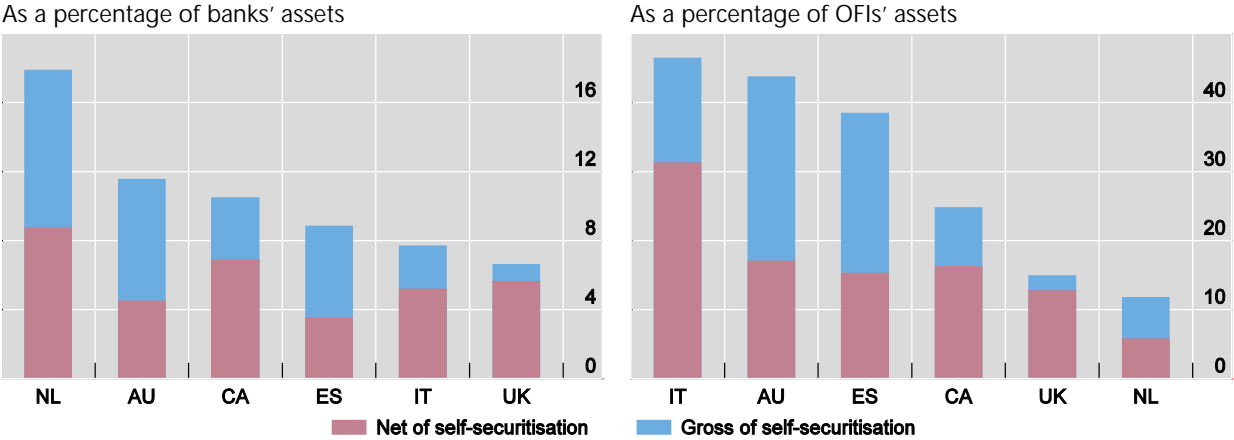
⁴⁵ See footnote 2.

consolidation rules consider them as banks' own assets and as such subject to consolidated supervision and capital requirements.

An important refinement of the interconnectedness analysis undertaken in this year's exercise was the identification and subsequent exclusion of self-securitised assets. Jurisdictions in which self-securitisation takes place were asked to provide data on the amount of banks' retained securitisation. Six jurisdictions (Australia, Canada, Italy, Netherlands, Spain, and the UK) submitted the relevant data, showing that the amount of self-securitisation summed up to \$1.2 trillion in at the end of 2012 (Exhibit 5-1).⁴⁶

Banks' assets to non-bank financial intermediaries

At end-2012 Exhibit 5-1



AU = Australia; CA = Canada; ES = Spain; IT = Italy; NL = Netherlands; UK = United Kingdom.

Sources: National flow of funds data; other national sources.

5.2 Absence of direct credit intermediation role

The FSB definition of shadow banking focuses on those parts of the non-bank financial system that are involved in credit intermediation. The 'other investment funds' OFI sub-sector contains all funds other than money market funds or hedge funds. These funds can present very different types of risks to the financial system. In particular equity funds are typically not involved in credit transformation whereas fixed income/bond funds or mixed funds involve credit intermediation to varying degrees.⁴⁷

⁴⁶ While the large increase in Australian banks' self-securitisation of residential mortgage-backed securities (RMBS) started in 2008 (i.e. before Basel III was developed), the amount of self-securitisation is expected to stay high going forward as these securities are eligible as collateral for the Reserve Bank of Australia's Committed Liquidity Facility (CLF). Indeed some banks are gearing up already for the CLF. Given the low level of government debt in Australia, the Australian prudential regulator has adopted elements of the Basel rules that allow banks to count a committed liquidity facility provided by the central banks as part of their Basel III liquidity requirements.

⁴⁷ Some equity funds can however be an important component of a non-bank credit intermediation chain.

For the purpose of narrowing down the broad estimate of the shadow banking system in order to arrive at a more risk-focused measure, shadow banking activities that are not directly involved in credit transformation have also been excluded from the narrower estimate.

Financial assets of ‘pure’ equity investment funds represent large amounts of assets under management. Aggregating across the sample of 18 jurisdictions that were able to submit granular enough data provides a total of \$9.2 trillion at the end of 2012.⁴⁸

5.3 OFIs prudentially consolidated into a banking group

Flow of Funds statistics are presented on an entity residence basis, with the implication that some financial entities are reported within the OFI category despite the fact that they are within the consolidated banking group for prudential regulatory purposes (i.e. subject to the Basel capital and liquidity regulatory framework). An example would be a finance company that is a subsidiary of a banking group. Financial assets, which are prudentially consolidated into a banking group, are usually expected to be within the scope of prudential regulation and supervision of a bank, and the appropriate amount of capital and liquidity buffers have to be set aside under the Basel regulatory capital regime.⁴⁹ These would help limit the maturity and liquidity transformation as well as leverage built up in such non-bank subsidiaries of a banking group. There could therefore be an argument to remove prudentially consolidated assets in the narrower estimation of the shadow banking sector. The total amount of prudentially consolidated assets that were excluded from this narrower estimation amounted to \$9.7 trillion at the end of 2012.^{50,51}

⁴⁸ 18 out of 25 jurisdictions were able to provide this breakdown of the ‘other investment funds’ sub-component.

⁴⁹ Based on the request from the FSB, the BCBS is currently developing guidance to improve the international consistency of the scope of consolidation for prudential regulatory purposes so as to ensure that all banks’ activities are appropriately captured within the prudential regime. For details, see http://www.financialstabilityboard.org/publications/r_130829a.pdf.

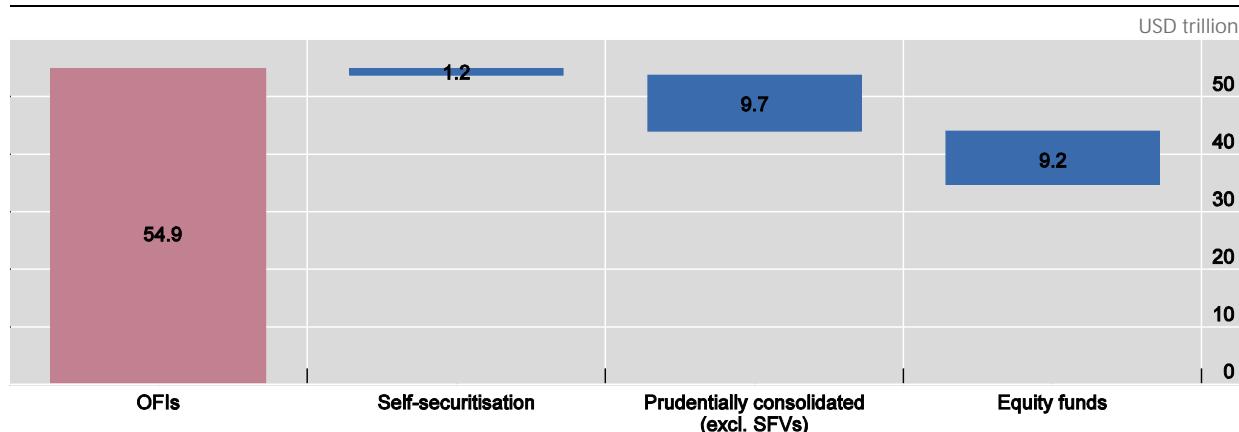
⁵⁰ It is important to note that this adjustment to the estimated size of the shadow banking sector took place on an individual country basis and did not encompass cross-border entities and the amount of international prudential consolidation. In addition, it is not entirely clear if the consolidated supervision of non-bank subsidiaries is appropriate and effective, and warrants the exclusion of these assets in the refined shadow banking measure.

⁵¹ 15 out of 25 jurisdictions provided data on the amount of OFI assets prudentially consolidated into a banking group.

Narrowing down shadow banking

20 jurisdictions¹; at end-2012

Exhibit 5-2



¹ 20 jurisdictions reported more granular data for narrowing down.

Sources: National flow of funds data; other national sources.

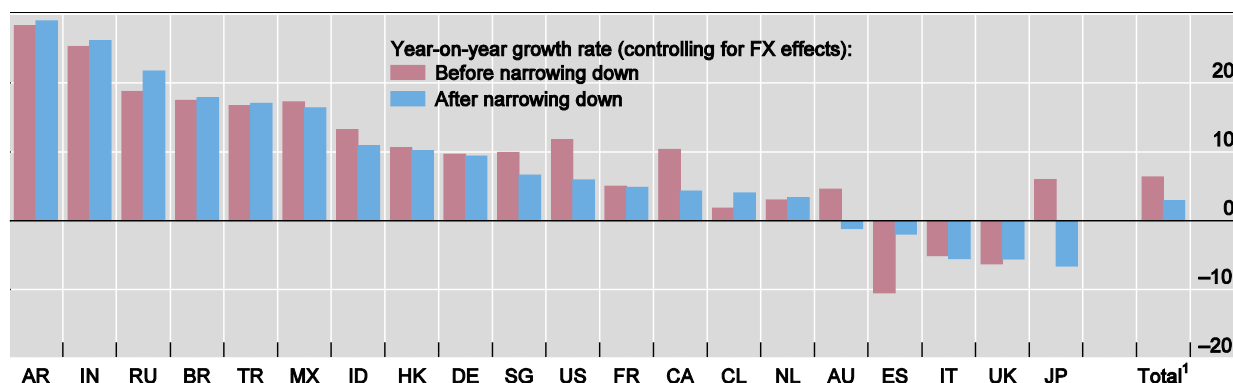
Considering self-securitisation, assets under management by pure equity funds, and financial assets prudentially consolidated into a banking group, the ‘risk-focused’ size of the shadow banking sector can be reduced by \$20 trillion, bringing total OFI assets for the 20 jurisdictions that reported granular data from \$55 trillion to \$35 trillion at the end of 2012 (Exhibit 5-2).

After narrowing down, the growth rate of the shadow banking system, calculated as a weighted average for 20 jurisdictions whose data submissions were granular enough to enable at least some narrowing down of the conservative OFI measure, was +2.9% in 2012. This compares to a growth rate of +6.4% in 2012 for the same set of jurisdictions, when narrowing down is not taken into account (Exhibit 5-3).

