FINANCIAL STABILITY BOARD

Shadow Banking: Strengthening Oversight and Regulation

Recommendations of the Financial Stability Board

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Introduction

At the November 2010 Seoul Summit, following the completion of the new capital standards for banks (Basel III), the G20 Leaders warned of a potential that regulatory gaps may emerge in the shadow banking system. They therefore requested that the Financial Stability Board (FSB), in collaboration with other international standard setting bodies, develop recommendations to strengthen the oversight and regulation of the shadow banking system.[1]

The "shadow banking system" can broadly be described as "credit intermediation involving entities and activities outside the regular banking system". According to one measure of the size of the shadow banking system[2], it grew rapidly before the crisis, from an estimated $27 trillion in 2002 to $60 trillion in 2007, and remained at around the same level in 2010. The term started to be used widely at the onset of the recent financial crisis, reflecting an increased recognition of the importance of entities and activities structured outside the regular banking system that perform bank-like functions ("banking"). These entities and activities provide credit by themselves or through a "chain" that transforms maturity or liquidity, and builds up leverage as in the regular banking system. They also typically rely on short-term funding from the markets, such as through repos and asset-backed commercial paper (ABCP).[3]

Intermediating credit through non-bank channels can have advantages. For example, the shadow banking system may provide market participants and corporations with an alternative source of funding and liquidity. It may also provide efficient credit in the economy as some non-bank entities may have specialised expertise that enables them to provide certain functions in the credit intermediation chain more cost-efficiently.

However, as the financial crisis has shown, the shadow banking system can also become a source of systemic risk, both directly and through its interconnectedness with the regular banking system. Short-term deposit-like funding of non-bank entities can lead to "runs" in the market if confidence is lost. The use of non-deposit sources of collateralised funding can also facilitate high leverage, especially when asset prices are buoyant and margins/haircuts on secured financing are low. Moreover, the risks in the shadow banking system can easily spill over into the regular banking system as banks often comprise part of the shadow banking

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1 *The Seoul Summit Document*, November 2010, Para. 41

2 The estimates are based on a proxy measure for non-bank credit intermediation in Australia, Canada, Japan, Korea, UK, US and the euro area as described in section 2.3.

3 Based on such features, some authorities or market participants prefer to use other terms such as "market-based financing" instead of "shadow banking". It is important to note the use of the term "shadow banking" is not intended to cast a pejorative tone on this system of credit intermediation. However, the FSB has chosen to use the term "shadow banking" as this is most commonly employed and, in particular, has been used in the earlier G20 communications.

credit intermediation chain or provide support to shadow banking entities.[4] These risks are amplified as the chain becomes longer and less transparent.

The shadow banking system can also be used to avoid financial regulation and lead to a build-up of leverage and risks in the system. Enhancing supervision and regulation of the shadow banking system in areas where these concerns are highest is therefore important.

In response to the G20's request, the FSB formed a Task Force[5] with the following objectives:

- to clarify what is meant by the "shadow banking system", and its role and risks in the wider financial system;
- to set out approaches for effective monitoring of the shadow banking system; and
- to prepare, where necessary, additional regulatory measures to address the systemic risk and regulatory arbitrage concerns posed by the shadow banking system.

The FSB issued a background note in April that set out its thinking mainly on the first item and invited views from the public on taking the work forward.[6] Subsequently, the Task Force has conducted a detailed monitoring exercise to review recent trends and developments in the global shadow banking system, as well as undertaking a thorough regulatory mapping exercise to take stock of existing national and international initiatives.

Based on these exercises, the FSB has developed recommendations. This report first outlines the overall approach being taken to strengthen the oversight and regulation of the shadow banking system (Section 1), and then sets out the details of the proposed recommendations for intensifying monitoring (Section 2) and enhancing regulation (Section 3).

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4 Thus, whereas this report frequently refers to the shadow banking system as "non-bank credit intermediation", in practice there are important links between the shadow banking system and regular banks.

5 The Task Force on Shadow Banking is co-chaired by Adair Turner, Chairman of the UK Financial Services Authority and Chairman of the FSB Standing Committee on Supervisory and Regulatory Cooperation, and Jaime Caruana, General Manager of the Bank for International Settlements and Chairman of the FSB Standing Committee on the Assessment of Vulnerabilities.

6 *Shadow Banking: Scoping the Issues*, 12 April 2011 (http://www.financialstabilityboard.org/publications/r_110412a.pdf). The FSB is grateful for the comments received on the note, which have been posted on the FSB website (http://www.financialstabilityboard.org/press/c_110901.htm).

1. Overall approach to strengthening the oversight and regulation of the shadow banking system

The shadow banking system can be broadly defined as "**the system of credit intermediation that involves entities and activities outside the regular banking system**". Its form is related to the way in which the banking sector and the rest of the financial system are structured and regulated in each jurisdiction. Given the fluid, evolving nature of financial systems, it is crucial for the authorities to take a practical two-step approach in defining the shadow banking system:

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

The above approach provides authorities with a broad view of the credit intermediation that is taking place fully or partly outside the regular banking system, so that they can identify any adaptations that may be of potential concern. It also allows authorities to concentrate their focus on "*credit intermediation*" so that, for example, pure equity trading and foreign currency transactions would be excluded.[7]

This "wide–net" surveillance focuses in particular on "*entities and activities outside the regular banking system*". This implies focusing on credit intermediation that takes place in an environment where prudential regulatory standards and supervisory oversight are either not applied or are applied to a materially lesser or different degree than is the case for regular banks engaged in similar activities.

Although shadow banking may be conducted by a single entity that intermediates between end-suppliers and end-borrowers of funds, it often involves multiple entities and activities forming a chain of credit intermediation. In the latter case, one or more of the entities in the chain might be a bank or a bank-owned entity. Banks might also be exposed to the shadow banking system through temporary exposures (warehousing), through the provision of finance or through contingent credit lines. In addition, there may also be important links on the liabilities side, as banks may be funded by entities which form part of the shadow banking system (e.g. money market funds). Thus, it is also important to examine connections between non-bank and bank activities.

In terms of policy actions, the authorities' focus is further narrowed to the parts of the system which pose systemic risk as they create the potential in particular for "runs" and regulatory arbitrage concerns.

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[7] However, such transactions can still be included in the scope if they constitute part of a credit intermediation chain. Trading of credit-related financial instruments such as bonds and structured/hybrid financial products as well as related derivatives meanwhile would be included in the scope of this broad definition.

A monitoring framework to assess shadow banking risks can be built on this approach. The proposed framework, which is set out in more detail in the following section, is based on the application of seven high-level principles together with a stylised monitoring process. This process would require authorities to first assess the broad scale and trends of non-bank credit intermediation in the financial system, drawing on information sources such as Flow of Funds and Sector Balance Sheet data (hereafter Flow of Funds data), and complemented with other relevant information such as supervisory data.

Based on this assessment, authorities should then narrow down their focus to credit intermediation activities that have the potential to pose systemic risks, by focusing in particular on activities involving the four key risk factors: (i) maturity transformation; (ii) liquidity transformation; (iii) imperfect credit risk transfer; and/or (iv) leverage. Monitoring should be sufficiently flexible, forward-looking and adaptable to capture innovations and mutations in the system that could lead to growing systemic risks and arbitrage that undermines the effectiveness of financial regulation. Other factors should also be examined when assessing systemic risk in detail, such as the interconnectedness between the shadow banking system and the regular banking system.

The Task Force has tested this framework during the summer of 2011 and enhanced the recommendations by refining some indicators and the possible data set for monitoring risk factors and regulatory arbitrage. Drawing on this enhanced monitoring framework, **the FSB will continue to conduct annual monitoring exercises to assess global trends and risks through its Standing Committee on the Assessment of Vulnerabilities (SCAV).** Such assessments will improve over time as more data become available through initiatives by FSB and its member authorities. **The results of this global assessment will be reported annually to the G20 and the FSB Plenary.**

The proposed regulatory measures described in section 3 are also built on this practical approach. Relevant authorities should design and implement regulatory measures to address the risks identified by the monitoring process. Five general principles for designing and implementing regulatory measures are set out. Although regulatory measures should take jurisdiction-specific features into account, this needs to be balanced against the objective of strengthening the international consistency of the measures adopted in order to address common risks and to reduce opportunities for regulatory arbitrage across jurisdictions.

Based on such general principles, the FSB has taken stock of existing national and international regulatory initiatives and launched five workstreams to assess in details the case for further regulatory action:

(i) **The regulation of banks' interactions with shadow banking entities (indirect regulation) -** The Basel Committee on Banking Supervision (BCBS) will examine enhanced consolidation for prudential regulatory purposes, concentration limits/large exposure rules, risk weights for banks' exposures to shadow banking entities, and treatment of implicit support;

(ii) **The regulatory reform of money market funds (MMFs)** – The International Organization of Securities Commissions (IOSCO) will examine regulatory action related to MMFs;

(iii) **The regulation of other shadow banking entities** – A new workstream set up under the FSB Task Force will examine shadow banking entities other than MMFs;

(iv) **The regulation of securitisation** – IOSCO, in coordination with the BCBS, will examine retention requirements and transparency; and

(v) **The regulation of securities lending and repos -** A new workstream set up under the FSB Task Force will examine securities lending and repos (repurchase agreements) including possible measures on margins and haircuts.

All five workstreams will report their proposed policy recommendations to the FSB during 2012 (for details, see section 3.2). The FSB, through its Standing Committee on Supervisory and Regulatory Cooperation (SRC)[8], will continue to review all the workstreams so as to provide consistency to the overall project.

As shadow banking is complex and will likely evolve over time, the FSB emphasises the importance of building and sharing experience internationally in monitoring and regulating the shadow banking system. This sharing of experience is also important to analyse the risks of contagion from cross-border shadow banking activity as well as to assess the risks that shadow banking activities pose to the global financial system.

8 The Task Force will also continue to provide inputs and guidance as necessary to all the workstreams.

2. Proposed approaches for monitoring the shadow banking system

2.1 High-level principles for monitoring the shadow banking system

There is no unique way to monitor the shadow banking system as it varies across jurisdictions and evolves over time. In developing an effective monitoring framework, it is essential for the relevant authorities to apply the following high-level principles:

(i) ***Scope*: Authorities should have an appropriate system-wide oversight framework in place to gain a comprehensive picture of the shadow banking system and of the risks that it poses to the entire financial system.**

(ii) ***Process*: A monitoring framework for the shadow banking system should identify and assess the risks on a regular and continuous basis.**

(iii) ***Data/Information*: In establishing a monitoring framework for the shadow banking system, the relevant authorities should have powers to collect all necessary data and information, as well as the ability to define the regulatory perimeter for reporting.** Various sources of market intelligence and statistical data are complementary and should be combined for their effective use. Information from both macro (system-wide) and micro (entity/activity-based) perspectives should be amalgamated. Information and data should be collected sufficiently frequently to support effective risk-oriented monitoring.

(iv) ***Innovation/Mutation*: Monitoring of the shadow banking system should be flexible and adaptable to capture innovations and mutations in the financial system which could lead to emerging risks.**

(v) ***Regulatory arbitrage*: In monitoring the shadow banking system, authorities need to be mindful of the incentives to expand shadow banking created by changes in regulations.**

(vi) ***Jurisdiction-specific features*: In developing a monitoring framework, authorities should take into account the structure of financial markets and regulatory frameworks within their jurisdiction as well as their international connections.**

(vii) ***Information exchange*: Authorities should exchange appropriate information both within and across the relevant jurisdictions on a regular basis to be able to assess the risks posed by the shadow banking system.** Assessing the potential for cross-border spill-over and contagion of risks, and obtaining a view on the interconnections at the global level are especially important for cross-border information exchange.

2.2 Proposed approaches for monitoring the shadow banking system

Based on the practical approach to defining the shadow banking system set out in Section 1, the FSB has developed a number of stylised steps for strengthening the monitoring of the shadow banking system as set out below. This draws on different types of information and analytical methods from both the macro (system-wide) and micro (entity/activity-based) perspectives. Authorities are expected to put in place an appropriate monitoring process in line with the stylised steps and to improve their data reporting or disclosure requirements as necessary to ensure effective monitoring.

Step 1 **Scanning and mapping of the overall shadow banking system:** Authorities will conduct a macro-mapping exercise based on the Flow of Funds data to scan and map the scale as well as the key trends in non-bank credit intermediation broadly. Authorities may complement the Flow of Funds data exercise with other relevant information, such as monetary statistics and data drawn from banking sector regulatory and supervisory reports, which provide a useful overview on shadow banking activities given the often strong connections to regulated banks. Similarly, valuable information may be drawn from regulatory and supervisory data for banking groups, through the observation of both bank and non-bank subsidiaries, as well as the interconnections between them.

Step 2 **Identification of the aspects of the shadow banking system posing systemic risk or regulatory arbitrage concerns:** Drawing on this broad mapping, authorities will then drill down to identify key risks by focussing on non-bank credit intermediation that involves (i) maturity transformation, (ii) liquidity transformation, (iii) credit risk transfer, and/or (iv) leverage. This narrowing will depend on the risks highlighted by both the analysis of Flow of Funds data (macro-perspective) and key micro-perspective information such as regular supervisory information/reporting, market intelligence and disclosures. When focusing on key risk factors, it is important to try to identify credit intermediation chains, as concentrating on specific entities in isolation could mislead the authorities' assessment. It is also useful in detecting important institutions/markets emerging outside the regulatory perimeter, thus facilitating the identification not only of new types of activity but also of potential regulatory arbitrage.

Step 3 **Detailed assessment of systemic risk and/or regulatory arbitrage concerns:** After identifying the broad areas where systemic risk and/or opportunities for regulatory arbitrage reside, authorities will deepen the analysis of the particular entities, markets and instruments that are giving rise to concerns. Such analysis will focus on the degree of potential impact that the severe distress or failure of certain shadow banking entities/activities would pose to the system. Legal and regulatory mapping of such entities is also crucial to analyse their impact on the financial network across borders as well as within, and to assess the potential global impact of their failure.

2.3 Enhancing the broad scanning and macro-mapping (Step 1)

2.3.1 Macro-mapping the shadow banking system

In conducting the broad sweep of the scale and trends of non-bank credit intermediation, **authorities need to draw on high quality, consistent data on bank and non-bank financial sectors' assets and liabilities.** Flow of Funds data are a useful source for such information as they are available in most jurisdictions. The components related to the non-bank financial sector are often used to shed light on the shadow banking system. It can be used to obtain a rough picture of the shadow banking system, as well as its links to the regular banking system and the economy, and its evolution over time ("macro-mapping"). Such macro-mapping may alert the authorities to changes in the system.

The Task Force has conducted a monitoring exercise during summer 2011 to map the shadow banking system using the Flow of Funds data as part of testing the proposed framework.[9] As explained in the next section, it is difficult to simply aggregate or compare Flow of Funds data across jurisdictions as granularity and definitions may differ and thus, the Task Force has made some adjustments using other data sources for analytical purposes to obtain a broad view of the system.[10]

Its main results can be briefly summarised as follows:

- Aggregating Flow of Funds data from six jurisdictions (Australia, Canada, Japan, Korea, UK and US) and the publicly-available euro area data from the European Central Bank (ECB), **assets in the shadow banking system in a broad sense** (or non-bank credit intermediaries, as broadly proxied by "other financial intermediaries" in Annex 1) **grew rapidly before the crisis, rising from $27 trillion in 2002 to $60 trillion in 2007**.[11] The total declined slightly to $56 trillion in 2008 but recovered to **$60 trillion in 2010** (Exhibit 1-1).
- **The rapid growth of the shadow banking system (non-bank credit intermediaries) before the crisis coincided with sharp growth in bank[12] assets**. Indeed, the shadow banking system's share of total credit intermediation increased during this time (Exhibit 1-2). Since the onset of the crisis, this trend has changed.
- Aggregated results using Flow of Funds data from eleven jurisdictions (Australia, Canada, France, Germany, Italy, Japan, Korea, Netherlands, Spain, UK and US) broadly accord with this picture. Non-bank credit intermediaries grew from $23 trillion in 2002 to $50 trillion in 2007, and has fallen a little to $47 trillion in 2008 but recovered to $51 trillion in 2010 (Exhibits 1-3 and 1-4).
- In aggregate, **the shadow banking system (non-bank credit intermediaries) seems to constitute some 25-30% of the total financial system** and is around half the size of bank assets (Exhibit 1-2 and 1-4). There is **a considerable divergence among jurisdictions in terms of the importance of non-bank credit intermediaries in the overall financial system** (Exhibit 1-5).
- **The US has the largest shadow banking system, with assets of $25 trillion in 2007 and $24 trillion in 2010** on this proxy measure. **However, its share of the total for the eleven jurisdictions listed has declined recently** to 46% from 54% in

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9 In addition to the Flow of Funds data, the Task Force has collected supervisory information and case studies.

10 For example, in some jurisdictions, data on "banks" are not separately identified as they are combined with "central banks" and "MMFs" for statistical purposes to form an aggregate for "monetary financial intermediaries". The Task Force has separated "central banks" and "MMFs" from "banks" using other sources of data. MMFs are included in "Other Financial Intermediaries" in this report.

11 Total assets figures are used as a conservative proxy for credit intermediation. This is due to the fact that non-credit instruments may also be used in part of the credit intermediation "chain".

12 "Banks" are defined as deposit-taking institutions but excluding central banks and those intermediaries that have no access to central bank facilities/public guarantees and are not under the same prudential regulation as banks.

2005 (Exhibit 1-6 and 1-7).[13] Based on the aggregated results using the broader euro area data, the five euro area jurisdictions seem to constitute around half of the overall euro area activities (Exhibit 1-8 and 1-9).

- **Among the non-bank credit intermediaries, investment funds other than MMFs seem to constitute the largest share, totalling 32% in 2010** (Exhibit 1-10 and 1-11).[14] **Structured finance vehicles form the second largest component,** constituting 9% of the total (Exhibit 1-10 and 1-11). This does not include agency-backed mortgage pools that are included in the Public Finance Institutions.
- **MMFs assets for the eleven jurisdictions grew rapidly before the crisis, rising from $2.9 trillion in 2002 to $4.8 trillion in 2008, but declined to $3.9 trillion in 2010.**[15] Aggregated results using the ECB's euro area data broadly accord with this picture with $4.8 trillion in 2010.
- The US has by far the largest MMF market among the 11 jurisdictions, with assets of $3.0 trillion in 2010. France and Japan have the next largest, but are far below the US in size. The aggregated euro area MMF market is about half the size of the US with $1.5 trillion in 2010 (Exhibit 1-12).

2.3.2 Enhancing the macro-mapping

Although the monitoring exercise provides a broad overall picture of the evolution of non-bank credit intermediation before and during the crisis, there are a number of limitations in the current Flow of Funds data for such macro-mapping and identification of systemic risk. In particular, the current Flow of Funds data in many jurisdictions lack granularity in terms of financial sectors.[16] Also, the definitions of financial intermediaries diverge across jurisdictions, making it difficult to aggregate across countries and derive a consistent global picture. For example, in some jurisdictions, data on "banks" are not separately identified as they are combined with central banks and MMFs for statistical purposes to form an aggregate for "monetary financial intermediaries". The Flow of Funds data is also not built around key systemic risk concepts such as maturity risk and leverage.

The FSB thus recommends that member jurisdictions improve the granularity of the Flow of Funds data, especially in terms of financial sectors/intermediaries. At a minimum, authorities should be able to segregate "banks" that are subject to prudential regulatory standards and supervisory oversight from other financial intermediaries such as "central banks" and other non-bank financial intermediaries. Also, **authorities should obtain breakdown information on different types of non-bank financial intermediaries** such as insurance companies, pension funds, MMFs, structured finance vehicles and

[13] Various factors including foreign exchange rate volatility and changes in accounting treatments may influence the changes in the shares.

[14] These investment funds other than MMFs may include equity funds that may not fall under the definition of the shadow banking system set out in section 1. However, they may constitute part of a credit intermediation chain and may engage in innovations that might not be detected so easily through statistical data. Thus, Step 1 monitoring requires authorities to monitor such entities/activities.

[15] MMFs assets are for those that reside in the relevant jurisdictions.

[16] There are also significant differences in the detail and granularity of Flow of Funds data across jurisdictions. For example, the US data are currently more detailed than the comparable data for many other countries. Improvement to data on non-bank financial institutions is a particular priority in some jurisdictions.

investment/hedge funds. This will draw on the international initiative to improve the Flow of Funds data under the IMF/FSB G-20 Data Gaps initiative.[17] Furthermore, **authorities should obtain information on the links between the banks and non-bank financial intermediaries** such as assets and liabilities of banks to non-bank financial intermediaries.[18]

Regulatory and supervisory data can help in this respect. While the credit intermediation functions within the shadow banking sector may be fulfilled by non-bank entities, banks continue to perform many important roles within and along the credit intermediation chain (e.g. underwriting, brokering, servicing, provision of liquidity facilities). The analysis of banks' activities and the identification of their counterparties can thus offer a useful window on shadow banking activities.

To encourage the improvement in macro-mapping, the FSB will continue to collect national/regional data at least once a year based on the common template developed by the Task Force (Annex 2).

2.4 Identifying the shadow banking system with systemic risks and regulatory arbitrage concerns (Step 2)

2.4.1 Focusing on key systemic risk factors

To help formulate the appropriate policy framework and response, the next step of the monitoring process would involve authorities narrowing down the focus to credit intermediation activities that pose systemic risks and/or arbitrage that undermine the effectiveness of financial regulation. In identifying such parts of the shadow banking system, **authorities should focus on the following key risk factors and should ensure that they are able to monitor these risk factors on a regular basis.** Authorities may supplement such monitoring by taking account of other jurisdiction-specific factors to help identify the parts of the shadow banking system that warrant a policy response.

The key systemic risk factors are:

(i) **Maturity transformation**: Authorities should be able to assess the extent to which short-term liabilities are used to fund long-term assets for credit provision by financial entities and/or a credit intermediation chain. In order to assess such maturity transformation, authorities should obtain "weighted-average maturity" of assets and liabilities for the relevant financial entities where appropriate. Classifying the remaining maturity, or at least the original maturity, of assets and liabilities would also be desirable.[19]

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[17] See recommendation 15 of the 20 recommendations in the report by the IMF and FSB to the G-20 on *The financial crisis and information gaps*, November 2009.

[18] Monetary and financial statistics compiled to meet international standards typically provide such a breakdown. Also, an international initiative to produce a new consistent data template for global systemically important financial institutions (recommendations 8 and 9 of the G20 recommendations) will improve data on links between global systemically important banks and non-banks.

[19] Authorities should, where appropriate, strive to classify by 5 "maturity buckets". They are: (i) on demand; (ii) overnight to 1 month; (iii) 1 to 3 months; (iv) 3 months to 1 year; and (v) more than 1 year. Depending on the entities and/or activities, more granular buckets may be desirable.

Authorities may consider using other indicators in assessing maturity transformation. For example, authorities may classify certain types of assets and liabilities in the Flow of Funds data into “long-term” and “short-term” assets and liabilities respectively as proxy measures to provide some insights. If there are more “short-term” instruments included in liabilities than assets, this may alert authorities to the need to conduct a more thorough assessment of potential maturity transformation within such entities.

(ii) **Liquidity transformation**: Authorities should be able to assess the degree of liquidity transformation supporting credit provision within entities and/or a credit intermediation chain. Liquidity transformation is very difficult to measure but one possible method is to use information on secondary market depth of financial instruments, whether they are traded on exchanges or over-the–counter (OTC), and other liquidity indicators such as developments in margins/haircuts and bid-ask spreads both in stressed and normal times as proxies. Whether the instruments are accepted as collateral at central banks may also be considered in assessing their degree of liquidity.

Another possibility is for the authorities to collect information on the “liquidity” of assets drawing on the work at the BCBS and other fora. For example, authorities may refer to the existing and proposed data collection templates at national and international levels, such as the IOSCO hedge fund survey.

Finally, historical examples of worst case liquidity may be obtained for various asset classes, such as those experienced during the height of the financial crisis. Such examples may then be applied to current portfolio weights to estimate portfolio liquidity on an assumed historical worst case basis.

The data available through trade repositories and central counterparties may also be better used for the assessment of liquidity transformation.

(iii) **Credit risk transfer**: Authorities should monitor the off-balance sheet exposures (e.g. guarantees, commitments, credit derivatives, and liquidity puts) provided by financial institutions and entities that constitute part of a credit intermediation chain. When monitoring off-balance sheet exposures, authorities should bear in mind that some entities may provide implicit support to other entities.

Additionally, supervisory authorities should also monitor and assess the appropriateness of credit risk mitigation techniques used by bank and non-bank financial institutions. When entities attempt to transfer credit risk, they may acquire other risks (such as counterparty credit risk, operational risk or liquidity risk) or, on closer analysis, not have fully transferred the credit risk (“imperfect credit risk transfer”). This can be illustrated in the following examples:

- When a bank sells an asset to another entity, but provides that entity with a liquidity facility secured against the asset, and faces the risk of having to buy it back for reputational reasons - the bank still retains an exposure indirectly to the credit risk associated with the asset;
- When a bank buys credit protection, but it subsequently becomes apparent that its counterparty may not be able to meet its obligations in the event of a

credit default event - the bank has transferred the original credit risk but has replaced it by counterparty credit risk; and

- If a bank issues residential mortgage-backed securities (RMBS), and it becomes apparent subsequently that some mortgages underlying the securities do not meet the agreed underwriting standards, the bank may be required to buy-back those mortgages - in this case the bank thought it had transferred the credit risk associated with the mortgages, but ultimately it has not, due to inadequate risk management practices in regard to underwriting mortgages.

(iv) **Leverage**: Authorities should be able to assess the degree of leverage within entities and/or within a credit intermediation chain. Authorities should collect information that is necessary to calculate balance sheet leverage (e.g. assets-to-equity ratios, collateralised borrowing from prime brokers or through repo markets). It would also be desirable for authorities to be able to assess the leverage associated with off-balance sheet activities (e.g. embedded or synthetic leverage in derivatives). The information collected for computing the leverage ratio under the Basel III framework might be useful in this regard.[20]

When monitoring the above key risk factors, it is necessary for the authorities to look not only at specific entities and activities, but also at potential credit intermediation chains. To enable such identification of a credit intermediation chain in the system, it would be desirable to incentivise financial institutions to look-through to the ultimate risks they are exposed to (especially in the case of investment in funds), and ask them to report as well as disclose such information as appropriate.

2.4.2 Focusing on regulatory arbitrage

Parts of the shadow banking system perform credit intermediation similar to that provided by banks (i.e. combined with maturity/liquidity transformation and leverage) but are not subject to the same regulatory and supervisory constraints. If parts of the shadow banking system are able to operate without internalising the true cost of risks and thus gain a competitive advantage relative to banks where regulation aims to achieve such an internalisation, this is likely to create opportunities for arbitrage that undermine bank regulation and lead to a build-up of risks in the financial system. Moreover, banks themselves may use shadow banking entities to circumvent their prudential regulatory requirements and take on additional risks. It is also important to note that new regulations or changes to existing regulations can create new arbitrage opportunities, and may lead to innovation or mutation in the system.

In order to address such opportunities for regulatory arbitrage through appropriate policy responses, **the monitoring process should be sufficiently flexible, forward-looking and adaptable to identify new shadow banking activities, and to capture important innovations and mutations in the financial system.** The monitoring process should bring together multi-disciplinary expertise (e.g. regulation/policy, economic research, legal and accounting skills) and should draw on a wide range of information sources. Since quantitative

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[20] The Alternative Investment Fund Managers Directive (AIFMD) in the EU and the Dodd-Frank Wall Street Reform and Consumer Protection Act reporting will also require both cash and embedded leverage to be collected from alternative asset managers.

data/statistics are often available only with a time lag and may be poor at capturing new developments and innovation, it is essential for authorities to combine quantitative data with qualitative information. Nevertheless, authorities may monitor earning performance indicators (e.g. return-on-equity (ROE), return-on-assets (ROA) and growth in earnings) for certain entities and activities. Excessive earnings relative to the historical trend or industry average may signal a source of regulatory arbitrage or of excessive risk-taking. Qualitative information meanwhile can be obtained from the regular supervisory dialogue with regulated entities, including onsite inspections, as well as from contacts with market participants from both the buy-side (e.g. asset managers, MMFs, insurance companies, banks) and sell-side (e.g. investment banks, banks). Other sources of market intelligence such as vendor information and rating agencies may be also useful.

In this regard, **strong cooperation and exchange of information between regulatory and supervisory agencies not only within jurisdictions but also across jurisdictions is extremely important.**

Also, **it is important for the authorities to be able to know which non-bank financial intermediaries are controlled or supported by a domestic or foreign banking group and, if this is the case, whether the intermediary is included under the bank prudential regulatory perimeter.** This may help authorities to identify where potential innovations and mutations are most likely to occur.

2.5 Detailed assessment of systemic risk and regulatory arbitrage concerns (Step 3)

After narrowing down the focus to credit intermediation activities that pose systemic risks and/or to arbitrage that is undermining the effectiveness of financial regulation, authorities need to assess the potential impact that the severe distress or failure of certain shadow banking entities/activities would pose to the system. Authorities may build upon the basic indicators set out in the *FSB/IMF/BIS Guidance to assess the systemic importance of financial institutions, markets and instruments: Initial guidance*[21] published in November 2009. In particular, the FSB recommends that **the authorities should pay particular attention to the following risk factors in assessing the potential negative impact on the system**:

(i) **Interconnectedness with the regular banking system**: The shadow banking system and the regular banking system are highly interconnected. Banks and shadow banking entities also invest in each other's financial instruments, giving rise to funding interdependencies and vulnerabilities, and are often exposed to common concentrations of risk through asset holdings and derivative positions even where there is no clear direct connection.

As demonstrated in the current crisis, there are powerful interconnections between the two systems. Thus, authorities should ensure that the monitoring framework provides a good guide to the degree of interconnectedness. To support this, authorities should collect information on the exposures and funding dependencies of the major banks to and on key non-bank financial sectors as well as material individual positions. That should ideally be complemented by collecting

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[21] http://www.financialstabilityboard.org/publications/r_091107c.pdf

information on the exposures and funding dependencies of relevant shadow banking entities to and on their material counterparties.

(ii) **Size**: The larger the size of the shadow banking entity/activity, the larger its negative impact would be should it fail. Authorities should collect data on total assets and liabilities, preferably broken down by financial instruments.

(iii) **Earnings performance**: Monitoring earnings performance such as ROE, ROA and growth in earnings, as well as the quality of their earnings could help authorities in assessing the sustainability of loss absorption capacity of such entities/activities. High risk-adjusted earnings relative to the historical trend or industry average may imply unpriced and/or excessive risk-taking that undermines the sustainability of their earnings model as well as loss absorption capacity. Authorities should therefore obtain relevant information on earnings performance of shadow banking entities/activities, where appropriate.

In conducting the detailed assessment, it is essential for authorities to bear in mind that such assessment is time-varying and dependent on the state of the economy, with weak economic conditions increasing the likelihood of financial strain.