Growth of shadow banking sector in 2012

By jurisdiction, in per cent

Exhibit 5-3



Jurisdictions reporting more granular data for narrowing down: AR = Argentina; AU = Australia; BR = Brazil; CA = Canada; CL = Chile; DE = Germany; ES = Spain; FR = France; HK = Hong Kong; ID = Indonesia; IN = India; IT = Italy; JP = Japan; MX = Mexico; NL = Netherlands; RU = Russia; SG = Singapore; TR = Turkey; UK = United Kingdom; US = United States.

¹ Weighted average of the jurisdictions shown.

Sources: National flow of funds data; other national sources.

While efforts to refine the narrowing down will continue, the conservative estimate (‘upper bound’) should continue to form a key component for the monitoring in order to cover financial intermediation in a broad sense and to capture mutations and indirect linkages. For instance, some of the assets that are currently ‘self-securitised’ by banks may at some point be sold to third parties when financial conditions improve. In addition, ‘pure’ equity funds may also indirectly be part of a credit intermediation chain, particularly if they conduct securities lending against cash collateral to gain additional revenues. Moreover, for a number of jurisdictions, the available data is not granular enough to enable them to submit the necessary data for narrowing down the broad estimate. Therefore, cross-country comparisons will continue to be presented also on the basis of the conservative estimate, for consistency and comparability reasons.

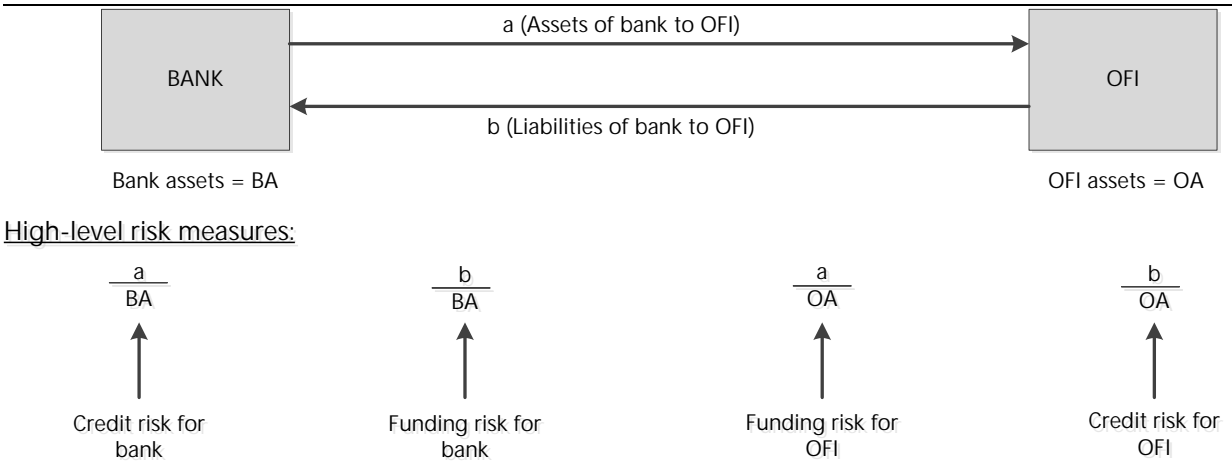
6. Interconnectedness between banks and non-bank financial entities

Systemic risk can arise from the interconnectedness between shadow banking entities and the banking sector. This interconnectedness can take many forms, including both direct and indirect linkages. For example direct linkages are created when shadow banking entities form part of the bank intermediation chain, are directly owned by banks, or benefit directly from bank support (explicit or implicit). Funding interdependence is yet another form of direct linkage, as is the holding of each other’s assets such as debt securities. In addition indirect linkages also exist, as the two sectors may invest in similar assets or be exposed to a number of common counterparties. These connections create a contagion channel through which stress in one sector can be transmitted to the other, and can be amplified back through feedback loops.

As a result, it is essential to compile measures of interconnectedness between banks and shadow bank entities. Similar to the 2012 Report, direct measure of credit exposure and funding dependence are calculated using the methodology as shown in Exhibit 6-1. This methodology is based on aggregate balance sheet exposure (assets and liabilities of banks to OFIs) between the two sectors. At the moment, data constraints restrict our ability to refine these measures further to distinguish for instance the interconnectedness between banks and different types of shadow banking entities. This remains an important gap. Different shadow banking entities are associated with different risk factors such as credit intermediation, maturity transformation, and leverage. Going forward, the establishment of a network analysis that includes banks and the different shadow banking entities on an aggregate basis could lead to further refinements by allowing us to take better account of other factors that can contribute to risks related to interconnectedness.

A risk analysis framework of interconnectedness between banks and shadow banking entities

Exhibit 6-1



High-level analysis of interconnectedness:

- In comparison to last year’s results, the sample of jurisdictions reporting is modestly different in terms of composition but overall similar in terms of the total number of respondents.⁵²
- This year’s results do not show a dramatic change in the level of interconnectedness exposures across jurisdictions on a year-on-year basis. However a methodological refinement undertaken to improve comparability has resulted in significant downward revisions of the UK data. For example, for the UK, bank’s assets to OFIs as a share of banks’ total financial assets were revised from 6.6 to 5.6 for the year 2012, due to the amendment for self-retained securitisation.
- In terms of credit risk for banks, Brazil, Indonesia, India and Saudi Arabia all experienced marked increases in the exposure of their banking system to shadow

⁵² In contrast to last year, France did not report interconnectedness data for 2012. However, this is off-set in terms of sample size by the inclusion of Spain and the ECB. A number of large jurisdictions did not report interconnectedness data.

banking entities, albeit from a low base. Funding risk for banks or the extent that banks are reliant of shadow banking entities for funding also showed the greatest increase in Indonesia, India and Saudi Arabia. Brazil showed a more modest increase in exposure, but from a significantly higher base.⁵³

- Funding risk posed to shadow banking entities due to their reliance on the banking sector as a source of funds also grew the strongest in Brazil, Indonesia, India and Saudi Arabia. This combination of results suggests a growing integration of the shadow banking and banking sector in these jurisdictions. While this may be the result of financial deepening in these jurisdictions, for those with a relatively high level of interconnectedness policy makers and supervisors should ensure that the contagion risks between these sectors of the financial system are fully accounted for in their analysis.
- The risk associated with interconnectedness between the two sectors remains larger for OFIs in relative terms than for banks in most jurisdictions. As can be seen from the differences in the scales in the two panels of Exhibit 6-2, the credit and funding risk for OFIs from their reliance on the shadow banking sector is much higher than the risk posed to banks from their connection with OFIs.
- This year's exercise also identified and subsequently excluded self-securitisation assets. Without taking into account self-securitisation, bank exposure to their own, fully owned structured finance vehicle would have been incorporated into the interconnectedness measures of credit and funding risk. This adjustment has a significant impact on bank credit and funding exposures to OFIs relative to last year's exercise.⁵⁴

⁵³ In Brazil, the OFI sector is mostly comprised of fixed-income investment funds. These funds mainly hold government bonds (40% of total assets) and time deposits placed with financial institutions operating in Brazil. Banks borrow from investment funds through repos backed by government bonds. Even taking into account that such repos represent a relevant share of banks' liabilities to OFIs, credit and liquidity risk are less of an issue for the banks due to sovereign bonds used as collateral.

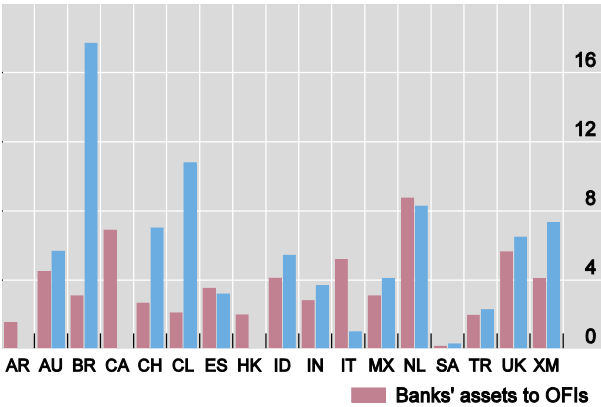
⁵⁴ For Italy and Spain, *banks' liabilities to OFIs* exclude deposits related to the re-recognition of securitised assets. For Spain, deposits from issuers of preferred shares that are prudentially consolidated into a banking group are also excluded.

Banks' assets and liabilities to non-bank financial intermediaries

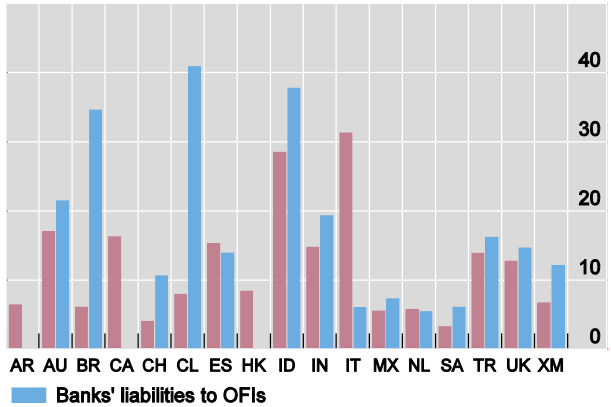
At end-2012

Exhibit 6-2

As a percentage of banks' assets



As a percentage of OFIs' assets



AR = Argentina; AU = Australia; BR = Brazil; CA = Canada; CH = Switzerland; CL = Chile; ES = Spain; HK = Hong Kong; ID = Indonesia; IN = India; IT = Italy; MX = Mexico; NL = Netherlands; SA = Saudi Arabia; TR = Turkey; UK = United Kingdom; XM = Euro area.

Sources: National flow of funds data; other national sources; ECB.

Annex 1: Template used for the data collection exercise

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	Col 15	Col 16	Col 17	Col 18
STOCK of financial assets as of end-year	Financial Institutions =(col2+col3+col13+col14+col115+col19+col32)	Central Bank	Deposit-Taking Institutions =(col4+col7+col110)	Banks		XX (Note 1)		Others		Insurance Companies (Note 2, 3)		Pension Funds (Note 2,3)		Public Financial Institutions =(col16+col17+col18)		Public Financial Institutions (Note 4)	XX (Note 1, 4)	Others
				Assets to OFIs	Liabilities to OFIs	Assets to OFIs	Liabilities to OFIs	Assets to OFIs	Liabilities to OFIs									
2002																		
2003																		
...																		
2012																		

	Col 19	Col 20	Col 21	Col 22	Col 23	Col 24	Col 25	Col 26	Col 27	Col 28	Col 29	Col 30	Col 31	Col 32	Col 33
STOCK of financial assets as of end-year	Other Financial Intermediaries (OFIs) =sum of col20 to col 31	Money Market Funds (MMFs) - of which constant NAV or equivalent (Note 5)	Other Money Market Funds (MMFs) (Note 5)	Finance Companies	Structured Finance Vehicles	Hedge Funds (Note 6)	Other Investment Funds - of which <u>equity</u> funds	Other Investment Funds - of which <u>fixed income/bond</u> funds	Other Investment Funds - <u>other</u> funds	Broker-dealers	XX (Note 1)	XX (Note 1)	Others	Financial Auxiliaries (please describe in Note 7)	Exchange rate at end of the period
2002															
2003															
...															
2012															

Members may complement the Flow of Funds / sector balance sheet data with other information.