2.6 Examples of applying the proposed framework

In addition to collecting data systematically through using common data templates, a number of FSB members have applied the proposed framework to examine segments of the shadow banking system for the summer 2011 monitoring exercise. Two case studies – one on real estate investment funds in Italy and the other on hedge funds in the UK - are set out in Annex 3. They are mere examples of applying the proposed framework to the currently available data in certain member jurisdictions and do not necessarily represent the assessment of the FSB.

3. Proposed regulatory measures to address concerns related to the shadow banking system

3.1 General principles for regulatory measures related to shadow banking

The shadow banking system includes a wide variety of activities and entities. As a result, a single regulatory approach for all components of the shadow banking system would not necessarily be appreciated. Rather, differentiation is necessary to account for differences in business models, risk characteristics and contribution to systemic risk. **In designing and implementing the regulatory measures for shadow banking, regulators should apply the following general principles:**

(i) ***Focus*: Regulatory measures should be carefully designed to target the externalities and risks the shadow banking system creates.** When designing the regulatory measures, regulators should also be mindful of their potential impact and possible unintended consequences, such as a deterioration in market functioning. Authorities should also recognise that a variety of possible regulatory and supervisory measures might effectively mitigate the identified risks;

(ii) ***Proportionality*: Regulatory measures should be proportionate to the risks shadow banking poses to the financial system**;

(iii) ***Forward-looking and adaptable:* Regulatory measures should be forward-looking and adaptable to emerging risks.** Regulatory measures should not focus solely on risks that became apparent in the recent crisis, but also address issues that may arise as financial markets adapt and evolve to new conditions, such as changes in financial institutions' incentives in response to the Basel III framework;

(iv) ***Effectiveness*: Regulatory measures should be designed and implemented in an effective manner, balancing the need for international consistency to address common risks and to avoid creating cross border arbitrage opportunities against the need to take due account of differences between financial structures and systems across jurisdictions**; and

(v) *Assessment and review:* **Regulators should regularly assess the effectiveness of their regulatory measures after implementation and make adjustments to improve them as necessary in the light of experience.** Authorities should share their experiences in order to learn from each other and to develop best practices.

3.2 Regulatory measures to be examined by authorities

The FSB April background note identified four broad categories of potential regulatory responses to address risks in the shadow banking system: (i) the regulation of banks' interaction with shadow banking entities (indirect regulation); (ii) the regulation of shadow banking entities; (iii) the regulation of shadow banking activities; and (iv) macroprudential measures. The Task Force has since then conducted a detailed regulatory mapping exercise to take stock of existing national and international initiatives in these four broad categories, and has identified areas that may warrant further attention.

Based on the result of this exercise, the Task Force developed 11 initial recommendations for taking forward further work on strengthening regulation of the shadow banking system. They were discussed and approved at the July Plenary meeting in Paris, and have led to workstreams established for the following priority areas:

(i) **The regulation of banks' interactions with shadow banking entities (indirect regulation);**

(ii) **The regulatory reform of money market funds (MMFs);**

(iii) **The regulation of other shadow banking entities;**

(iv) **The regulation of securitisation;** and

(v) **The regulation of securities lending and repos.**

In addition, the FSB will monitor ongoing national/regional implementation of regulatory initiatives with regard to (i) data reporting and transparency [22], (ii) underwriting standards, and (iii) credit rating agencies.

Set out below are the details of the 11 recommendations and the processes in taking work on the above forward.

(i) The regulation of banks' interactions with shadow banking entities (indirect regulation) [23]

Recommendation 1: Consolidation rules should ensure that any shadow banking entities that the bank sponsors are included on its balance sheet for prudential purposes (for example in the calculation of risk-based capital and leverage ratios as well as liquidity ratios). Such rules should be applied in an internationally-consistent manner.

It is extremely important that shadow banking entities that the banks sponsor (e.g. ABCP conduits, certain money funds) are consolidated in the group, and thus included on their balance sheet positions for the purpose of risk-based capital and liquidity buffers as well as leverage ratio calculations, in order that such prudential measures take into account the risk posed by sponsored shadow banking entities. For example, application of the Basel capital regulatory framework on such a basis will ensure that capital is assigned to the risks that sponsored entities pose and will also limit the *leverage* within both the bank and the sponsored entities. It would also ensure that appropriate consolidated supervision is applied to the bank including its sponsored shadow banking entities and would help to reduce incentives that encourage *interconnectedness* between the bank and shadow banking entities. The enhancement of the Basel capital regulatory framework through the adoption of Basel III (including the leverage ratio requirements) would further limit the *leverage* and *inter-connectedness* within the system. In addition, the new Basel III liquidity framework will increase the liquidity buffer (i.e. liquid assets) of shadow banking entities as well as banks if

[22] Except (i) those aspects related to the monitoring section of this report (section 2) and (ii) consideration of listing/disclosure requirements, and primary (issuance) market developments, from a financial stability perspective. In addition to these two aspects, any recommendations on strengthening risk disclosures in respect of emerging risks following the new procedure adopted in response to the recent peer review should also be addressed by authorities.

[23] The FSB has thus far only considered the interactions between banks and the shadow banking system. However, the linkages between the insurance sector and the shadow banking system may also merit consideration at a future stage.

applied on an appropriate consolidated basis. The key aim is to enhance transparency and to limit the support banks provide to shadow banking entities that are not under appropriate prudential measures.

The regulatory mapping exercise by the Task Force has shown that all jurisdictions implement the Basel capital regulatory framework on a consolidated basis. However, there are divergences in the way group entities are consolidated for the purpose of risk-based capital calculations.[24]

As this approach suggests that some bank-sponsored shadow banking entities may lie outside the regulatory perimeter and in addition that there is an opportunity for regulatory arbitrage, **the FSB recommends that the BCBS assess in greater detail whether there are international inconsistencies in the way group entities are currently consolidated for the purpose of risk-based capital calculations, and develop policy recommendations as necessary.**

Based on this recommendation, the BCBS has asked its Accounting Task Force to clarify the following issues:

- types of non-bank entities that are sponsored by banks;
- whether the identified non-bank entities are consolidated for accounting purposes;
- whether the identified non-bank entities are consolidated for risk-based capital purposes; and
- to what extent there are differences in consolidation practices across jurisdictions.

The Accounting Task Force will report its findings to the relevant BCBS subgroups, which would assess the implications of any material differences in consolidation practices for the calculation of risk based capital ratios, the leverage ratio and the liquidity framework. **The BCBS will report its progress and the proposed policy recommendations to the FSB by July 2012.**

Recommendation 2: Limits on the size and nature of a bank's exposures to shadow banking entities should be enhanced (e.g. large exposure limits to connected entities individually or in aggregate).

Limiting banks' exposures to individual shadow banking entities could help to reduce banks' *interconnectedness* with the shadow banking system. It would also limit the associations between the bank and its related entities in a group to which the bank belongs. Furthermore, limiting banks' exposures might also reduce the *size* and *leverage* of individual shadow banking entities whose funding heavily depends on such banks, and thus lower the risks to the system from such entities encountering severe stress or failing.

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24 For example, in some jurisdictions, the Basel capital regulatory framework applies to all entities that are consolidated for accounting purposes. With the accounting standards having broadened the consolidation perimeter, consolidation technique, and disclosures of off-balance sheet special purpose entities (SPEs) after the crisis, the scope for risk-based capital calculations should have expanded in these jurisdictions. On the other hand, in other jurisdictions, the regulatory perimeter seems to be narrower than the perimeter of accounting consolidation.

According to the regulatory mapping exercise by the Task Force, all jurisdictions apply prudential standards on large exposures, including limits on large exposures by a consolidated banking group to connected entities individually or in aggregate as well as to third parties. However, the details and application of these large exposure standards seem to differ across jurisdictions. For example, in the EU there is a limit of 25% of capital for an exposure to an entity or a group of entities. However, in other jurisdictions, the limits are often different. The international guidance issued in this area by the BCBS has not been reviewed since 1991 and may no longer be fit for purpose.

Therefore, it would be valuable to undertake a thorough review of the adequacy of the current large exposure regimes (e.g. the level of the limits) and to enhance them as necessary. It is also important to consider the case for strengthening the international consistency of the rules, to contain opportunities for regulatory arbitrage. **The FSB thus recommends that the BCBS undertakes its review of the large exposure regimes with an additional focus on shadow banking and develop policy recommendations as necessary.**

Based on this recommendation, the BCBS has asked its Large Exposures Group, a working group that is reviewing the large exposure regime, to clarify the following issues:

- to what extent the large exposure regime captures exposures to all entities, including shadow banking entities; and
- to the extent that certain shadow banking exposures are excluded from the large exposure regime (whether intra-group or with respect to third parties), what are the reasons for those exclusions and the implication for the comprehensiveness of concentration risk measurement and management.

The BCBS will report its progress and the proposed policy recommendations to the FSB by July 2012.

Recommendation 3: The risk-based capital requirements for banks' exposures to shadow banking entities should be reviewed to ensure that such risks are adequately captured. For example, the following issues warrant special attention:

- **Treatment of investment in funds (i.e. considering applying a rigorous look-through treatment that takes into account the risks of the underlying assets and leverage); and**
- **Treatment of short-term liquidity facilities for shadow banking entities that fall outside the scope of the Basel II/III securitisation framework.**

Ensuring that capital requirements take appropriate account of the risk taken is an essential pre-requisite for an effective risk-based capital regulatory framework. If the weights are too low in relation to the risks associated with a bank's exposures to a shadow banking entity, then the framework is undermined. Therefore, making the risk-weights adequate for the associated risks would further augment the effects the enhanced consolidation rules would bring. Also, it would reduce the *interconnectedness* and potentially the *leverage* and *size* of shadow banking entities.

Although all jurisdictions implemented the Basel capital regulatory framework and the BCBS enhanced the Basel II securitisation framework in July 2009, the capital requirements for shadow banking entities that fall outside the Basel II securitisation framework seem to be low relative to the risks. For example, in many jurisdictions, investment in funds (e.g. investment funds, hedge funds, private equity funds, LBO funds and MMFs) are treated as equity independently of the risks of their underlying assets and leverage, thus encouraging investments in higher risk funds.[25] The case for applying a rigorous look-through treatment that takes account of such risk factors, on an internationally consistent basis, should consequently be reviewed by the BCBS.

In addition, capital requirements for short-term liquidity facilities for shadow banking entities that fall outside the scope of the Basel II/III securitisation framework such as MMFs and hedge funds remain relatively low compared to the capital required for securitisation vehicles.[26] Although careful assessment is needed in determining the scope of the treatment by authorities, there is a potential opportunity for regulatory arbitrage. Furthermore, risk-weights for on-balance sheet exposures (i.e. lending) to shadow banking entities in general could also be considered.

The FSB thus recommends that the BCBS reviews the capital treatments for (i) investment in funds (e.g. investment funds and hedge funds) and (ii) short-term liquidity facilities beyond the Basel II/III securitisation framework, and develop policy recommendations as necessary.

Based on this recommendation, the BCBS has asked its Ratings and Securitisation Workstream and Risk Management Modelling Group to clarify the following issues respectively:

- whether the rules for bank liquidity lines to securitisation vehicles should be extended to apply to all non-bank entities, including shadow banking entities; and
- whether the Basel II framework appropriately accounts for the risk inherent in various equity investments (for example, the treatment of equity investments in hedge funds is insensitive to the risk of hedge funds (which can vary greatly)).

The BCBS will report its progress and proposed policy recommendations to the FSB by July 2012.

Recommendation 4: Restrict banks' ability to stand behind any entities that are not consolidated following the application of more rigorous consolidation rules by applying stricter regulatory treatment of "implicit support".

Stricter regulatory treatment for banks' implicit support to shadow banking entities would complement the enhanced consolidation rules. It would also help to reduce the potential or "real" *interconnectedness* between banks and shadow banking entities.

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[25] For example, under the Standardised approach, investments in funds are risk-weighted at 100% regardless of its leverage and underlying assets (Para. 81 of the Basel II text).

[26] The Basel II enhancement of July 2009 increased the credit conversion factor (CCF) for short-term liquidity facilities (less than one year original maturity) provided to entities that fall under the Standardised approach Securitisation framework (i.e. securitisation vehicles) from 20% to 50%. The same CCF remains at 20% for liquidity facilities (off-balance sheet exposures) provided to other type of entities (Para. 83 of the Basel II text).

Currently most jurisdictions apply the Pillar 1 and Pillar 2 treatments for "implicit support" to banks under their Basel II framework. The treatment was further enhanced in July 2009 when the scope was expanded to include all shadow banking entities. Banks are now required to identify and measure, *ex-ante*, exposures arising from potential sources of reputational risk (such as implicit support to securitisations, and support to MMFs and hedge funds) and include them in their internal capital adequacy assessment processes. The FSB nonetheless considers that there is a case for a further review of implementation.

The FSB thus recommends that the BCBS reviews the implementation of its Pillar 1 and Pillar 2 treatments on reputational risk/implicit support within its member jurisdictions and develop policy recommendations as necessary.

Based on this recommendation, the BCBS has asked its Standards Implementation Group to review the implementation of the July 2009 enhancements to the treatment for reputational risk/implicit support within BCBS member jurisdictions. Such work may be undertaken by conducting a survey of BCBS members. **The BCBS will report its progress and the proposed policy recommendations to the FSB by July 2012.**

(ii) The regulatory reform of money market funds (MMFs)

Recommendation 5: Regulatory reform of money market funds (MMFs) should be further enhanced.

MMFs may pose systemic risks because they are vulnerable to runs and because in some jurisdictions they play an important role in short-term funding markets. The latter implies that MMFs are often part of the credit intermediation chain that *transforms maturity/liquidity* and builds up *leverage*. Thus, although regulatory frameworks are currently under review in many jurisdictions, it is important to review such national initiatives and ensure that appropriate action is being taken to address risks arising from MMFs.

A crucial issue to be considered by such a review is whether the regulatory approach to MMFs needs to choose between (i) encouraging/requiring shifts to variable Net Asset Value (NAV) arrangements, (ii) imposing capital and liquidity requirements on MMFs which continue to promise investors constant NAV, and/or (iii) whether there are other possible approaches. To ensure a sound base for evaluation of these options, the review will need to analyse:

- The role of MMFs in funding markets;
- Different categories, characteristics and systemic risks posed by MMFs in various jurisdictions, and the particular regulatory arrangements which have influenced their role and risks;
- The role of MMFs in the crisis and lessons learned;
- Regulatory initiatives in hand and their possible consequences for funding flows; and
- The extent to which globally agreed principles and/or more detailed regulatory approaches are required/feasible.

The FSB recommends that IOSCO undertakes a review of potential regulatory reforms of MMFs that would mitigate their susceptibility to runs and other systemic risks, taking

into account national regulatory initiatives, and develop policy recommendations as necessary.

Based on this recommendation, IOSCO has asked its Standing Committee on Investment Management to analyse the different categories, characteristics and systemic risks of MMFs in various jurisdictions as well as the particular regulatory arrangements which have influenced their role and risks, and to prepare regulatory options to reduce MMFs' vulnerability to runs or other systemic risks. **IOSCO will report its progress and proposed policy recommendations to mitigate MMFs' susceptibility to runs and other systemic risks to the FSB by July 2012.** In developing the proposed policy recommendations, IOSCO intends to consult the public in spring 2012.

(iii) The regulation of other shadow banking entities

Recommendation 6: Regulation of other shadow banking entities should be assessed and further enhanced from prudential point of view (e.g. capital and liquidity regulation).

Other shadow banking entities such as conduits/SIVs, finance companies, mortgage insurance companies, and credit hedge funds that are identified through the monitoring process could also pose systemic risks and/or provide opportunities for regulatory arbitrage. Although all jurisdictions regulate such entities in some ways, the details seem to vary across jurisdictions.

The FSB therefore recommends **a new workstream to be set up under its Task Force to (i) categorise other shadow banking entities, (ii) assess the scale and risks of these entities, (iii) conduct more detailed assessments of regulatory frameworks and their potential gaps as necessary (focussing particularly on prudential measures rather than investor protection/business conduct measures), (iv) analyse the role of these entities during the crisis, and (v) develop possible policy recommendations as necessary by September 2012**. (i) and (ii) can build upon the data and information sharing exercise being conducted during the summer of 2011.[27]

(iv) The regulation of securitisation

Recommendation 7: Incentives associated with securitisation should be adequately addressed. In particular, the following issues warrant further attention:

- **Requirements to incentivise suppliers of securitisation (e.g. originators, sponsors) to retain part of the risks associated with securitisation (i.e. retention requirements); and**
- **Transparency and standardisation of securitisation products.**

Securitisation is a useful funding technique for financial institutions, and an efficient means to diversify risk. However, the recent crisis revealed a number of problems with securitisation, including an overreliance on ratings, lack of due diligence by investors (partly due to the complexity of the products) and inadequate pricing of risk. Securitisation also reduced the

[27] The new workstream will also coordinate closely with other workstreams through the Task Force so that no shadow banking entities and activities will fall outside the scope.

incentives for the suppliers of securitisation (e.g. originators, sponsors) to conduct rigorous underwriting of credits that could potentially be included in the underlying assets pool. Banks meanwhile often used securitisation for *regulatory arbitrage*, undermining the effectiveness of the Basel capital regulatory frameworks.

Although significant improvements have been made with regard to the regulation of securitisation both at the national and at the international levels after the crisis, the FSB believes that further review of such initiatives could be useful. In particular, the FSB recognises the commitment endorsed by G20 Leaders that "securitization sponsors or originators should retain a part of the risk of the underlying assets, thus encouraging them to act prudently". [28] Thus, current **national/regional initiatives related to (i) this recommendation, and (ii) measures that enhance transparency and standardisation of securitisation products (including initiatives such as labelling initiatives that facilitate risk assessment by investors) could be reviewed and proposed policy recommendations could be developed as necessary.**

The FSB therefore recommends **that IOSCO, in coordination with the BCBS, to undertake a stock-taking exercise on the implementation of (i) retention requirements and (ii) measures that enhance transparency and standardisation of securitisation products within its member jurisdictions, and develop policy recommendations as necessary.**

Based on this recommendation, IOSCO has initiated its stock-taking work on the above issues through a comparison of proposed and adopted rules in the EU and in the US, where some progress has already been made. **IOSCO will report its progress and the results of its work to the FSB by July 2012.**

(v) The regulation of securities lending and repos

Recommendation 8: Regulation of secured funding markets, in particular repos (repurchase agreements) and securities lending should be assessed carefully and further enhanced from the prudential perspective as necessary.

The secured funding markets, in particular repos (repurchase agreements) and securities lending, were at the heart of the development of shadow banking activities prior to the crisis by (i) facilitating the use of securitisation products in financial transactions as a source of collateral for funding; (ii) providing a source of apparently low-risk, short-term secured funding for dealers and shadow banking entities; (iii) leading to increased interconnectedness in the financial systems through chains of back-to-back transactions; and (iv) through reinvestment of cash collateral from securities lending, providing a significant source of lending to term money markets involving significant maturity transformation. The use of repos and securities lending by financial institutions facilitated the *maturity/liquidity transformation* and build-up of *leverage* within shadow banking entities as well as in the

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[28] IOSCO published its report on *Unregulated Financial Markets and Products* in September 2009, which states, "IOSCO acknowledged industry responses in the securitisation market and recommends the following regulatory responses: 1. Consider requiring originators and/or sponsors to retain a long-term economic exposure to the securitisation in order to appropriately align interests in the securitisation value chain; . . ." The FSB endorsed this approach in its September 2009 report on *Improving Financial Regulation*, and this was in turn endorsed by G20 Leaders at the September 2009 Pittsburgh Summit (Para 12): "Securitization sponsors or originators should retain a part of the risk of the underlying assets, thus encouraging them to act prudently".

system more broadly. For example, systemic risk built up through the provision of easy liquidity against certain positions that were ultimately recognised as being backed by opaque, complex and illiquid instruments, leading to a quick evaporation of liquidity as the crisis broke. AIG's securities lending and cash collateral reinvestment programs have for instance been highlighted as a key contributor to its failure. Furthermore, developments in repo and other secured lending markets played a crucial role in the crisis of autumn 2008, with procyclical increases in margin/haircuts contributing to the collapse in liquidity and in asset values. Policy measures to improve the functioning of secured funding markets, such as repo markets, can therefore help to lower the vulnerabilities stemming from shadow banking activities.

The FSB has identified the following three main areas that may need to be considered in addressing the risks in the secured funding market:

- **Regulating securities lending-related cash collateral reinvestment programmes:** Regulatory measures could be introduced to place limits on the maturity of investments into which cash collateral is invested or on the types of instruments that are used for these investments. Limits on the use of customers' collateral to finance banks and securities dealers (re-hypothecation) may also be reviewed.
- **Macro-prudential measures related to repos and securities lending:** Introduction of macroprudential requirements such as minimum margin or haircuts to mitigate procyclicality should be considered further in addressing systemic risks, drawing on the CGFS report *The role of margin requirements and haircuts in procyclicality* (March 2010).[29]
- **Improving market infrastructure for secured funding markets:** Strengthening market infrastructure for secured funding markets such as repo clearing, settlement and trade reporting arrangements should be considered.

Unlike in relation to market infrastructure (the 3rd bullet point above), where some proposals for initiatives have already been developed[30], there has not been much detailed work (including analytical work) undertaken nationally or internationally to develop the other two main areas. Since the expertise needed to tackle these three main areas are interrelated, **the FSB thinks it beneficial to set up a workstream under its Task Force that would focus on the regulation of securities lending-related cash collateral reinvestment programmes and macro-prudential measures related to repos and securities lending, which would take into account existing work on market infrastructure**.[31]

Specifically, the new workstream will:

(i) analyse current practices and potential risks in relation to repos and securities lending (including data collection and analysis);

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29 http://www.bis.org/publ/cgfs36.pdf

30 For example the CPSS report *Strengthening repo clearing and settlement arrangements* published in September 2010.

31 This includes national initiatives such as the work of the Tri-Party Repo Infrastructure Reform Task Force in the US. This Task Force was formed in September 2009 under the auspices of the Payments Risk Committee (PRC), a private sector body sponsored by the Federal Reserve Bank of New York, to address weaknesses in the tri-party repo market that became visible over the course of the financial crisis.

(ii) conduct more detailed assessments of regulatory frameworks and their potential gaps (focussing particularly on prudential measures);

(iii) analyse the role of repos and securities lending markets, as well as margining and re-hypothecation practices in these markets, during the crisis; and

(iv) develop possible policy recommendations as necessary by end-2012.

The workstream has already started working on these issues and will provide an interim report to the Task Force and the SRC by March 2012.

(vi) Other recommendations on which implementation of existing initiatives will be monitored

Recommendation 9: The transparency and reporting of information should continue to be improved as appropriate. Following the recommendations on the monitoring framework for the shadow banking system, authorities should require additional reporting or disclosure as deemed necessary for those entities and activities falling under the definition of shadow banking.

Disclosures and reporting requirements are critical tools that will help authorities and market participants identify systemic risks and regulatory arbitrage in the shadow banking system. With time and adequate access to information, authorities and market participants would be able to take actions to reduce systemic risks and address regulatory arbitrage. However, further progress is necessary to enhance disclosure and reporting requirements in order to put an effective monitoring framework in place. **The FSB thus asks all its member jurisdictions to implement the recommendations as set out in the proposed monitoring framework discussed in section 2 of this report. The SCAV will continue to review the data that are collected, and refine the recommendations as necessary.**

Meanwhile, for example, disclosures and reporting requirements concerning securitisation have been improved significantly in response to the crisis, and many jurisdictions have taken (or are taking) steps to enhance their capabilities to assess systemic risks by strengthening their powers to collect relevant information from financial institutions. **The FSB thus asks its Implementation Monitoring Network (IMN) under its Standing Committee on Standards Implementation (SCSI) to follow-up on national implementation within its comprehensive monitoring of G20/FSB recommendations.**[32]

The FSB moreover believes consideration should be given to work that may be needed from a financial stability perspective, as opposed to a focus solely on investor protection, concerning listing/disclosure requirements and oversight of primary (issuance) market developments. IOSCO may be a good forum to look into this.

Recommendation 10: The underwriting standards for all relevant financial institutions should be rigorous and continue to be improved as appropriate.

[32] This excludes any recommendations on strengthening risk disclosures in respect of emerging risks following the new procedure adopted in response to the recent peer review.

Weak credit underwriting standards can increase risks in the system and aggravate procyclicality by allowing financial institutions to extend easy credit during economic expansions. As the recent crisis showed, it can also create systemic risks by imperfectly transferring credit risks to other sectors and jurisdictions through securitisation techniques (*imperfect credit risk transfer*) or by underpricing risks with excessively lenient credit underwriting standards. Strengthening underwriting standards for all relevant financial institutions would not only address these problems in the system but also limit *maturity/liquidity transformation* and *leverage* of the borrowers if these factors are appropriately considered in the underwriting process.

Currently all jurisdictions impose underwriting standards on their regulated entities (e.g. banks, consumer finance companies) and many jurisdictions have taken steps to further improve credit underwriting standards for mortgages and consumer lending in response to the crisis. The FSB has also recently developed for consultation principles for mortgage underwriting and origination practices[33], drawing on the findings of its thematic peer review published in March 2011.[34] The FSB recommended broadening the regulatory perimeter to cover entities such as mortgage insurers.

With the new international principles for mortgage underwriting just developed, **the FSB is of the view that there is no need for additional international initiatives for the time being and asks its Implementation Monitoring Network (IMN) to follow up on the national implementation within its comprehensive monitoring of G20/FSB recommendations.** Such monitoring of national implementation should include the international principles for mortgage underwriting.

Recommendation 11: The role of Credit Rating Agencies (CRAs) in facilitating shadow banking activities should continue to be reduced as appropriately.

Credit rating agencies (CRAs) facilitate shadow banking activities by assigning ratings that are well-accepted in the global investor community. Although ratings can be beneficial for the economy in reducing credit intermediation costs, they may also facilitate the *maturity/liquidity transformation* and build-up of *leverage* within the shadow banking entity and the system more broadly. If banks rely excessively on ratings in extending credit or in their investments, it may also increase *interconnectedness* between the banking and shadow banking systems.

CRAs played a critical role in supporting the rapid development of securitisation markets. Although securitisation products are more complex than conventional bonds, investors often solely relied on the CRA ratings to assess risks. The error made by CRA ratings of securitisation products and investors' mechanistic reliance on such ratings amplified the systemic risk.

For these reasons, CRAs have been the target of regulatory reforms, with most jurisdictions having implemented steps to enhance regulatory oversight regimes for CRAs in line with the *IOSCO Code of Conduct Fundamentals for Credit Rating Agencies*. The FSB has also published high-level principles to reduce mechanistic reliance on external ratings in central bank operations; prudential supervision of banks; internal limits and investment policies of

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33 *Principles for sound residential mortgage underwriting practices*, 26 October2011

34 *Thematic review on mortgage underwriting and origination practices*, 17 March 2011

investment managers; private sector margin agreements; and disclosures by issuers of securities.[35] The standard setters and relevant authorities are currently working on translating the FSB principles into more specific policy actions.

With many national and international initiatives already implemented and some currently underway, **the FSB believes that there is no need for additional international initiatives in this area for the time being, and asks its Implementation Monitoring Network (IMN) to follow-up on the national implementation within its comprehensive monitoring of G20/FSB recommendations and highlight any inconsistencies that need attention by the FSB members.**

[35] *Principles for reducing reliance on CRA ratings*, 27 October 2010

Annex 1: Results of the Summer 2011 Data Exercise

Exhibit 1-1: Total Assets of Credit Intermediaries (with entire euro area)

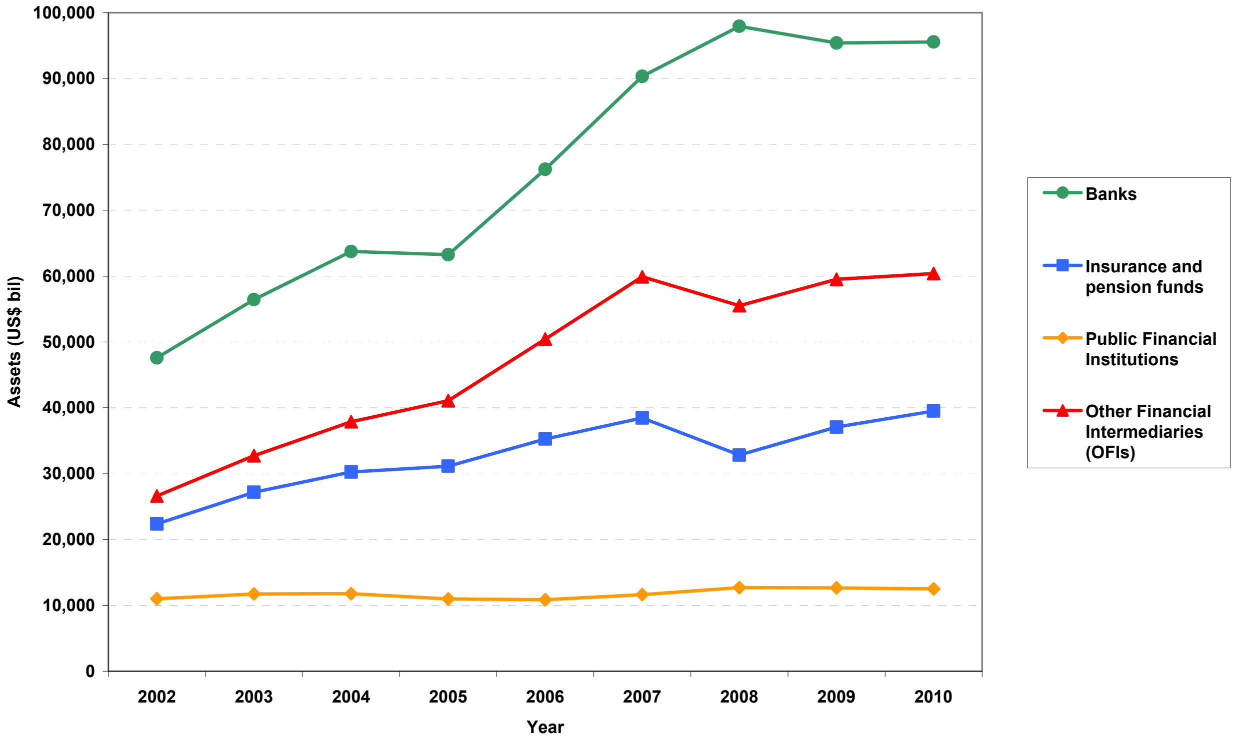
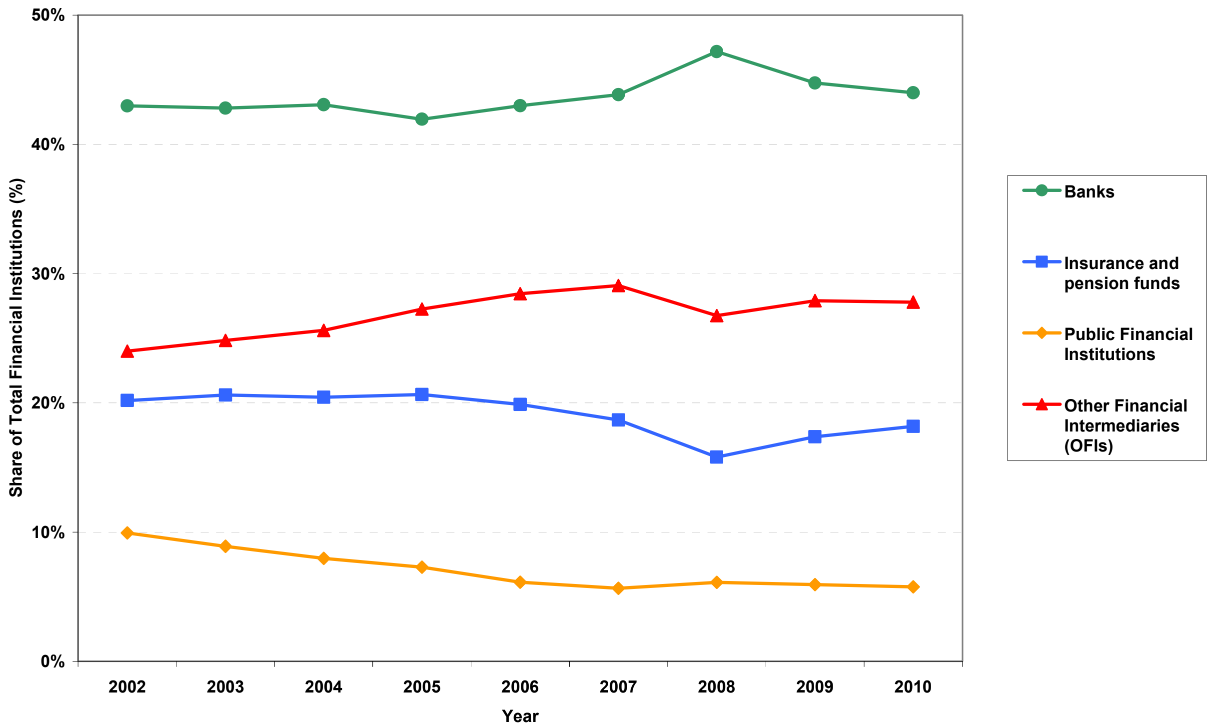