- Note 1: For XX, please fill in subcategories as relevant.
- Note 2: If data for Insurance Companies and Pension Funds can not be separated, please fill the aggregated number in the insurance companies' cells and explain that in the Note cell.
- Note 3: If data for Insurance Companies, Pension Funds and Public Financial Institutions are included in Other Financial Intermediaries, please clarify that in the Note cell.
- Note 4: If data for government-owned deposit-taking institutions are included in the Public Financial Institutions, please separate that out in XX cells or clarify as such in the Note cell.
- Note 5: If data for MMFs can not be separated between CNAV and Others, please fill the aggregated number in the CNAV MMF cells and explain that in the Note cell.
- Note 6: If data for hedge funds can not be separated from Other Investment Funds, please fill the aggregated number in the Other Investment Funds cells and explain that in the Note cell.
- Note 7: If your Flow of Funds / sectoral accounts distinguish financial auxiliaries, please describe what they are and provide examples.

Annex 2: Country case studies

Monitoring Shadow Banking in Canada – A Case for Combining Activities with Entities⁵⁵

Summary

This case study addresses the importance of combining the FSB's proposed entity-based approach to monitoring the shadow banking sector with an activity-based approach, which focuses on bank-like intermediation conducted primarily through markets. It overviews both approaches, applies the combined method to the largest Canadian shadow banking activity, the issuance of government-insured mortgage securitization (NHA MBS),⁵⁶ and discusses the systemic implication of the analysis.

Overview

There are two broad approaches to measuring the shadow banking (SB) sector: an entity-based approach and an activity-based one. The measure of shadow banking used by the FSB (2012) in its monitoring exercise is based on assets held by 'other financial institutions' (OFIs) and focuses on non-bank financial entities. However, an entity-based measure may omit shadow banking activities undertaken by banks that may contribute to systemic risks. It may also lead to a different classification and treatment of economically equivalent activities simply because they are conducted by different types of entities.

The following example illustrates the issue. The left panel of Exhibit A2-1 plots the size of the three largest Canadian OFI entities and indicates that the assets of SPVs drop significantly between 2010 and 2011. This is due to the adoption of the International Financial Reporting Standards (IFRS), under which most SPVs were consolidated back on the banks' balance sheets.⁵⁷ Securitisation activity did not decline, but a reclassification moved those assets from the OFI sector to the banking sector. An adjustment that captures total outstanding securitisation is provided in the right panel of Exhibit A2-1, where the size of SPVs is increased to include both on- and off-balance sheet entities. This adjustment is important since SPVs are shown to be growing since 2008 rather than shrinking and in 2012 the total financial assets of these entities is estimated to be \$250 billion higher.

The monitoring and assessment framework in Canada measures SB using an activity-based approach, focusing on bank-like intermediation activities conducted primarily through markets. This approach not only encompasses key market segments such as securitization and repos, but it also captures economically equivalent functions performed by regulated and unregulated entities. Given the prominent role of banks in most of these market segments in Canada, it also allows for the inclusion of activities that potentially pose systemic risks but are

⁵⁵ This case study has been contributed by Ian Christensen and Adi Mordel (Bank of Canada).

⁵⁶ The case study follows the discussion in 'Monitoring and Assessing Risks in Canada's Shadow Banking Sector', Bank of Canada, Financial System Review (June 2013).

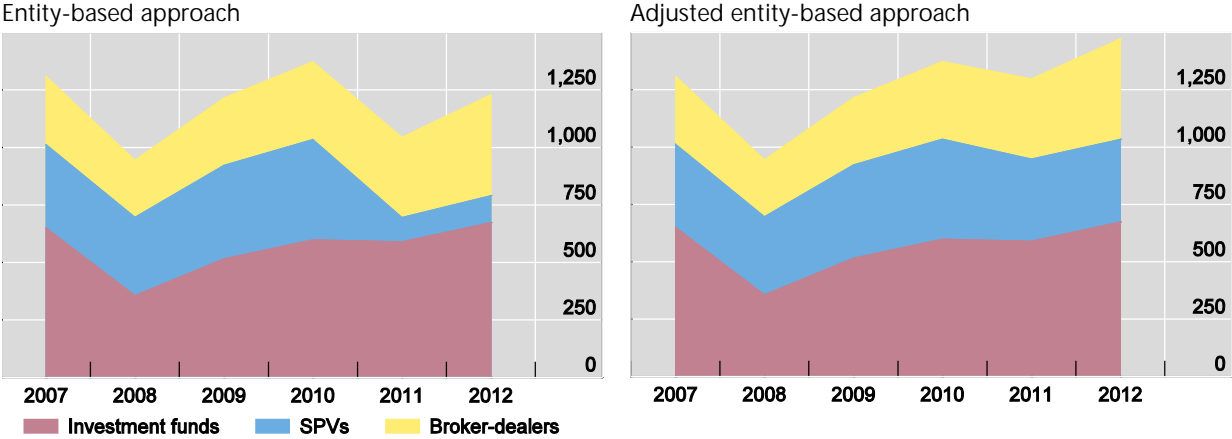
⁵⁷ The Canadian flow of funds data maintain this change in accounting treatment (<http://www.statcan.gc.ca/pub/13-605-x/2011003/article/11492-eng.htm>).

not considered ‘banking’ activities in the traditional sense, even though the intermediation chain often involves a bank. As a result, this approach is broader than the typical regulatory policy discussions regarding SB, which focus on credit intermediation conducted outside the perimeter of regulation, since it also includes activities involving regulated entities and, in some areas, an explicit government guarantee.

Measuring the shadow banking sector

In billions of Canadian dollars

Exhibit A2-1



Source: Bank of Canada.

While an activity-based approach may be better able to assess risks, it is still necessary to take into account entities that are engaged in these activities, especially to enable the design of appropriate policy recommendations and regulations. Hence, both the activity- and entity-based approaches are necessary. The next section applies both approaches to the Canadian SB sector.

Application and Systemic Risk Considerations

We illustrate an application of the combined activity/entity based approach by first mapping SB activities in Canada, and then focusing on the entities involved in the largest most important activity, the issuance of government-insured mortgage securitization (what we call National Housing Act Mortgage back Securities, NHA MBS).

Shadow banking activity in Canada grew significantly in the period leading up to the financial crisis, but has since declined modestly (left panel of Exhibit A2-2). Using the activity-based definition, the size of the SB sector in Canada is about 40 per cent of the traditional banking sector, down from an average of about 50 per cent during the decade up to 2008 (right panel of Exhibit A2-2).

Securitization of government-insured mortgages has grown substantially since 2007 and is currently the largest component of the Canadian SB sector.⁵⁸ Issuing debt securities backed

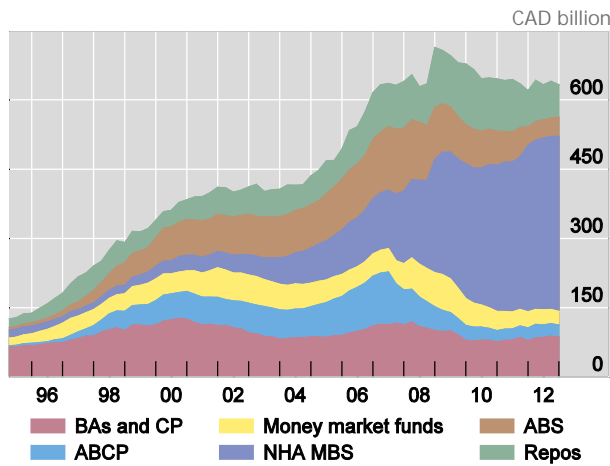
⁵⁸ This stands in sharp contrast with the evidence in the left panel of Exhibit A2-1, where the unadjusted size of SPVs is shrinking.

by insured mortgages moves mortgage lending away from the traditional banking model where mortgages are funded largely by deposits, which represents an increase in the role of shadow banking in mortgage credit.

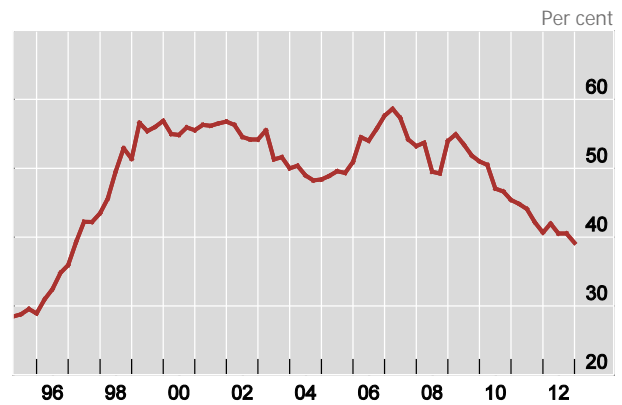
Although much of this securitization activity is done by chartered banks in Canada that are regulated by OSFI (Canada's microprudential supervisor), NHA MBS trends in Exhibit A2-2 shows that the top nine non-traditional entities have been increasingly active (see article in the Bank of Canada's June 2013 *Financial System Review* for more details on these entities).⁵⁹ Specifically, the amount issued by these entities has grown from \$10 billion (or 7 per cent of total NHA MBS issued) in 2007 to roughly \$55 billion (15 per cent of total NHA MBS) at the end of 2012. As a group, they now make up the fifth-largest issuer of NHA MBS (Exhibit A2-2). Four of these issuers are not supervised by Canadian federal authorities. This illustrates that it is nonetheless important to monitor SB risk on an entity basis as well as on an activity basis.