Exhibit 1-2: Share of Total Assets (with entire euro area)



Note: Flow of Funds data (with adjustments using monetary statistics and other data for breakdowns) for the euro area (ECB data), Australia, Canada, Japan, Korea, UK and US are used. For the euro area, money market fund data have been included in "Other Financial Intermediaries" as from 2006.

Exhibit 1-3: Total Assets of Credit Intermediaries (with 5 euro area jurisdictions)

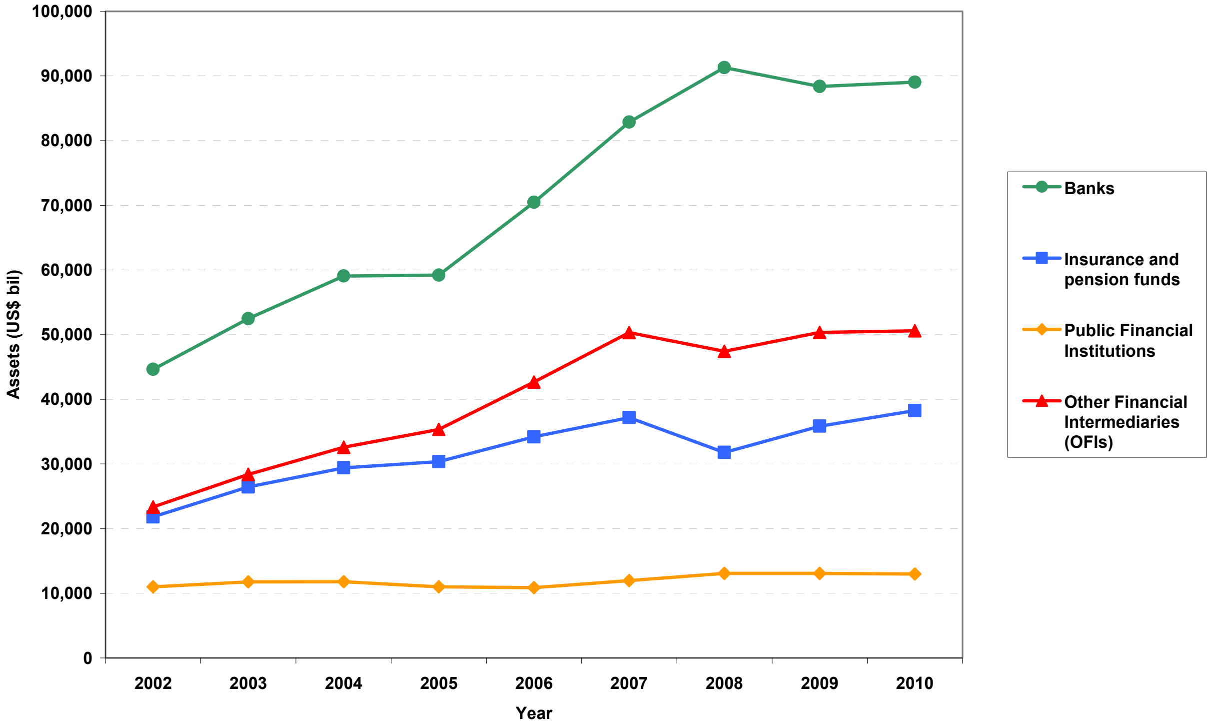
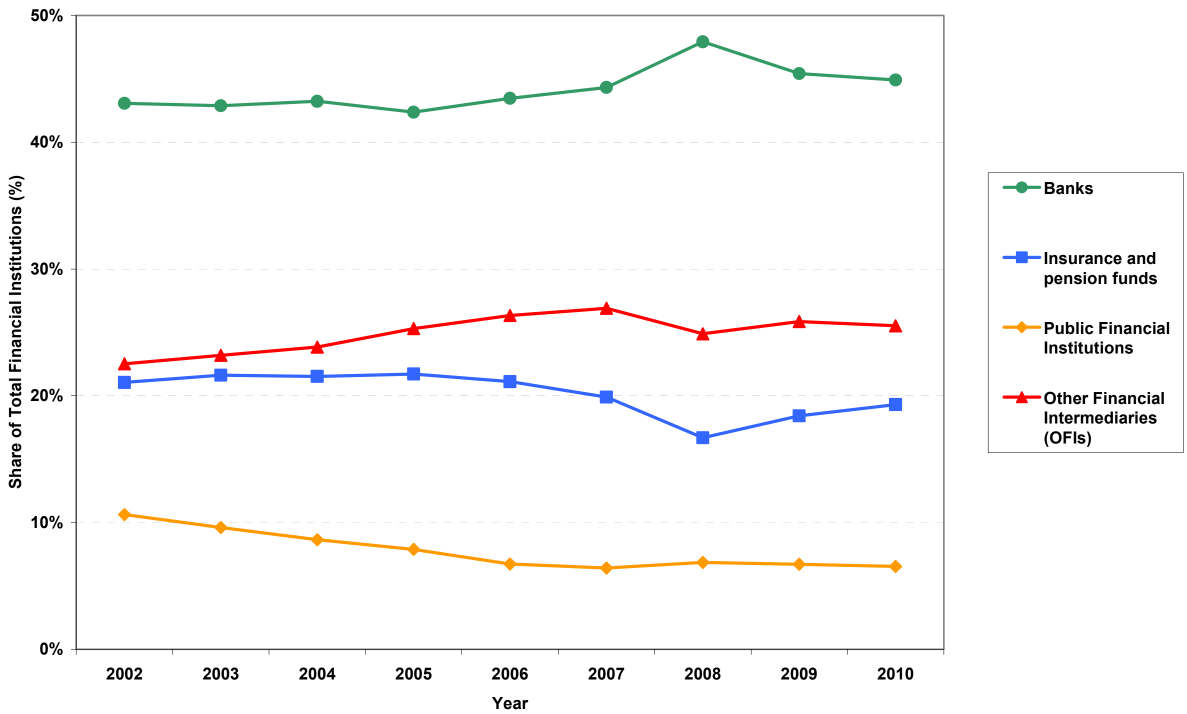
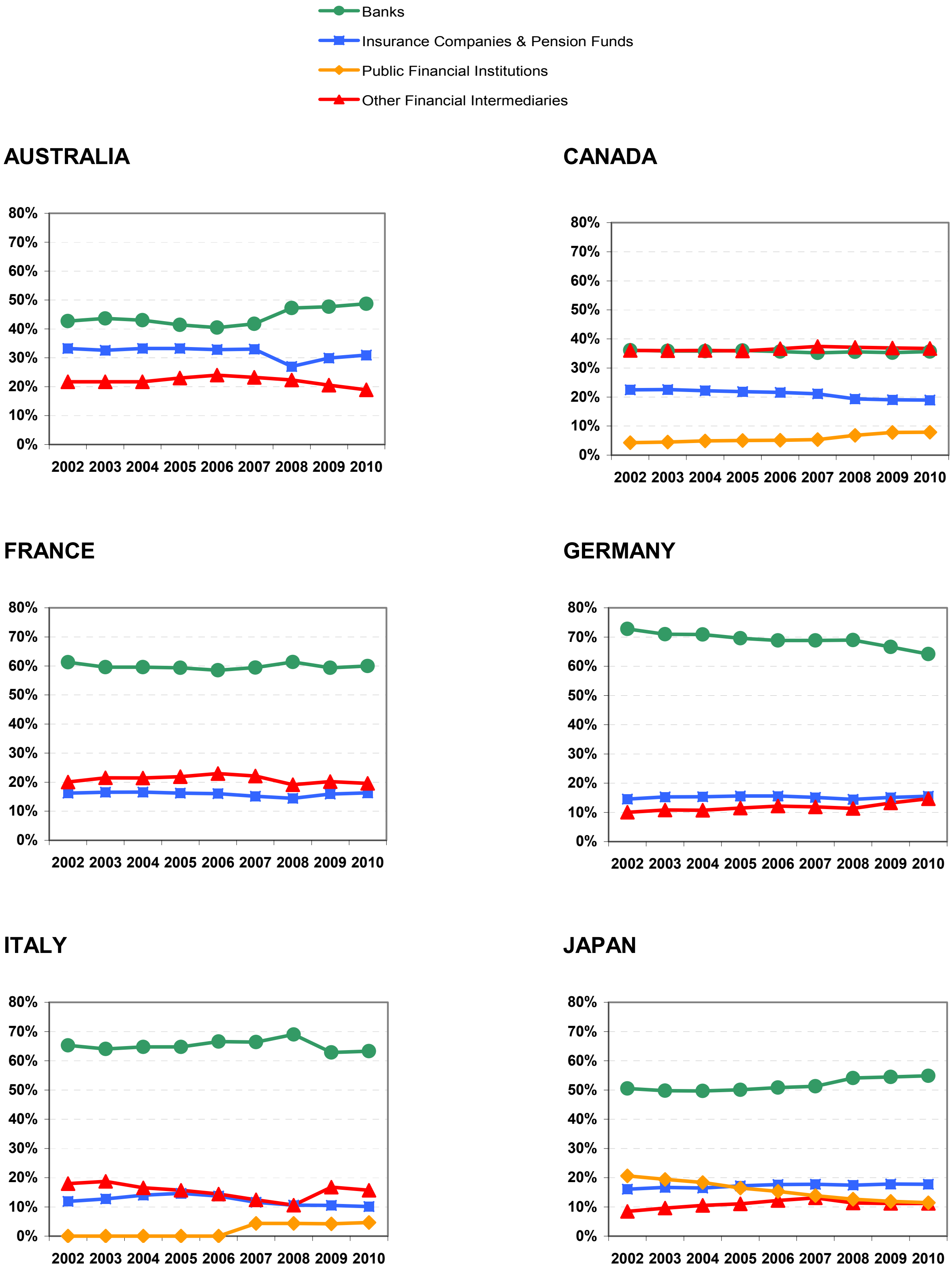


Exhibit 1-4: Share of Total Assets (with 5 euro area jurisdictions)



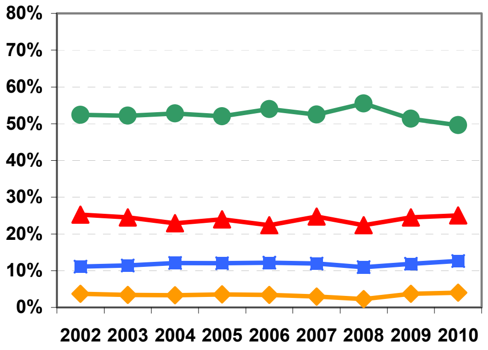
Note: Flow of Funds data (with adjustments using monetary statistics and other data for breakdowns) for Australia, Canada, France, Germany, Italy, Japan, Korea, Netherlands, Spain, UK and US are used.

Exhibit 1-5: Share of Total Assets by Jurisdiction

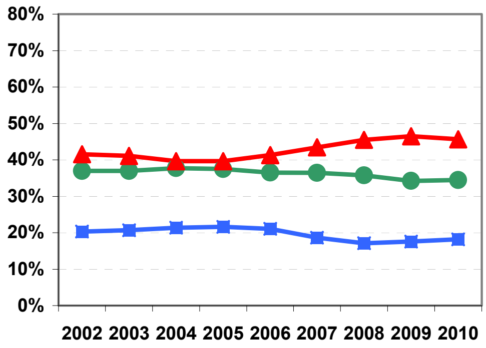


Note: Flow of Funds data (with adjustments using monetary statistics and other data for breakdowns) for Australia, Canada, France, Germany, Italy, Japan, Korea, Netherlands, Spain, UK, US and the euro area are used. For Italy, data on Public Financial Institutions are available from 2007.

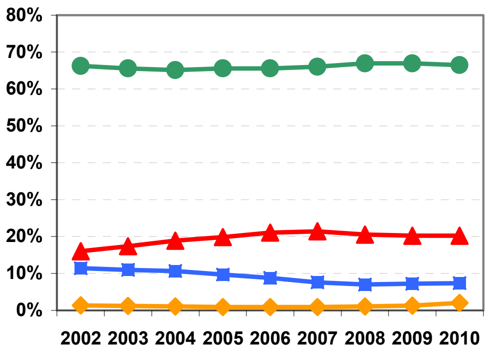
KOREA



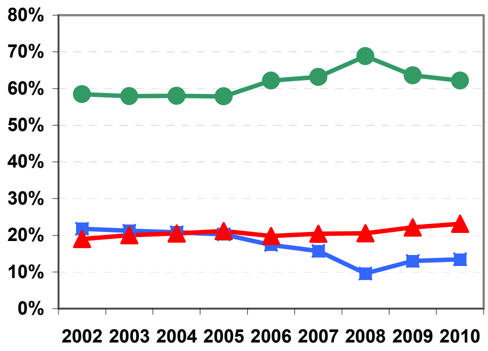
NETHERLANDS



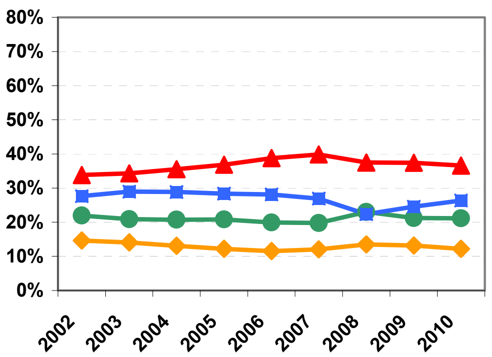
SPAIN



UK



US



EURO AREA

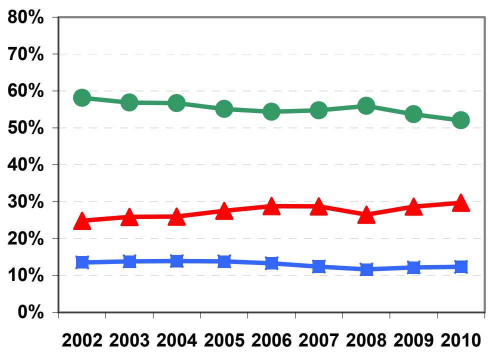


Exhibit 1-6: Share of Other Financial Intermediaries (Assets) in 2005 by Jurisdictions With 5 euro-area jurisdictions

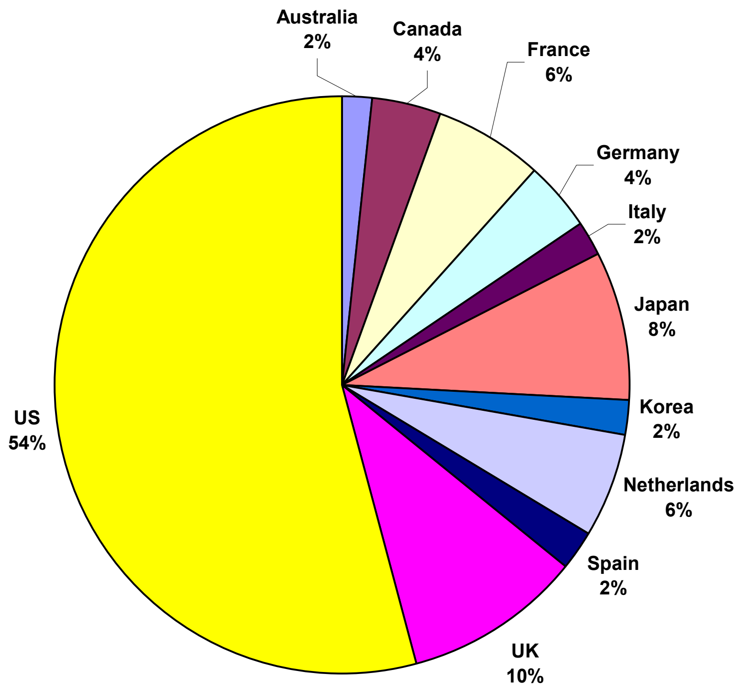
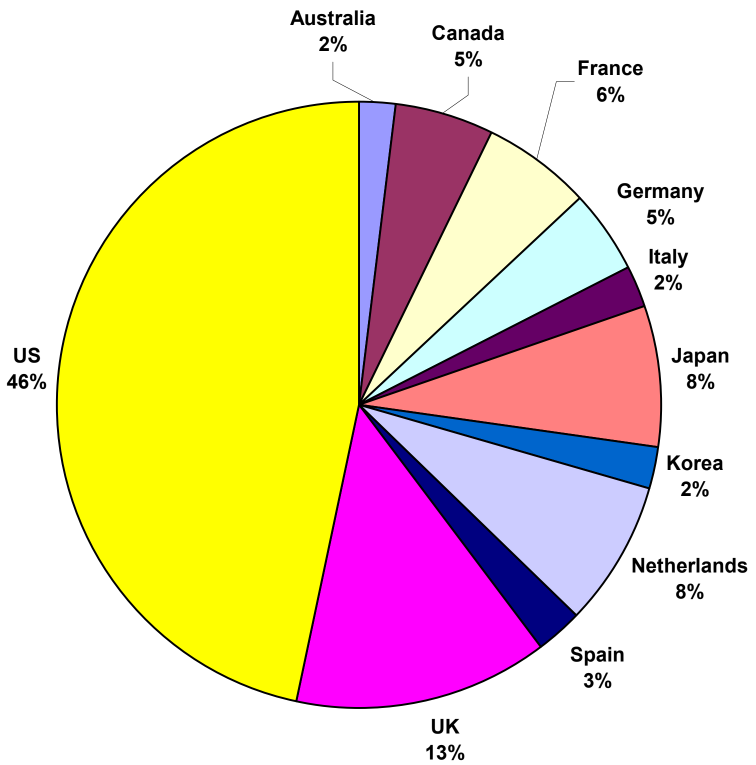


Exhibit 1-7: Share of Other Financial Intermediaries (Assets) in 2010 by Jurisdictions With 5 euro-area jurisdictions



Note: Flow of Funds data (with adjustments using monetary statistics and other data for breakdowns) for Australia, Canada, France, Germany, Italy, Japan, Korea, Netherlands, Spain, UK and US are used.

Exhibit 1-8: Total Assets of Other Financial Intermediaries (with entire euro-area) by Jurisdictions

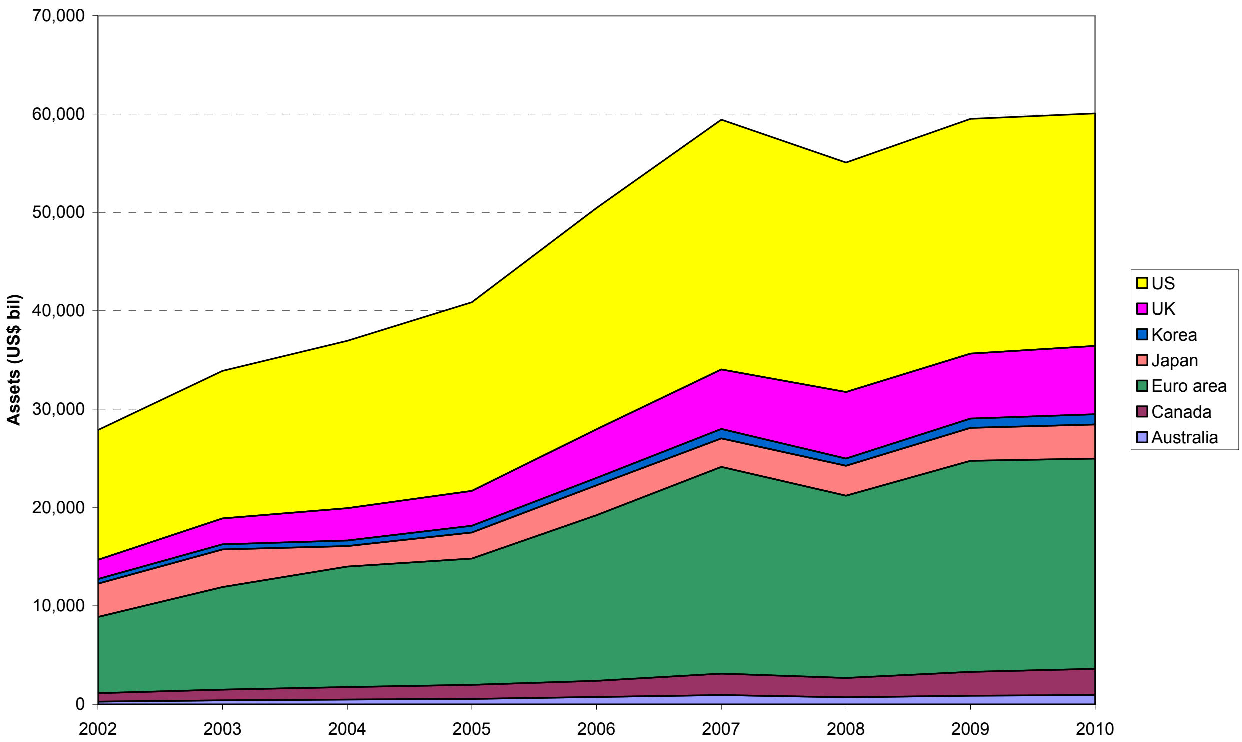
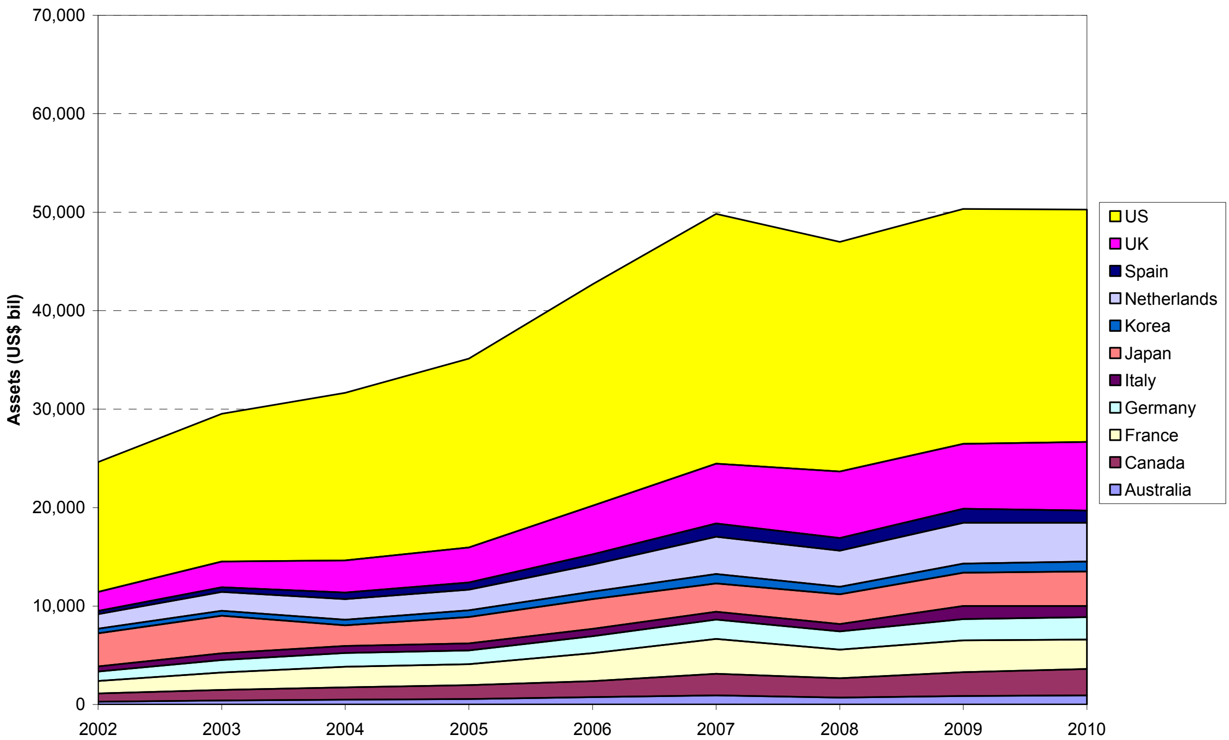


Exhibit 1-9: Total Assets of Other Financial Intermediaries (with 5 euro-area jurisdictions) by Jurisdiction



Note: Flow of Funds data (with adjustments using monetary statistics and other data for breakdowns) for Australia, Canada, France, Germany, Italy, Japan, Korea, Netherlands, Spain, UK, US and the euro area are used.

Exhibit 1-10: Composition of Other Financial Intermediaries (Assets) in 2005 With 5 euro-area jurisdictions

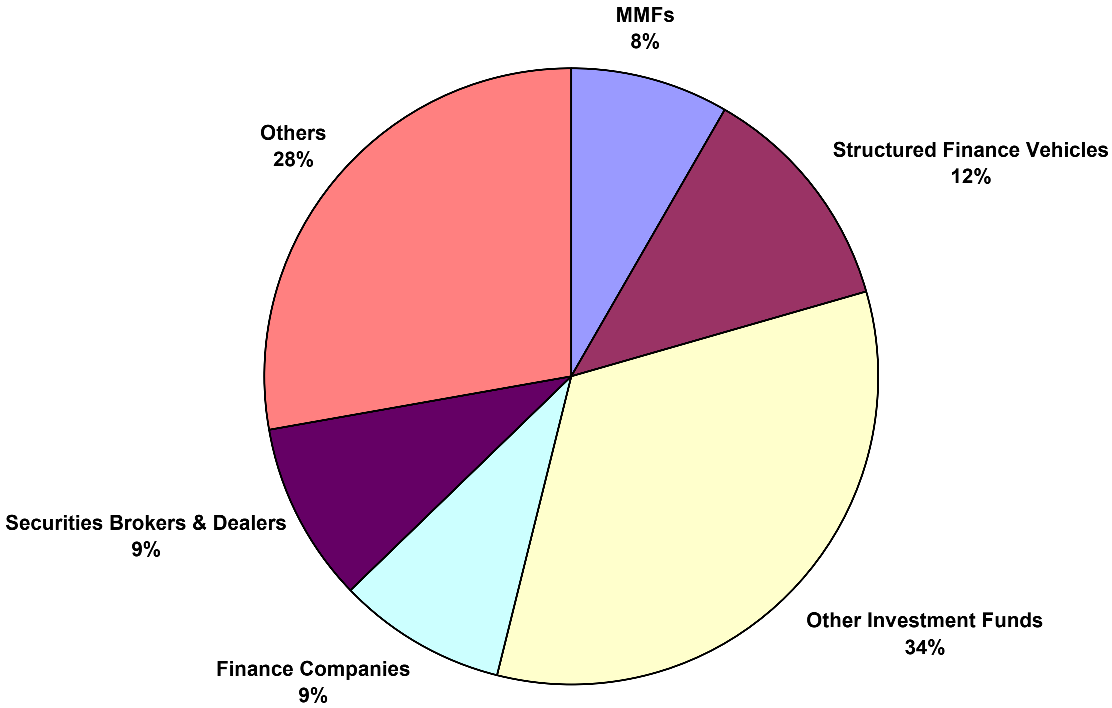
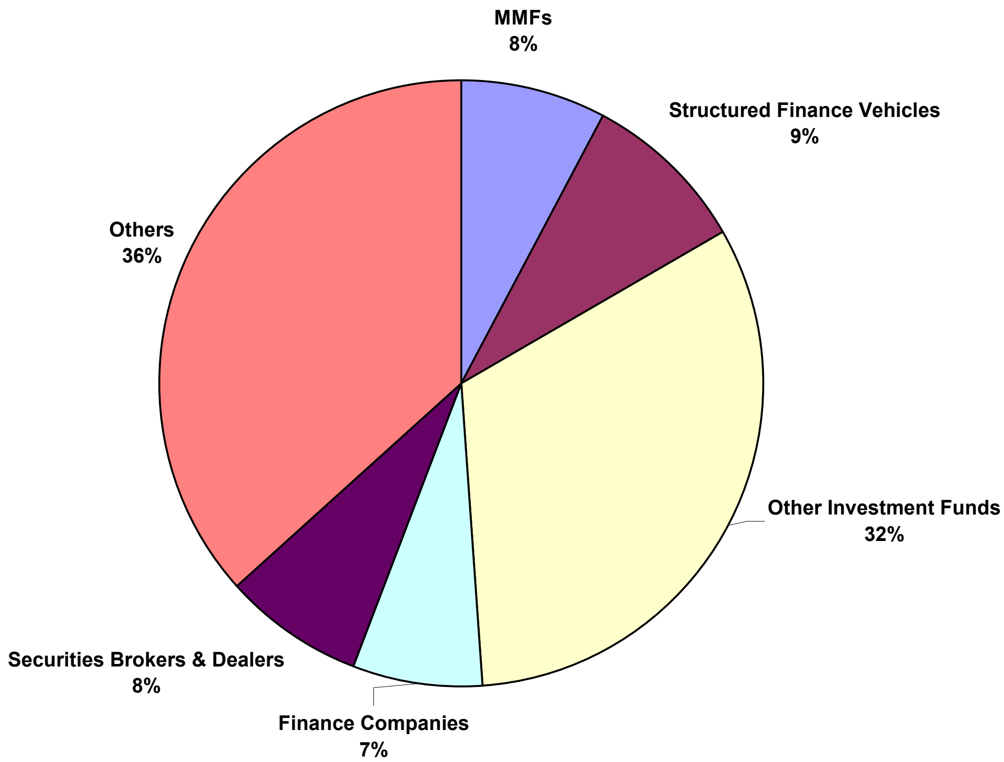
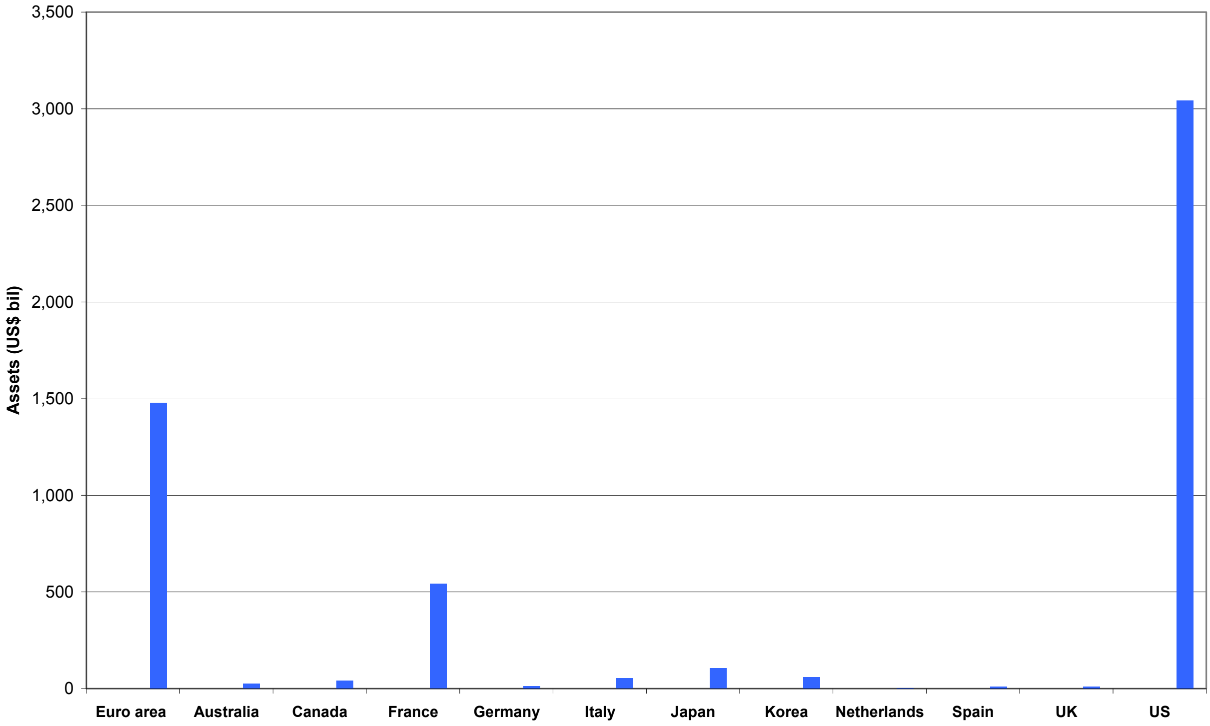