⁵⁹ The Bank of Canada's Financial System Review (June 2013) can be access at: <http://www.bankofcanada.ca/2013/06/publications/periodicals/fsr/fsr-june-2013/>.

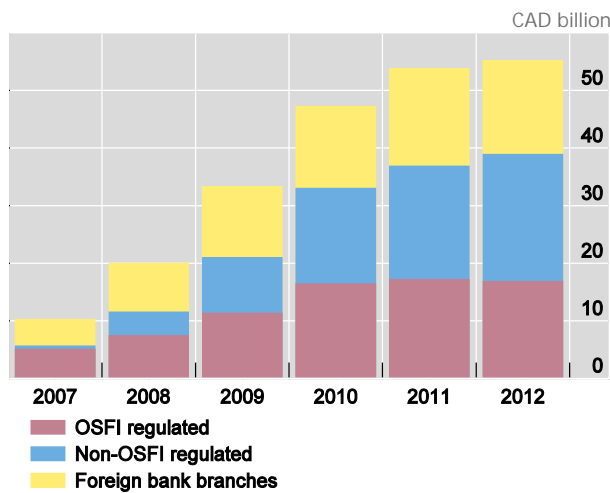
Canadian shadow banking components



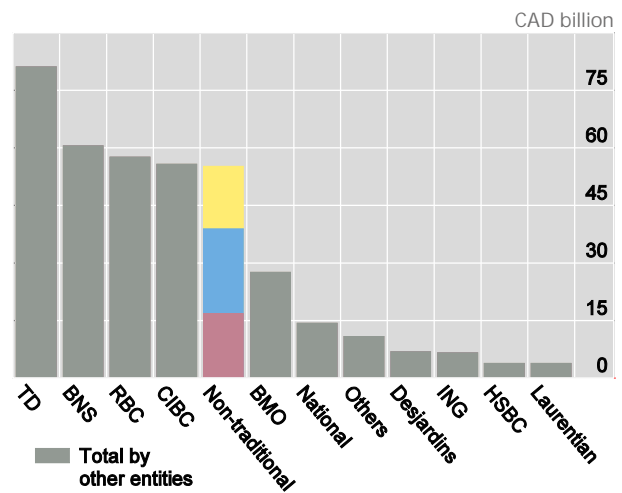
Estimated size of Canada's shadow banking sector as a share of traditional bank liabilities



NHA MBS¹ issuance and outstanding by nine "non-traditional" entities



NHA MBS¹ issued and outstanding²



¹ National Housing Act Mortgage Backed Securities (NHA MBS). ² At end-2012.

Sources: Bank of Canada; DBRS; Canadian Mortgage and Housing Corporation.

Although insured-mortgage securitization entails little shadow banking risk per se —given the explicit government backing— it may contribute to risks in the financial system more generally. This occurs through three channels. First, growth in the stock of insured mortgages and the associated stock of securitized instruments tends to strengthen the existing linkages between the sovereign, financial institutions and macroeconomic risks generated by imbalances in both the housing and household sectors. Second, the prevalence of mortgage securitization increases the complexity and interconnectedness in the Canadian financial system relative to a traditional situation where mortgage lending is predominantly funded by branch-based deposits. Third, the low funding costs may encourage growth in leverage at lightly regulated financial institutions, which can then underpin stronger mortgage credit growth.

Shadow banking case study for South Africa⁶⁰

Overview of shadow banking in South Africa

South Africa participated with 25 other jurisdictions in the third shadow banking monitoring exercise conducted by the FSB's Analytical Group on Vulnerabilities. The exercise involved an analysis of national flow of funds and sector balance sheet data, examining all non-bank financial intermediation data in order to ensure that data gathering and surveillance cover the areas where shadow banking related risks to the financial system might potentially arise.

In South Africa the banking sector, and the insurance and pension fund sector represent about 34 per cent and 38 per cent of the total financial assets of financial intermediaries, respectively. The share of other financial intermediaries (OFIs) gradually increased from below 12 per cent in 2002 to about 23 per cent in 2012. An interesting observation is that the share of assets lost by the banking sector in 2012 was more or less gained by OFIs. In line with developments in the global shadow banking system, this industry's assets also grew rapidly between 2002 and 2007 (at about 40 per cent per annum) in all categories in South Africa. However, following the financial crisis, the annual growth rate moderated significantly to approximately 6 per cent per annum between 2008 and 2012.

In order to complement the analysis for the FSB's exercise, credit extension trends in South Africa by banks and OFIs were compared. It can be concluded that even though credit extended by OFIs had increased over the past decade, it remained more or less constant as a share of total credit extended at about 8 per cent. Banks therefore still provide the bulk of credit at about 92 per cent.

The role of finance companies

An analysis of the credit provided by OFIs in South Africa, shows that Finance Companies provide about R160 billion (\$16 billion) of the total of about R170 billion (\$17 billion) credit extended by OFIs. Finance Companies are established in terms of the Companies Act (2008) with the specific purpose of obtaining funds through loans, debentures or notes with the objective of lending or investing these funds again in the form of mortgage loans, factoring instalment sales and/or leasing finance. The main types of finance companies are vehicle finance companies, consumer finance companies and retail finance companies.

Finance companies are regulated by the National Credit Regulator (NCR)⁶¹ in South Africa. Certain finance companies are affiliated to banking group structures and capital is being held against loans granted by these companies. However, the majority of finance companies are not affiliated to banks and therefore form part of the shadow banking system in South Africa. The Flow of Funds Division in the South African Reserve Bank (SARB) surveys about 41 such finance companies on a monthly basis.

⁶⁰ This case study has been contributed by Hendrik Nel (South African Reserve Bank).

⁶¹ The NCR was established in 2006 to regulate all credit extension in South Africa. All credit providers need to register with the NCR who sets affordability criteria to protect consumers against reckless lending.

The asset side of the balance sheets of finance companies comprises mainly of instalment sale finance (48 per cent), mortgage loans (13 per cent) and other loans (23 per cent). Instalment sale finance, an agreement where the purchaser pays the purchase price in more than two instalments, almost doubled in size since 2007. The liability side of their balance sheets is made up of other funding (55 per cent), comprising of loans from parent companies such as Toyota in Japan and BMW and Volkswagen in Germany. This type of funding has grown strongly since 2007. Funding from banks only makes up about 18 per cent of total funding and remained fairly stable over the last couple of years.

Identified issues (concerns) in shadow banking

In a global context, but also in relation to the size of the financial sector in South Africa, shadow banking is relatively small and does not currently raise any systemic concerns. According to latest estimates, less than 10 per cent of total credit extended in South Africa is provided by the shadow banking industry. This is however not a reason for complacency and the shadow banking industry will continue to be closely monitored by the prudential and systemic regulators in South Africa.

One of the main concerns on shadow banking in South Africa is the availability of data. Further improvements in the granularity of data on shadow banking are required. In this regard the inter-connectedness and the nature of the relationship between OFIs and banks remain opaque in South Africa. The SARB is also in the process of reconciling the different sources of data on shadow banking.

The regulatory and central bank authorities in South Africa are positive about forming part of the annual shadow banking monitoring exercise of the FSB and this project is providing the country with the opportunity and information to improve its analysis of shadow banking.

UK-resident banks' repo books: mapping and illustrative risks⁶²

Securities financing transactions between banks and other financial companies play a number of vitally important roles in the financial system, including facilitating effective collateral management by firms, supporting secondary market liquidity and aiding price discovery. But they are also a potential source of systemic risk, allowing shocks to be propagated and amplified – particularly where transactions are cross-border, focused on a few key intermediaries and associated with so-called ‘chains’ arising from re-use of collateral. Generally, gross values are very significantly larger than net amounts, which may lead to uncertainty among investors in the event of counterparty distress.

Despite the broad importance of securities financing markets, data availability is patchy and uneven by market segment. This case study uses information from a variety of sources to help scale the possible risks, taking their important functions as given: by approximately mapping the direct counterparty links arising from UK-resident banks' activity in repo markets; and illustrating, in general terms, the effect on system leverage that chains of repo transactions might have when they are coupled with multiple layers of cash reinvestment and pledging of collateral.

Background

As described in the main body of this report, OFI assets can be used as a readily-available but imperfect proxy for the size of the shadow banking system. In the run-up to the financial crisis, the stock of borrowing by UK OFIs from UK MFIs (which includes the core banking system) stood at around US\$200- 400 billion but that has since reversed (Exhibit A2-3, blue). It is difficult to obtain a precise picture of the stock of borrowing held against foreign MFIs because it is hard to separate out bonds issues by such companies from other foreign entities. Two extreme cases are shown maroon, putting the true figure between US\$20-900 billion. But the upper bound here is very likely a significant over-estimate given the broad retrenchment in cross-border activity following the onset of the financial crisis in 2008.⁶³

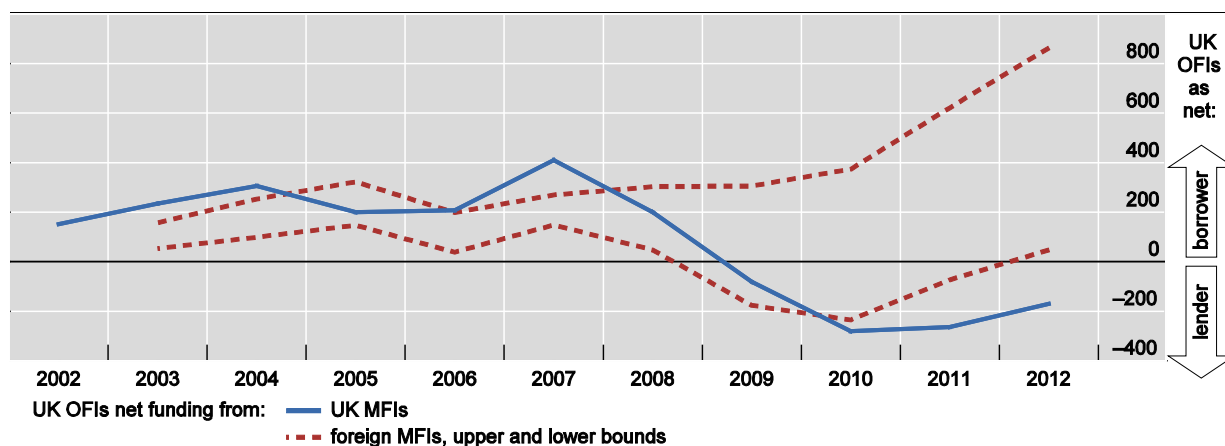
⁶² This case study has been contributed by Lewis Webber, Paul Baverstock, Yuliya Baranova, and Mathieu Vital.