Exhibit 1-11: Composition of Other Financial Intermediaries (Assets) in 2010 With 5 euro-area jurisdictions



Note: Flow of Funds data (with adjustments using monetary statistics and other data for breakdowns) for Australia, Canada, France, Germany, Italy, Japan, Korea, Netherlands, Spain, UK and US are used.

Exhibit 1-12: Total assets of MMFs in 2010



Note: Flow of Funds data, monetary statistics and other data for Australia, Canada, France, Germany, Italy, Japan, Korea, Netherlands, Spain, UK, US and the euro area are used. The total assets figures are for the MMFs that reside in the relevant jurisdictions.

Annex 2: The Step 1 Template for the Annual Monitoring Exercise

(USD mil)

Year/Quarterly (as of end-year/Q) for stock assets data		Financial Institutions	Central Bank	Deposit-Taking Institutions	Banks	Assets to OFIs	Liabilities to OFIs	XX (Note 1)	Assets to OFIs	Liabilities to OFIs	Others	Assets to OFIs	Liabilities to OFIs	Insurance Companies (Note 2, 3)	Pension Funds (Note 2,3)	Public Financial Institutions	Public Financial Institutions (Note 4)	XX (Note 1, 4)	Others	Other Financial Intermediaries (OFIs)	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 (Note 6)	XX (Note 1)	XX (Note 1)	XX (Note 1)	Others	Exchange rate (if in local currentcy, to USD mil)	Nominal GDP
1999		0		0												0				0												
2000		0		0												0				0												
2001		0		0												0				0												
2002		0		0												0				0												
2003		0		0												0				0												
2004		0		0												0				0												
2005		0		0												0				0												
2006		0		0												0				0												
2007		0		0												0				0												
2008		0		0												0				0												
2009	1Q	0		0												0				0												
	2Q	0		0												0				0												
	3Q	0		0												0				0												
	4Q	0		0												0				0												
2010	1Q	0		0												0				0												
	2Q	0		0												0				0												
	3Q	0		0												0				0												
	4Q	0		0												0				0												
Note (Detailed definition etc.)																																

*: Members may complement the Flow of Funds data with other information. If data is unavailable, please fill in "N/A" or keep it blank.

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 aggreaged 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 aggreaged 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 aggreaged number in the Other Investment Funds cells and explain that in the Note cell.

Note: National/regional authorities are expected to fill in their aggregated results using this data template. There will be other data templates for Steps 2 and 3 monitoring. Also, authorities will be expected to prepare national/regional summaries and case studies.

Annex 3: Monitoring Case Studies

1. Real estate investment funds in Italy[36]

In Italy, most of the non-bank entities and activities are regulated by the Bank of Italy and the Commissione Nazionale per le Società e la Borsa (CONSOB). At the Bank of Italy, the Specialised Intermediaries Supervision Department has supervisory powers over several types of non-bank intermediaries which may fall under the shadow banking definition.[37] It analyses financial innovation and risks affecting non-bank intermediaries and conducts supervisory actions as necessary in close cooperation with other departments within the Bank of Italy as well as with CONSOB. Inputs from daily supervision of banks are often a good source of information for supervising non-bank intermediaries that may lead to a creation of a joint supervisory team to approach issues on a comprehensive/multi-disciplinary perspective.

Real estate investment funds (REIFs) allow investors to convert real estate assets, typically not easily exchangeable, into units of financial products. In Italy, they are established and managed by asset management companies (SGR) supervised by the Bank of Italy in cooperation with the CONSOB. The Bank of Italy collects supervisory and statistical reports on all REIFs from such Italian asset management companies on a regular basis (annually or semi-annually). The following description is an application of the 3-step stylised process set out in the section 2.2-2.5 to the Bank of Italy's monitoring of REIFs in Italy.

Step 1: The scanning and mapping of the shadow banking system

The total assets of 280 REIFs in Italy amount to 47.7 billion euros in June 2010 (Exhibit 3-1). This constitutes about **5.6% of the overall non-bank credit intermediaries** (as proxied by the total assets of Other Financial Intermediaries in the Flow of Funds data) as of end-2010. The net asset value (NAV) of such funds is 26.8 billion euros.

The REIFs sector has increased significantly during 2003-2008 (Exhibit 3-1). The number of REIFs has increased from 18 in 2003 to 229 in 2008 and their total assets from 5.1 billion euros to 42.4 billion euros respectively. The rapid increase in the size of the REIFs was one of the factors that induced the Bank of Italy to closely look at their risks and conduct supervisory actions in 2009 as explained later.

Step 2: The identification of the aspects of the shadow banking system posing systemic risk or regulatory arbitrage concerns

The Bank of Italy collects detailed information on REIFs from their asset management companies such as fund's total assets and liabilities, NAV, ROE, gross and net property returns, cost of debt service, and annual rent or income from the real estate. From such information, the Bank of Italy monitors the **financial leverage (Total Assets/NAV)** of REIFs. The level of financial leverage rapidly increased from 1.16 in 2003 to 1.73 in 2008. Such increase raised concerns within the Bank of Italy as "leverage" is one of the important systemic risk factors.

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[36] This section is based on a note prepared by Corrado Baldinelli and Carlo Gola (Bank of Italy) for the Task Force and on Michele Leonardo Bianchi and Agostino Chiabrera (2011) *Italian real estate investment funds: market structure and risk measurement*, August, mimeo.

[37] Such intermediaries include asset management companies, investment firms, and financial companies.

On “maturity/liquidity transformation”, however, REIFs in Italy are closed-end funds that give investors the right to redeem their units only at predetermined intervals, under specific circumstances and for limited amounts. This would thus contain risks associated with “maturity/liquidity transformation”. Open-end real estate investment funds are not allowed to operate in Italy.

Step 3: Detailed assessment of systemic risk or regulatory arbitrage concerns

As explained earlier, the Bank of Italy collects detailed information on individual REIFs on a regular basis. However, during the crisis, given the evidence emerged during the day-to-day supervision of the funds’ management companies, the Bank of Italy deemed such regular monitoring information insufficient to assess new forms of risks and, more broadly, to evaluate potential systemic effects of specific events. For instance, the unexpected and protracted contractions of real estate prices may trigger financial covenants in the borrowing agreements between banks and REIFs, and can lead to serious financial difficulties not only for REIFs but also, to some extent, for the lending banks. Thus, the Bank of Italy embarked on an *ad hoc* survey in 2009 (and on a smaller scale in 2010) on all Italian REIFs with a specific request for more detailed information especially about their financial structure and loans features (e.g. the evolution of the funds’ liquidity risk, debt dynamic as well as contractual cash flows).

Based on the information collected through its ad hoc survey, the Bank of Italy conducted an in-depth analysis of financial risks[38], economic risks[39] and asset/liability dynamics for each individual REIF. In particular, in the assessment of the asset/liability dynamics, it carried out **a stress test that estimated the probability of default (PD) of each fund in a 3-year horizon based on various adverse but plausible scenarios**.[40]

As a result of such analysis, the Bank of Italy identified a group of REIFs with weak financial structure, poor returns and high PDs. In particular, 30% of REIFs were identified as having more than 50% of short-term liabilities in their liability structure in 2009. 9.5% of REIFs were also found to have PDs higher than 20% under the stress scenario where real estate prices decline by 5% each year.[41] Such group of funds have been subjected to **a more intense supervision**.

The exercise also helped the Bank of Italy to evaluate the potential impact of the unfavourable scenarios on the funds’ asset management companies, as well as on the banking sector (using data from the banks’ credit register). As a follow-up, beside targeted supervisory interventions on some funds, the Bank of Italy decided to **enhance its regulatory reporting framework**, in particular on the asset and liability term structure and on the future contractual cash flows.

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[38] Short term dynamic of assets and liabilities, share of short term loans in relation to the total loans, amount of loans with covenants in relation to the total loans.

[39] Difference between typical REIFs inflows and outflows: rents minus general expenses and interest payments.

[40] Such scenarios include real estate prices changing by -10%, -5%, and 0% (in this last case, with two different hypotheses about rent revenues) each year. A Monte Carlo simulation of a Merton model with both normal and non-normal property returns distributions has also been performed. The model has a stochastic dynamic for properties prices and a deterministic dynamic for the debt. Volatility of the sectoral property returns, interest rates on each funds’ debt and other parameters have been estimated from REIFs’ balance sheets and survey data.

[41] In the same adverse scenario, the percentage of REIFs with a PD higher then 20% has dropped to 3.2% in 2010. The improvement seems mainly linked to a reduction in leverage for “developing funds (REIFs specialised in developing new real estate initiatives)”.

Exhibit 3-1: Italian Real Estate Investment Funds (REIFs) Markets

(units and billion euros)

	Dec. 03	Dec. 04	Dec. 05	Dec. 06	Dec. 07	Dec. 08	Dec.09	Jun. 10
All REIF								
Funds number	*18*	*30*	*61*	*118*	*171*	*229*	*267*	*280*
Total assets	5,141	12,309	18,326	27,248	36,022	42,390	47,482	47,730
real estate assets(2)	3,718	10,520	15,215	22,110	30,434	36,791	40,939	41,677
Debt	573	3,979	6,019	9,890	13,453	16,630	19,517	19,347
NAV	4,414	8,084	11,859	16,384	21,496	24,446	26,273	26,806
Financial leverage (3)	1.16	1.52	1.55	1.66	1.68	1.73	1.81	1.78
Retail funds								
Funds number	*14*	*19*	*23*	*28*	*29*	*29*	*27*	*27*
Total assets	3,836	6,531	8,057	10,118	10,674	10,127	9,461	9,282
real estate assets(2)	2,847	5,105	6,407	7,909	8,864	8,537	7,985	7,774
Debt	312	1,301	1,797	2,677	2,916	2,939	2,978	2,915
NAV	3,435	5,108	6,065	7,217	7,535	6,963	6,290	6,159
Financial leverage (3)	1.12	1.28	1.33	1.40	1.42	1.45	1.50	1.51
Reserved funds								
Funds number	*4*	*11*	*36*	*78*	*114*	*156*	*176*	*178*
Total assets	1,304	5,778	9,900	13,641	19,762	26,240	31,144	31,086
real estate assets(2)	872	5,415	8,472	11,537	16,682	22,665	26,658	27,240
Debt	261	2,678	4,015	5,311	6,931	9,636	11,796	11,529
NAV	979	2,977	5,646	8,023	12,143	15,707	18,124	18,567
Financial leverage (3)	1.33	1.94	1.75	1.70	1.63	1.67	1.72	1.67
Hedge funds								
Funds number			*2*	*12*	*28*	*44*	*64*	*75*
Total assets			369	3,488	5,622	6,022	6,877	7,361
real estate assets(2)			337	2,664	4,889	5,589	6,297	6,662
Debt			207	1,902	3,606	4,056	4,742	4,903
NAV			148	1,144	1,853	1,777	1,859	2,080
Financial leverage (3)			2.50	3.05	3.03	3.39	3.70	3.54

(1) Data at the end on the considered month. (2) Real estate assets are the sum of property values and interests in land. (3) The financial leverage is the ratio between total assets and net asset value (NAV).

Source: Bank of Italy

2. Hedge funds in the UK[42]

The Financial Services Authority (FSA) in the UK has been collecting data semi-annually from a sample of large hedge funds managed in the UK through its Hedge Fund Survey (HFS) since October 2009. The latest HFS was undertaken in March 2011 and this captured around 50 investment managers with over 100 hedge funds, managing approximately $390bn in hedge fund net assets. The FSA estimates these hedge funds account for only around 20% of global hedge fund industry net assets under management.

In addition to the HFS, the FSA also collects semi-annual counterparty exposures data from 14 large FSA-authorised banks through its Hedge Fund as Counterparty Survey (HFACS) since 2005. The HFACS asks about the size, channel and nature of the larger credit counterparty risks that individual banks have to hedge funds, both individually and collectively.