⁶³ For example, the pattern of gross cross-border claims by all BIS-reporting banks on advanced and emerging economies since 2008 is described in the *Financial Stability Report* published by the Bank of England in November 2012.

UK OFIs net funding from UK and foreign MFIs¹

In billions of US dollars

Exhibit A2-3



¹ Maroon lines show upper and lower bounds on UK OFIs funding from foreign MFIs because it is not possible to separate out bonds issued by such companies from other foreign entities directly from official data sources without other assumptions.

Sources: ONS; Bank of England calculations.

There are a large number of component parts behind such aggregate statistics. At a granular level, some borrowing and lending transactions are likely to be especially important from a systemic risk standpoint, including those occurring via repo transactions. Repo markets are an integral part of the UK financial system, facilitating credit intermediation both within and outside of the regular banking system.

Mapping UK-resident banks' repo books

By compiling information from a mixture of published accounts, other official data sources, surveys and market data providers, it is possible to build-up an approximate consolidated repo balance sheet for the UK-resident banks, split by counterparty type. Taken together, this exercise suggests that UK-resident banks hold a total of around £3.1 trillion in gross repo activity⁶⁴ on their balance sheets, of which around £2.1 trillion may be accounted for by deposit-takers and £1.0 trillion securities dealers. But net amounts⁶⁵ are much smaller, at around £0.3 trillion.⁶⁶

Exhibit A2-4 provides an indicative breakdown of the consolidated repo balance sheet for the £2.1 trillion UK-resident deposit-taker segment. The majority of activity on a gross basis appears to be with non-UK resident banks (left-hand panel, blue and maroon bars), including activity between UK-resident entities and foreign-resident entities of the same consolidated group. Gross activity with foreign non-bank companies is also important (green and yellow), comprised of both financial and non-financial counterparties. Collateralised lending to non-UK resident companies also appears to be the largest component in net terms, at around £100 billion (right-hand panel, bottom bar).

⁶⁴ Defined as the sum of outstanding repo borrowing (liabilities) plus reverse repo lending (assets).

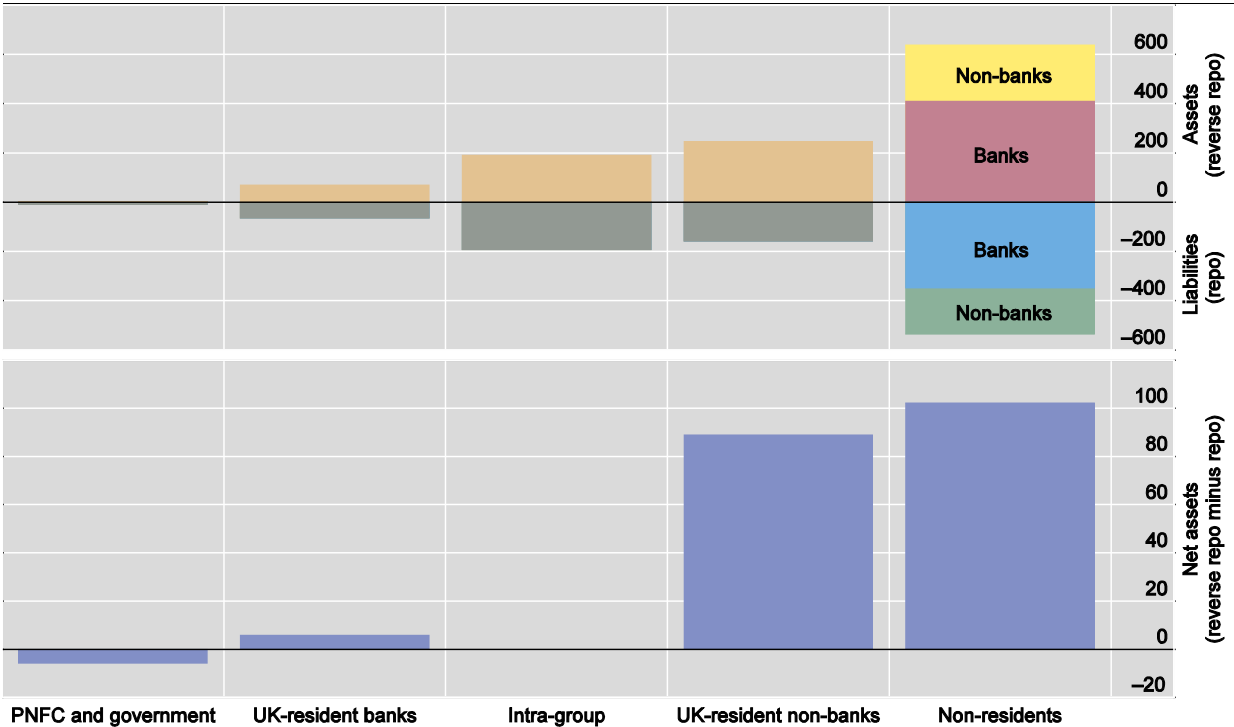
⁶⁵ Defined as the sum of outstanding reverse repo lending (assets) less repo borrowing (liabilities).

⁶⁶ There are various factors that might contribute to gross repo volumes being materially larger than net amounts, including where a bank acts as an intermediary to such transactions for a large number of clients.

UK-resident deposit-takers' aggregate repo activity

In billions of pound sterling

Exhibit A2-4



Source: Bank of England.

UK-resident firms, including CCPs, are the next largest group of counterparties, in both gross and net terms (second set of bars from the bottom), with other counterparty relationships appearing small by comparison.

Exhibit A2-5 (left panel) illustrates that within the consolidated picture described above, UK-resident banks' activity in repo markets is highly concentrated.⁶⁷ This is particularly true for repo transactions undertaken with foreign counterparties, where activity is channelled through a handful of UK-resident banks. The response of banks to shocks could therefore have a particularly significant effect on broader market stability – and especially where transactions are further linked together into chains involving other key intermediaries.

Illustration of risk amplification through repo chains

As a simple illustration of the way in which repo transactions can combine to produce adverse effects on the system that can be larger than the sum of their parts, suppose that investor A borrows cash for a short period of time from investor B and posts securities as collateral. Investor A could use some of that cash to purchase additional securities, post those as further collateral with investor B to receive more cash, and so on multiple times. The result of this series of 'leveraging transactions' is that investor A ends up posting more collateral in total with investor B than they initially owned outright. Consequently, small changes in the value

⁶⁷ See also the *Financial Stability Report* published by the Bank of England in November 2012.

of those securities have a larger effect on the resilience of both counterparties. In turn, investor B could undertake a similar series of financing transactions with investor C, re-using the collateral it has taken from investor A, and so on.

Exhibit A2-5 (right panel) mechanically traces out the aggregate leverage that can arise in this example. Even with relatively conservative assumptions, some configurations of repo transactions boost aggregate leverage alongside the stock of money-like liabilities and interconnectedness in ways that might materially increase systemic risk. For example, even with a relatively high collateral haircut of 10%, a three-investor chain can achieve a leverage multiplier of roughly 2-4, which is in the same ball park as the financial leverage of the hedge fund sector globally. It is therefore imperative from a risk assessment perspective that adequate data are available. Trade repositories, as proposed by FSB Workstream 5, could be very helpful in this regard.

Concentration of MFIs' repo activity and variation of aggregate leverage

Exhibit A2-5

Concentration of UK-resident MFIs' repo activity¹

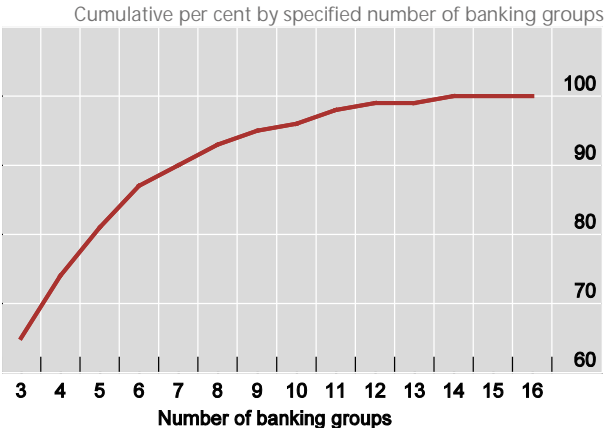
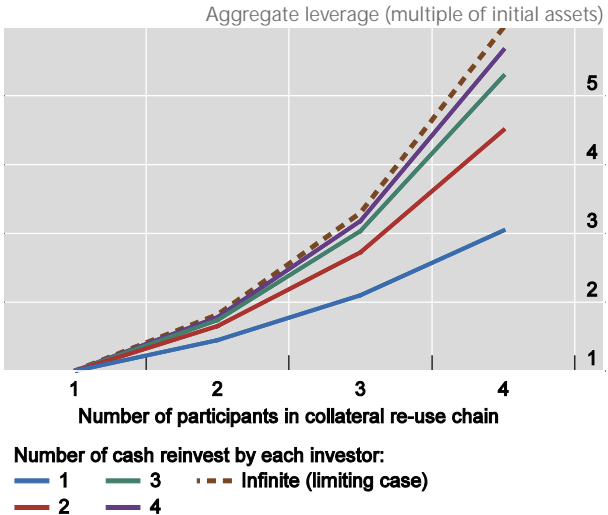


Illustration of variation of aggregate leverage for different repo chains²



¹ Cumulative repo activity as a proportion of total repo activity for a sample of 16 banking groups. The sample covers around 80% of repo activity (excluding UK-resident intra-group repo activity) reported to the Bank of England. Repo activity is defined as the sum of outstanding reverse repo lending and repo borrowing as on end-2011, excluding UK-resident intra-group activity.

² Ratio of the total value of collateral held in the chain to the value of the collateral initially posted by the first investor, assuming a collateral haircut of 10 per cent and that each investor chooses to retain 50 per cent of the cash raised from each transaction with their immediate counterparty.

Source: Bank of England.

US agency MBS REITs' vulnerability to adverse market conditions⁶⁸

There has been a recent discussion about the potential vulnerabilities of Agency MBS REITs (amREITs) to adverse market conditions. This note briefly discusses the potential implications for the amREIT sector of three scenarios: a rapid increase in interest rates; the tightening in repo funding terms; and a cyclical increase in interest rates coupled with the flattening of the yield curve. Before discussing the potential implications of these scenarios for the amREIT sector, the note describes how amREITs operate and characterizes the amREIT sector in the U.S.

What are amREITs?

Real Estate Investment Trusts (REITs) are financial intermediaries that invest primarily in real-estate related assets that include real estate, mortgages, mortgage derivatives, liens and mortgage-based securities (MBS). There is a subgroup of REITs that derive most of their income from agency MBS that are issued or guaranteed by Fannie Mae, Freddie Mack (GSEs) and/or Ginnie Mae --- these are often called Agency Mortgage Real Investment Trusts (amREITs), and are the focus of this note.

How do amREITs operate?

On the liability side, amREITs usually fund themselves by issuing equity in a public offering and through debt. They raise debt primarily via bilateral repurchase agreements (repo) collateralized by agency MBS with haircuts generally ranging 3 to 5 percent for pass-through securities. Repo maturities are largely 30 days to one year, but may range from overnight to 5 or more years.

amREITs have tended to maintain their leverage ratios between 6 to 9x in the post crisis period. To that end, they often do secondary equity issuances and repurchases. Their price-to-book ratio tends to be close to one. When stock price appreciates and that ratio goes above one, amREITs often issue additional shares. When the opposite happens they repurchase shares.

On the asset side, amREITs invest in securities either issued or guaranteed by one of the GSEs or Ginnie Mae. The underlying collateral can consist of fixed-rate, adjustable rate or hybrid mortgage loans. The levered returns on these assets, in the form of interest income and realized capital gains, are returned to shareholders net of funding costs, hedging costs, and management fees as dividends.

The role of regulation and taxation for amREITs

amREITs are able to achieve high dividend payouts due to their extensive use of leverage and their tax status. amREITs are exempt from regulation under the Investment Company Act of 1940 based on the percentage of assets invested in real estate interests. This exemption enables amREITs to operate without requirements that the Investment Act would normally impose, including significantly higher latitude to utilize leverage.

⁶⁸ This case study has been contributed by João Santos (Federal Reserve Bank of New York). It draws on the work of Brian Greene and Sheri Senge (both Federal Reserve Bank of New York) on REITs. The views presented here are those of the author and not necessarily the views of the Federal Reserve Bank of New York or the Federal Reserve System.

amREITs have a tax exempt status at the corporate level under the Internal Revenue Code of 1986, as long as they distribute 90 percent of their taxable net income annually. This structure is advantageous for shareholders because it avoids the ‘double taxation’ that owners of C-corporations are subject to. Due to their high dividend yields and unique tax status, amREIT equity is popular among retail investors and is commonly held in tax deferred accounts since the distributions are taxed as ordinary income to the lower prevailing dividend tax rate.

Risk exposures of amREITs

amREITs are exposed to three risks: interest rate risk, prepayment risk and funding risk. They are exposed to interest rate risk because they borrow at short-term rates, inside of one year, with borrowing costs benchmarked to LIBOR while their asset’ maturities can extend out to thirty years. They hedge this duration mismatch with interest rate swaps, interest only securities, Treasury securities and Treasury futures.

amREITs are exposed to a prepayment risk because they are short an embedded prepayment option due to residential borrowers’ ability to prepay their mortgages. Since prepayments typically increase as interest rates decline and decrease as interest rates rise, MBS have a ‘negatively convex’ price-to-yield relationship. The value of this embedded option is correlated to interest rate volatility – higher volatility increases the value of the prepayment option and lowers the value of MBS. amREITs may choose to hedge this volatility risk by purchasing swaptions or options on MBS.

Lastly, amREITs are exposed to rollover risk – the risk that repo contracts are not renewed, or that the rate on the new contract will be significantly higher. amREITs mitigate the former risk through the use of forward LIBOR markets and by holding floating rate assets. Locking in longer-term repo contracts can also mitigate short-term rate risk and ensure that funding is available for a longer period of time.

Given the nature of their risk exposures, it is apparent that amREITs’ returns are highly cyclical and dependent on net interest margins, which in turn are highly dependent on the steepness of the Treasury yield curve.

amREITs sector

As of 2013:Q1 there were 14 amREITs operating in the U.S (Table A2-1). Altogether, they owned about \$365 billion worth of agency MBS, which corresponds to about 7 percent of the \$5.5 trillion agency MBS market. The sector is dominated by two amREITs --- Annaly Capital Management and American Capital Agency Corporation. As of 2013:Q1, together these two institutions owned about \$220 billion of agency MBS or over 65 percent of total amREIT holdings of agency MBS. Another important feature of the amREIT sector is its ‘youth’. Of the 14 active amREITs, 10 were formed in 2008 or later. Annaly is the only sizeable amREIT that has been in operation for more than a decade.

Mortgage REITs in the U.S.

At end Q1 2013

Table A2-1

Mortgage REIT	Market Value of Agency Securities ¹			Leverage ²	IPO Year
		quarter-on- quarter change	year-on-year change		
Annaly Capital Management, Inc.	113,873	-13,852	-541	8.2	1997
American Capital Agency Corp. ³	76,295	-8,950	-4,275	6.5	2008
Hatteras Financial Corp.	25,276	1,218	5,136	8.5	2008
CYS Investments, Inc.	20,163	-679	6,795	9	2009
ARMOUR Residential REIT, Inc.	24,339	5,243	12,202	10.2	2008
Invesco Mortgage Capital Inc.	15,325	1978	3,739	7.6	2009
Capstead Mortgage Corporation	13,844	-5	844	9.7	1985
Two Harbors Investment Corp.	12,935	921	4,705	4.7	2009
Anworth Mortgage Asset Corporation	9,517	273	479	9	1998
MFA Financial, Inc.	7,562	-72	-1	4.2	1998
American Capital Mortgage Investment Corp.	6,536	169	2,691	6.5	2011
Western Asset Mortgage Capital Corporation	4,226	-968	4,226	9.7	2012
Apollo Residential Mortgage, Inc.	4,300	673	3,142	6.1	2011
Dynex Capital, Inc.	3,848	356	1,192	7.3	1988
Total	338,039	-13,695	40,334	7.8	

¹ In USD millions. ² In per cent. ³ American Capital Agency Corp also owns \$27 billion of TBAs of which \$14 billion were purchased over Q1 2013.

Sources: Bloomberg; JPMorgan; SEC 10-Q filings.

On average the 12 smaller amREITs increased agency MBS holdings by over 50 percent since 2012:Q1 (until 2013:Q1) while the two largest amREITs experienced a modest decline in their holdings of these assets. Lastly, despite the sizeable increase in agency MBS holdings over the last year, smaller amREITs did not concurrently increase leverage. As for the two large amREITs, their leverage declined over the same period of time, but only modestly.

Potential adverse scenarios for amREITs

Given the business model of amREITs, the relative importance of this sector, and the current level of interest rates, it is possible to envision three scenarios that could potentially trigger some financial instability.

Scenario 1: Rapid increase in interest rates and a corresponding decline in the market value of MBS.

An increase in rates would lead to portfolio losses, which would lower equity book value and increase leverage. This would trigger asset sales to bring leverage down to pre-shock levels. Since an interest rate shock would also result in an extension of the portfolio duration, this could trigger addition asset sales to bring duration down to pre-shock levels.⁶⁹ Further,

⁶⁹ MBS portfolios tend to have 'negative convexity', meaning the duration of their portfolios increase when rates rise and decrease when rates fall.

sustained declines in agency MBS prices could necessitate asset sales to meet margin calls.⁷⁰ Early this year, amREITs' holdings accounted for only about 5% of outstanding Agency MBS, but they represented about seven times the size of daily outright trading volume of these securities. Thus, a forced liquidation of a large portion of their holdings could have a sizable impact on interest rates and volatility.

Scenario 2: MBS spread widening coupled with tightening in repo funding terms.

An idiosyncratic repo counterparty failure or refusal to renew the funding arrangement is likely to pose limited funding risk because most amREITs tend to have diversified lending arrangements. However, if repo funding haircuts were to increase significantly, amREITs would likely face a funding crisis, which could force asset sales, and the corresponding decline in asset values in turn could put pressure to sell additional assets.

Scenario 3: Cyclical increase in interest rates coupled with a flattening of the yield curve due to changes in the outlook for growth and/or monetary policy.

The amREIT business model works well when the yield curve is positively sloped due to the ability to invest in long term, higher yielding assets and fund them at lower short term rates, – a strategy sometimes called a 'carry trade'. However, returns and equity values could suffer if and when short-term rates start to increase and the yield curve flattens.

For large shocks that occur over a short period of time, possibly together with other negative factors, the impact of these scenarios on the amREIT sector could be significant and lead to a large sale of agency MBS. Further, even if interest rates were to increase in a slow and predictable manner, the amREIT business model will likely face some challenges, particularly if the yield curve becomes flat or inverts for an extended period of time. This would put pressure on amREITs' net-interest-margins, forcing them to lower their dividend payout. With a lower dividend yield amREITs could fall out of favour with investors. amREITs may attempt to maintain the dividend yields by increasing leverage, or by using less conservative hedging strategies or by reallocating their portfolio into riskier assets, but in either case they will become more vulnerable to future shocks.

⁷⁰ In repo transactions, when the value of pledged securities decreases to the point where the difference between the collateral value and the loan amount is less than the haircut, lenders may issue a margin call.

Annex 3: The growth of non-banks in direct lending and private debt markets

The need for banks in some jurisdictions to repair and deleverage their balance sheets, together with an increased focus of banks on balance sheet usage in reaction to more stringent regulatory requirements and incentives of investors to search for yield is leading to the development of alternative non-bank sources of financing. Non-bank institutions (e.g. insurance companies, pension funds, private equity funds) have recently initiated or stepped up their lending activities in some jurisdictions in order to fill the void⁷¹ left by banks or get access to higher yielding exposures. At the riskiest end of lending activities, leveraged loans, of which a sizeable proportion is syndicated to non banks, have also experienced buoyant activity since 2012.