The following is a description of what the application of the 3-step stylised process set out in section 2.2-2.5 of this report may look like for surveyed hedge funds in UK based on data from HFS and HFACS. As the data is based on surveys – which provide only point in time estimates based on a sample of hedge funds – the following application does not provide a conclusive evaluation of the extent to which hedge funds are involved in shadow banking, but rather highlights the viability of the proposed framework and the type of information that a fuller global analysis could use.[43]

Step 1: The scanning and mapping of the shadow banking system

The March 2011 survey captured over 100 hedge funds with approximately $390 billion of hedge fund assets under management. They have been sightly increasing in size recently but collectively constitute only **5.6% of the overall non-bank credit intermediaries** (as proxied by the total assets of Other Financial Intermediaries in the Flow of Funds data) as of end-2010.

The first step involves determining how many hedge funds among the surveyed hedge funds are involved in credit intermediation ("credit hedge funds") as not all are expected to be engaged in shadow banking activities.

A simple method to estimate the extent that surveyed hedge funds are involved in credit intermediation is to examine their reported strategy classifications and group those that are expected to trade a significant proportion of credit products. Taking a broad interpretation of credit intermediation[44], this may include the following strategies in the HFS: "credit

[42] This section is based on a note prepared by Richard Brazenor (UKFSA) for the Task Force and on Financial Services Authority (2011) *Assessing the possible sources of systemic risk from hedge funds*, July.

[43] While the data is presented in terms of what is available through the HFS, similar data is available for other jurisdictions through the international IOSCO hedge fund survey.

[44] The scope of funds and activities captured within the credit intermediation will depend on how the "extension of credit" and the "facilitation of its intermediation" are interpreted. A narrow definition may consider only those hedge funds whose credit exposure is substantially directionally long-biased, such as funds with asset based lending strategies. However, a broader interpretation may include additional hedge fund strategies that involve the trading of credit instruments both long and short (e.g. fixed income arbitrage type strategies), as these may help to facilitate credit intermediation.

long/short", "distressed credit", "fixed income arbitrage", and a proportion of "multi-strategy". The proportion of "multi-strategy" that is focused on credit strategies will vary by fund, but the examination of the trading exposures of the multi-strategy funds suggests that on average around 20% of them could be classified as credit-focused. Overall, this rough method implies that credit hedge funds in the HFS account for around $90 billion or 23% of aggregate investor net asset value (NAV). These funds account for approximately 1% of overall non-bank credit intermediaries, in contrast to 5.6% if all "credit" and "non-credit" hedge funds are included together. Different strategy classifications, data sources and methodologies may result in different estimates.[45]

Step 2: The identification of the aspects of the shadow banking system posing systemic risk or regulatory arbitrage concerns

After the broad universe is scanned to determine those hedge funds engaged in credit intermediation, the next step is to assess potential systemic risks and/or regulatory arbitrage concerns of this subgroup. One of the key systemic risk factors to be monitored is "leverage". Risks associated with leverage are not only related to its size, but also due to its nature (such as the term of financing and how quickly it can be withdrawn), how it is used in investment portfolios, as well as the collateral posted and how the counterparty relationship is managed by both lender and lendee. The FSA collects some data on these aspects through the HFS but also uses HFACS which is run from the perspective of the lender.

Most concepts of hedge fund leverage involve borrowed money or increased exposure to an underlying asset via derivatives.[46] The HFS collects data on a range of borrowing types. Borrowing via repos is the most predominant source for the hedge funds captured within the HFS (Exhibit 3-2).

Leverage can be measured in multiple ways and the FSA publishes two measures in its public research notes. The first calculates **total borrowings as a multiple of investor assets (NAV)**: this captures 'balance sheet' borrowing and some forms of synthetic leverage but possibly not all. The second measures hedge funds' **gross exposures as a percent of NAV**. Gross exposures are calculated as the sum of the absolute value of long and short positions. This second method captures more forms of synthetic leverage but does not take into account all netting arrangements that may serve to reduce market exposures. The two methods result in slightly different estimates of leverage in total; respectively 270% and 400% as at the end of March 2011 (Exhibit 3-3). However, both methods generally show a similar pattern by strategy and a similar trend over time.[47] For hedge funds in the HFS the most leveraged credit

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45 An alternative method to estimate the extent that hedge funds are engaged in credit intermediation could be to examine their individual portfolios and to aggregate all credit exposures across all funds (whether the funds themselves are predominantly trading credit instruments or not). This approach is more complicated as it requires a consistent valuation methodology for all instrument types and some assumptions regarding how exposures for derivatives (in particular options) are measured.

46 Measuring 'synthetic' or 'embedded' leverage that is derived through the use of derivatives can be difficult given the complex nature of derivatives.

47 Leverage based on borrowings is calculated as (borrowing + NAV) / NAV. Gross exposure is measured as the sum of long market value (LMV) and short market value (SMV). The measure of gross exposure reported does not include interest rate, FX and commodity derivatives. A figure of 100% means no leverage has been used and a figure of 200% means leverage is 1x NAV.

strategy is “fixed income arbitrage”, while distressd credit and event driven strategies employ little or no leverage in aggregate.

Other risk factors to monitor at stage 2 include “maturity/liquidity transformation”, “imperfect credit risk transfer” and “regulatory arbitrage”. As an example, the FSA collects some information on **the profile of portfolio liquidity in secondary markets and the liquidity profile of investor and financing liabilities** Information on liquidity is based on a self assessment by managers, reflecting their recent experience over the past 90 days preceding the survey reporting date. Hedge funds surveyed by the FSA continue to report a high level of portfolio liquidity relative to financing terms and investor liabilities (Exhibit 3-4). For example, surveyed hedge funds report that approximately 60% of their aggregate portfolios can be liquidated in less than five days, in contrast to 10% or less of investor or financing liabilities falling due over the same period.[48] Portfolio liquidity in secondary markets is reported to be around 8 days on average (in asset weighted terms), while the average liquidity for all liabilities combined is around 21 days. As these liquidity measures reflect managers current experiences, they may not be applicable during crisis periods. Furthermore, the assessment of the term of any financing (borrowings) does not take into consideration break-clauses and other methods that finance providers could use to change their terms. Understanding and measuring the liquidity of assets and liabilities remains a challenging area.

Step 3: Detailed assessment of systemic risk or regulatory arbitrage concerns

After assessing the key systemic risk factors, the proposed monitoring framework suggests detailed assessment to be conducted to clarify the potential impact that the severe distress or failure of certain shadow banking entities/activities would pose to the system. Consistent with this the FSA examines the individual and collective “footprint” of hedge funds within markets as well as their interconnectedness with the regular banking system. For example, banks’ **potential exposures to 20 largest hedge funds** collected through HFACS suggest their average potential exposures are on average less than $50 million (Exhibit 3-5). Other aspects relating to counterparty exposures between banks and hedge funds, such as **margin requirements** and **excess collateral (collateral as a % of base margin)**, generally indicate that FSA surveyed banks have tightened their counterparty relationships relative to pre-crisis conditions.

48 Portfolio liquidity is based on average 90 day daily trading volumes and on the basis of trading a maximum of 25% of the average 90 day daily trading volume in a single day. For less liquid positions best estimates are used for liquidity based on market conditions over the six months to the survey date and assuming no fire-sale discounting.

Exhibit 3-2: Source of hedge fund borrowings

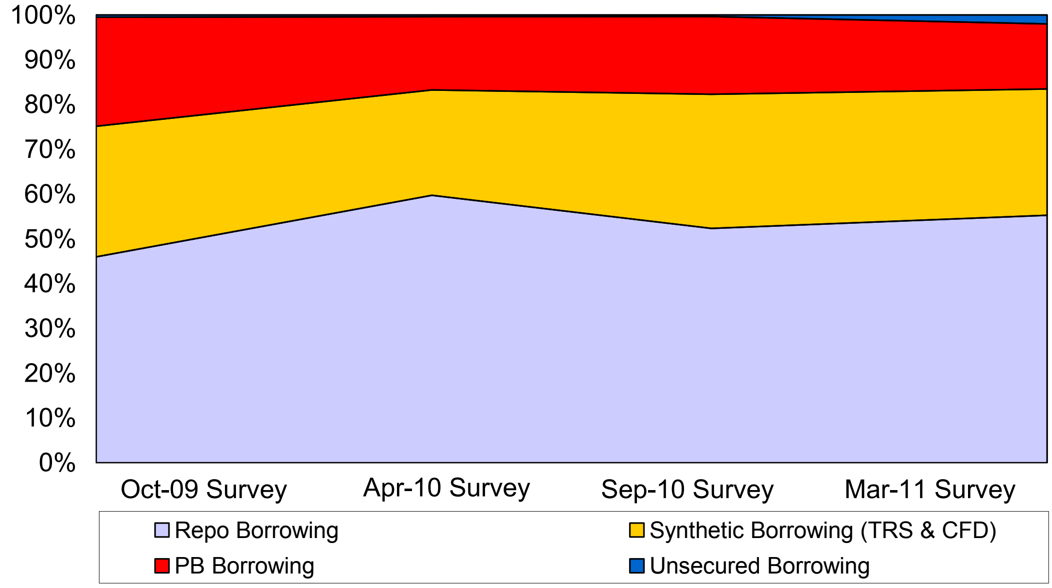
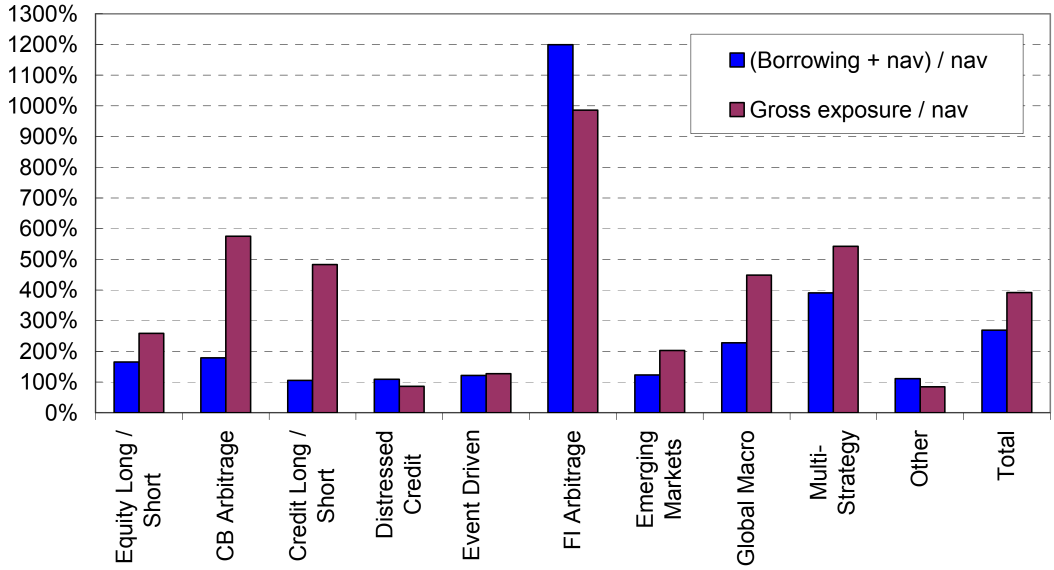


Exhibit 3-3: Aggregate fund leverage (selected strategy) in March 2011



Source: Financial Services Authority (2011) *Assessing the possible sources of systemic risk from hedge funds*, July

Exhibit 3-4: Cumulative liquidity profile of assets and liabilities in March 2011 (Asset and liabilities mismatch)

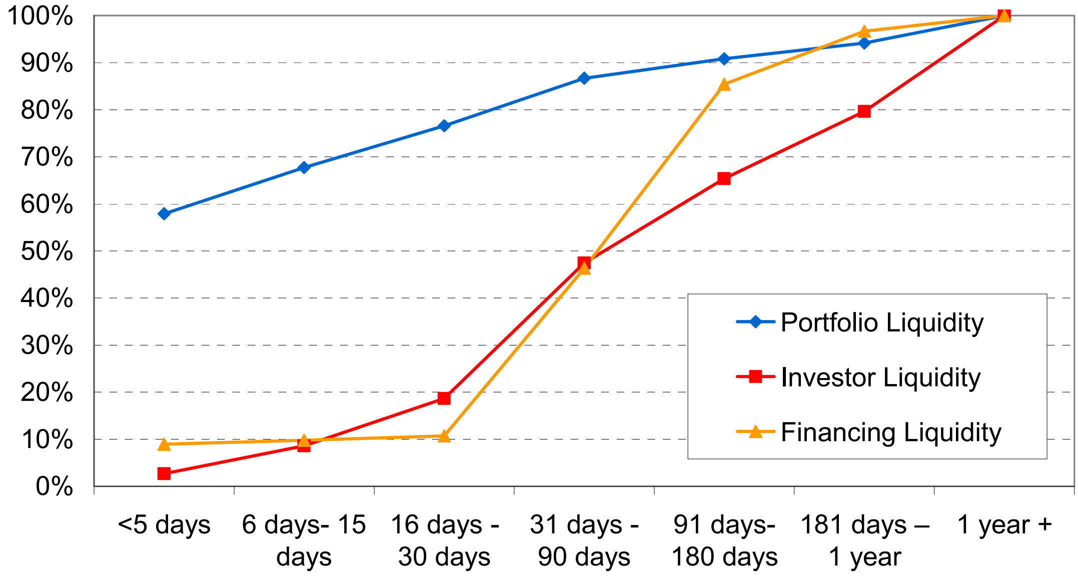
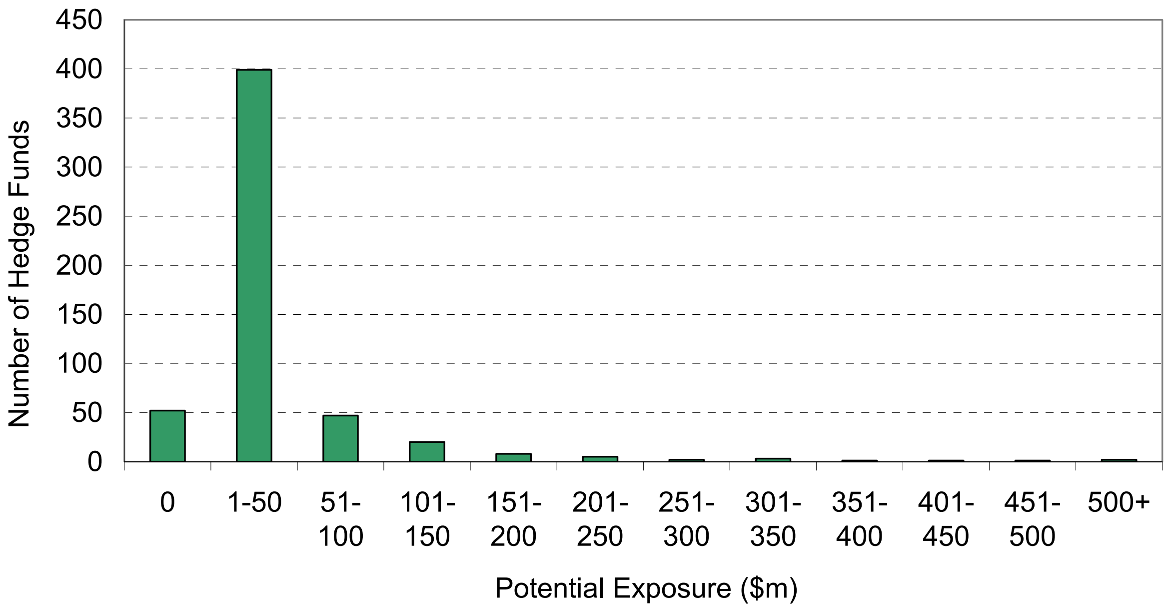


Exhibit 3-5: Potential exposure of banks to hedge funds in April 2011



Source: Financial Services Authority (2011) *Assessing the possible sources of systemic risk from hedge funds*, July