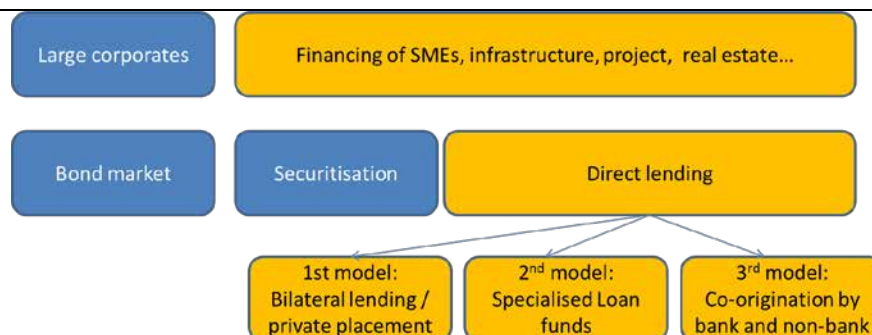
While large companies can access credit outside of the banking system relatively easily by issuing bonds or other debt instruments in the public market, small and medium-sized enterprises (SMEs) often do not possess the critical size to do so⁷². Likewise, infrastructure and real estate finance may involve investment horizons that are too long for public bond markets. Market-based financing by non-banks for these types of borrowers therefore has to take different forms (see Exhibit A3-1). Securitisation is one possible option. However, securitisation markets have faced difficulties in recovering from the crisis and remain, in many jurisdictions, affected by significant regulatory uncertainty. Official sector initiatives have been announced to revive SME securitisation in some jurisdictions. In the meantime, different market-based financing structures, hereafter referred to as ‘direct lending’, have emerged to enable non-bank investors to provide financing to SMEs and other borrowers for which bank appetite has decreased.⁷³ The different forms of ‘direct lending’ are described in the first section of this box, while the second section touches upon the benefits and potential risk implications.

Overall, ‘direct lending’ to SMEs and infrastructure finance still represents a small fraction of total funding needs. As these markets are mostly private, information remains scarce in many jurisdictions. Setting up a more systematic monitoring of these markets, for instance as part of the annual shadow banking monitoring report, would keep track of the characteristics, size and growth of non-bank participation to the financing of the economy as well as detect potential build-up of risks.

⁷¹ Of note that that there may also be some non-bank financial intermediaries (e.g. finance companies and broker-dealers) that are not deleveraging and may also contribute to fill the void

⁷² There are a few jurisdictions where dedicated bond markets for SMEs have developed, for instance in Germany.

⁷³ An interesting question is why non-bank institutions prefer at the current juncture to invest in loans directly or through specialised loan funds, rather than through securitisation. Regulatory and accounting factors in particular would warrant more analysis.



Yellow-coloured boxes identify those new forms of market-based financing by non-banks on which the note focuses. Blue-coloured boxes refer to other forms of market-based financing and disintermediation, which are not covered in details in the note.

The emergence of ‘non-bank banks’?

One of the fundamental hurdles to overcome for non-bank institutions to lend to SMEs and projects is the absence of direct relationship with them and potential information asymmetries⁷⁴ given that public information is often lacking about their creditworthiness.⁷⁵ Three models have emerged to overcome this hurdle and form what is known as ‘direct lending’ (see Exhibit A3-1), even as some of these forms involve an intermediary (asset manager or bank):

1. In the first model (‘bilateral lending’ or ‘private placement’), the non-bank institution develops a dedicated expertise to invest in loans,⁷⁶ i.e. screen and select suitable borrowers or projects. In some jurisdictions such as the US, these activities are not new and have been in place for a long time. For instance, the US ‘private placement’ market⁷⁷ has enabled insurance companies to finance corporates for decades, also benefiting from a specific credit assessment infrastructure.⁷⁸ In other jurisdictions, especially in parts of Europe, non-bank lending and private placements are in the process of being started (e.g. in France) or have recently met with increased investor interest, as in Germany with the long standing *Schuldschein* market.⁷⁹ Large insurance

⁷⁴ SME financial statements also tend to be less informative and their credit histories shorter than for larger companies.

⁷⁵ These borrowers are generally less widely rated by major rating agencies. However, in some jurisdictions, specific rating services or credit assessment sources exist for SMEs.

⁷⁶ In some jurisdictions, non-banks are not allowed to grant loans in the same legal form as banks. In such cases, they would need to find an indirect way to obtain loan exposure.

⁷⁷ The US private placement (USPP) market references bonds and other debt instruments that are exempted from the registration requirements imposed by the Securities Act of 1933. The logic of the exemption is that investors in these instruments are sophisticated and can obtain the financial information they need to assess the borrower’s creditworthiness. Insurance companies are very active on the USPP market, as 30% of the bond portfolio of US life insurance companies’ is in private placements.

⁷⁸ In the US private placement market, the NAIC (National Association of Insurance Commissioners) has developed a central credit assessment system (‘NAIC designations’) for those issuers that are not publicly rated by credit rating providers. This system assists investors in making investment decisions.

⁷⁹ The mechanics of the *Schuldschein* market also exhibit some features of the third model (‘co-origination with a bank’). Usually a bank acting as arranger screens the borrower, originates the *Schuldschein* (legally a loan) and distributes them to the non-bank, which provides the funding.

companies, such as Allianz and AXA, have recently announced the set up of new dedicated debt teams to invest in corporate loans, commercial real estate, and infrastructure projects.

2. In the second model ('specialised loan funds'), a fund manager pools a number of loans together and non-bank investors buy shares in the funds. By the use of pooling and diversification, this is economically similar to securitisation, although there are some differences.⁸⁰ The launch of loan funds has accelerated markedly since mid-2012 not only in Europe where banks are still deleveraging, but also in the US. In recent launches, the fund manager was generally part of a hedge fund or a private equity fund (see Table A3-1), but there are also specialized credit funds.⁸¹ In particular, private equity funds leverage on their expertise of identifying target companies for acquisition purposes, and extend it to debt financing. Investors in loan funds are generally non-banks that cannot develop an in-house credit selection and assessment capacity and/or want to diversify exposures.

Examples of recently launched funds specialised in loans to mid-market companies

Table A3-1

Fund manager	Parent group	Launch date	AUM of the loan fund ¹	Main focus
Highbridge	Hedge Fund	June 2013	3,000	US and Europe
AXA Private Equity	Private Equity	March 2013	2,300	Europe
Bluebay	Hedge Fund	May 2013	1,000	Europe
Carlyle	Private Equity	May 2013	1,000	US
Cyan Partners	Private Equity		750	US
M&G	Asset manager	May 2013	700	UK, Europe
Vista	Private Equity	2013	600	US
Monroe Capital	Private Equity		400	US
Total			9,750	

¹ In millions of US dollars.

Sources: Bloomberg; press reports.

3. The third model ('co-origination with a bank') is a variant of the 'originate-to-distribute model' that was prevalent before the crisis. A non-bank and a bank enter into a partnership whereby the bank screens the borrowers, originates the loans and distributes them to the non-bank, which provides the funding. 'Skin-in-the-game' arrangements are generally in place to facilitate the alignment of incentives between the bank and the non-bank. This model is so far mostly prevalent in Europe, and mostly involves insurance companies (see Table A3-2).

⁸⁰ Contrary to securitisation, a loan fund is not tranching into slices of different seniority. In addition, many loan funds can have long re-investment periods, and potentially are infinitely long-lived, while securitization vehicles have a finite live.

⁸¹ Examples include Intermediate Capital Group and Haymarket Financial.

Examples of recent co-origination partnerships between banks and non-banks

Table A3-2

Non-bank	Bank	Announcement date	Total amount ¹	Borrower sector
CNP assurances	Natixis	May 2012	2,000	Infrastructure
AXA	Societe Generale	June 2012	Undisclosed	Mid-market cos.
Ageas	Natixis	August 2012	2,000	Infrastructure
AXA	Credit Agricole	October 2012	Undisclosed	Mid-market cos.
AXA	Commerzbank	June 2013	Undisclosed	Mid-market cos.

¹ In millions of euros; shown if publicly disclosed.

Sources: Bloomberg; press reports.

Benefits and risk implications

Non-banks can have a legitimate role to play in increasing the financing available to borrowers that are experiencing funding shortages, especially as the maturity of their liabilities constitute a better match for the borrower's maturity needs than banks' liabilities. A greater role for investors that are potentially less leveraged and have longer-term liabilities than banks in financing the economy may positively contribute to financial stability.

In recognition of the positive role of non-banks in financing the economy, recent public initiatives, for instance in the UK and the euro area,⁸² have tended to support non-bank lending and facilitate market-based finance. In other jurisdictions, some of the legal hurdles for non-banks to engage in lending activities are being lifted.

However, in order to reap the full benefits from non-bank financing, and ensure its sustainable growth, there are a number of aspects that could deserve a more thorough assessment and closer monitoring:

Risk management, incentives and search for yield

Direct lending by non-banks requires the development of an in-house credit risk management capacity (or alternatively stringent procedures for selection of third party managers) and appropriate internal controls to undertake due diligence on borrowers. The smooth development of non-bank lending in the US over many years shows that this does not necessarily constitute an obstacle for non-banks to successfully undertake lending activities. However, in a context of intense search for yield, there is higher risk that some non-banks under-invest in credit risk assessment capacities.⁸³

Furthermore, the incentives of fund managers and co-originating banks may not be fully aligned with those of the non-bank investor due to potential incentive and negative selection problems.⁸⁴ The development of skin-in-the game arrangements and rigorous performance

⁸² The UK government announced the Business Finance Partnership (BFP) in November 2011, whereby fund managers are selected and required to co-invest with the government by making loans to SMEs for an amount at least equivalent to the public financing provided. The ECB has started consultations with other European institutions on initiatives to promote a functioning market for asset-backed securities (ABS) collateralised by loans to non-financial corporations.

⁸³ Estimates are that yields for direct lending to SMEs are at least 150 basis points higher than yields available in the public bond market for similar credit quality corporates.

⁸⁴ Incentive problems and negative selection are not unique to non-bank lending, and may also arise between banks (i.e. between a larger and a smaller bank) in syndicated loan markets

monitoring for specialised loan funds and co-origination are possible tools for reducing incentive problems. The fact that specialised loan funds are usually part of larger asset management firms would also normally provide an incentive for them to manage in their client's interests.

Finally, direct lending is essentially a banking activity performed by non-banks. However, supervision still remains segmented by type of financial institution. As activities performed or intermediated by insurance companies, pension funds and investment managers become closer to banking activities – with the notable exception that they do not take deposits -, the supervision of these entities might need to be adapted to reflect their expanded scope of activities and the related risks (e.g. credit risk, liquidity risk) in order to avoid unintended regulatory arbitrage.⁸⁵ Consideration could also be given to whether insurance/securities regulators can or should regulate and/or supervise lending activities of non-banks.

Leverage and maturity / liquidity transformation

Given the low leverage and long-dated liabilities of institutional investors such as insurance companies and pension funds, direct lending performed on a bilateral basis or in co-origination with banks is less likely to present shadow banking risks.

Similarly, the majority of loan funds follow a private equity model which implies long lock-in periods that greatly reduce the maturity and liquidity transformation risks. However, some specific structures can bear higher risks. For instance, some funds reportedly do not impose lock-in periods and instead rely on a cash buffer to meet redemptions, which may not be sufficient in stress situations.

Furthermore, while it is difficult to assess the exact degree of leverage in specialised loan funds given scarce information, some funds have put in place borrowing facilities representing a sizeable share of their assets in order to boost returns in a context of declining yields.⁸⁶ This should be monitored carefully as it may open up the possibility to indirectly take on leverage for institutions that are traditionally not allowed to do so (such as insurance companies).

Transparency

As direct lending markets are by nature private, information is scarce and patchy. The information presented in this report is based on a mix of market intelligence, research reports by banks, and dozens of financial news reports. Systematic market-wide information on these activities would be needed to monitor their size, growth and characteristics and detect any build-up of risk.

⁸⁵ For instance, regarding insurance companies, significant direct lending activities could expand the scope of non-traditional non insurance activities (NTNI) that may contribute to systemic risk. It was also reported that certain co-origination partnerships involve a bank and an insurance company of the same group, and might result in a regulatory arbitrage, since capital requirement levels for insurance and banks can be different.

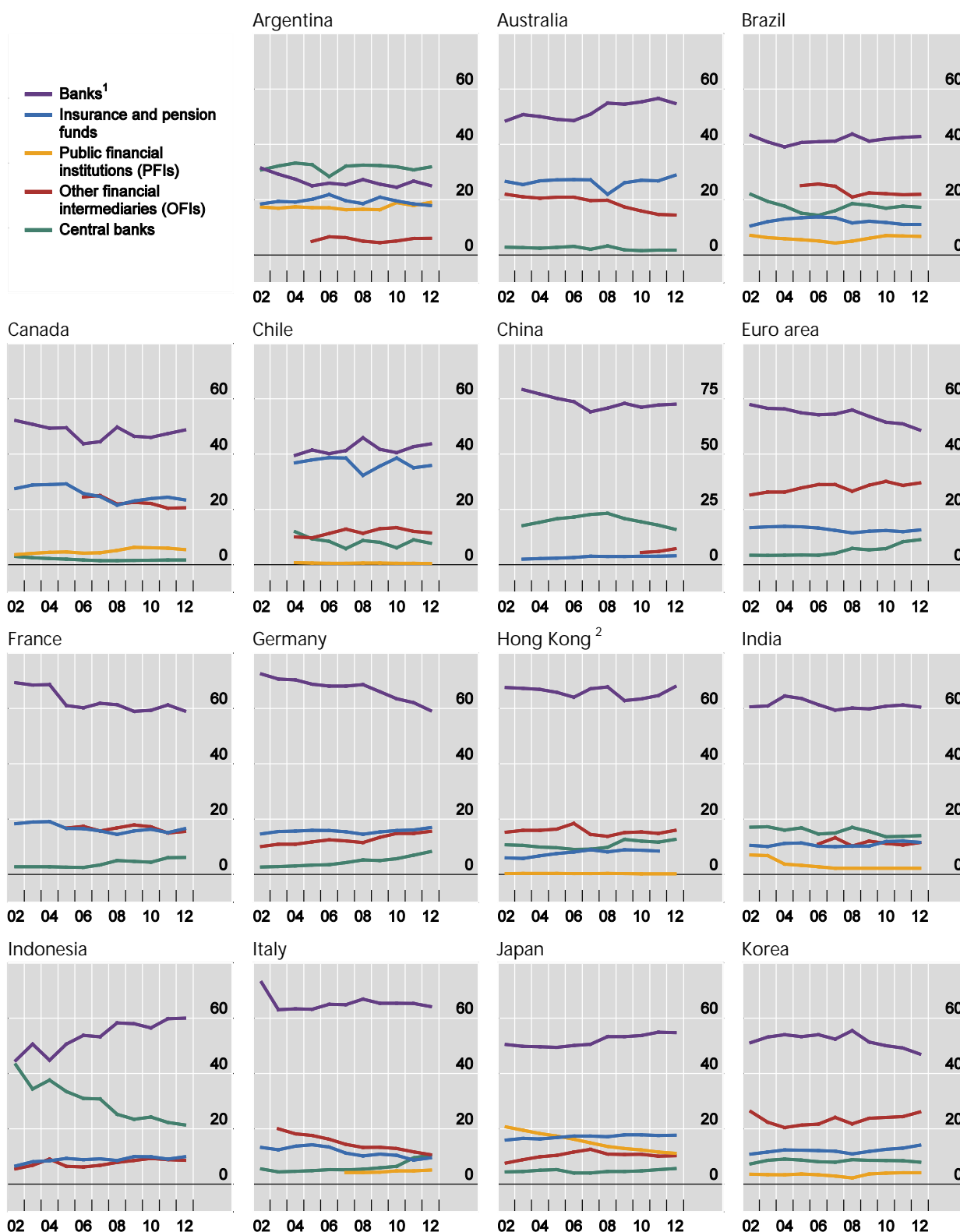
⁸⁶ For instance, Carlyle GMS Finance, a closed-end fund of USD 1 billion structured as a business development company in the US, and providing senior loans to middle-market companies, has a revolving credit facility of up to EUR 500 million with various lenders. Usually, leverage of loan funds is between 0% and 35% of their assets.

Annex 4: Share of total financial assets by jurisdiction

Share of total financial assets by jurisdiction

In per cent

Exhibit A4-1



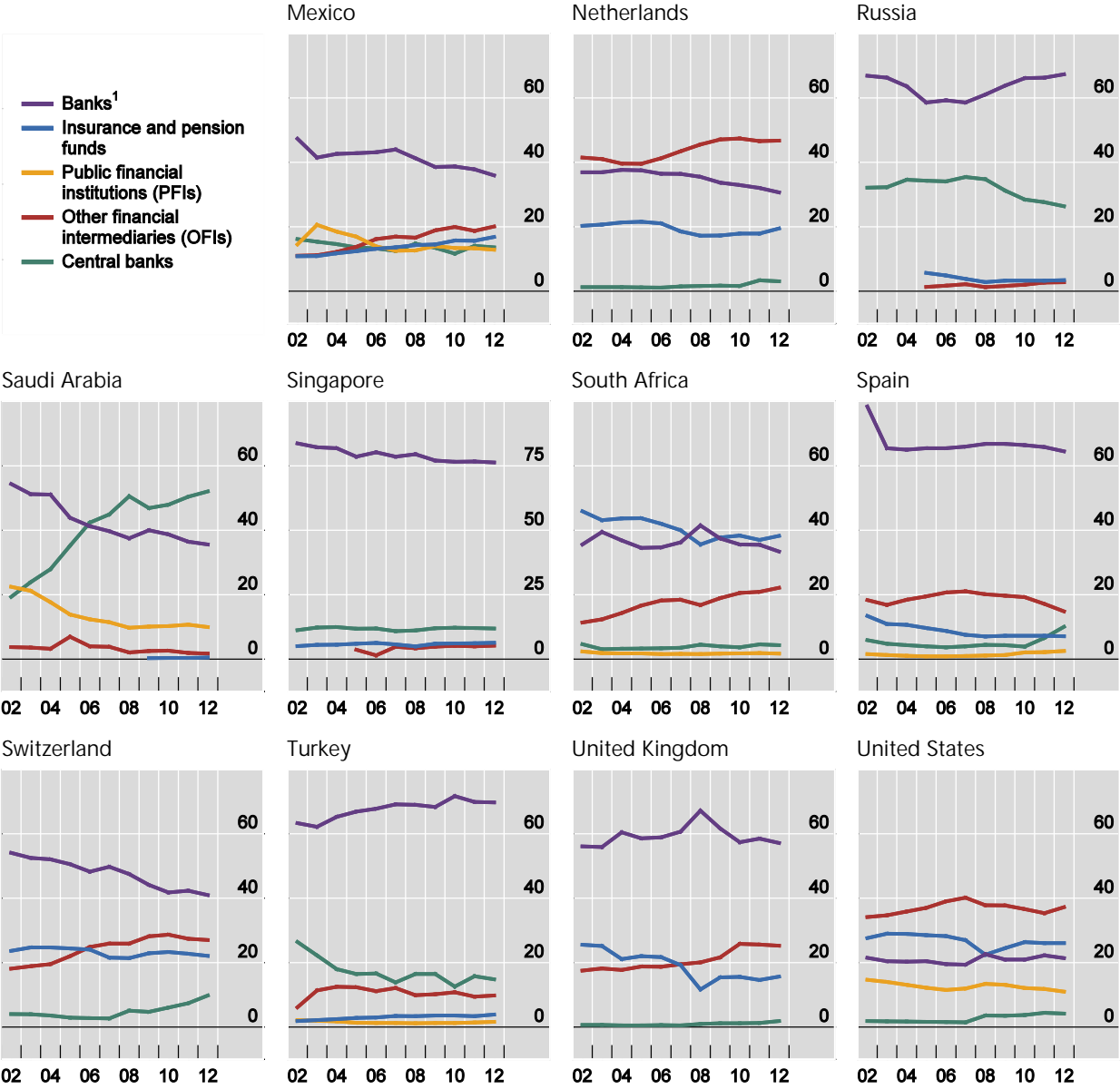
¹ Note that 'banks' refer to the broader category of 'deposit-taking institutions'. ² In Hong Kong, OFIs are mainly composed of finance companies, and only 2% of assets of finance companies are related to credit intermediation.

Source: National flow of funds data, other national sources.

Share of total financial assets by jurisdiction (cont.)

In per cent

Exhibit A4-1



¹ Note that 'banks' refer to the broader category of 'deposit-taking institutions'.

Source: National flow of funds data, other national sources.