The shadow banking system: economic characteristics and regulatory issues

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Introduction

The shadow banking system, which the Financial Stability Board (FSB) has defined as credit intermediation involving activities and entities outside the regular banking system, was at the heart of the financial crisis of 2007/08. Indeed, flawed securitization and the ensuing collapse of shadow banking entities such as Special Investment Vehicles (SIVs), Asset-backed Commercial Paper Conduits (ABCP conduits) and also some Money Market Funds (MMFs) generated risk that spread through the whole financial system.

Banks were seriously affected not only by the overall market dislocation but also by their direct exposure to the shadow banking system. For instance, banks invested in securitized products and provided support to many entities of the shadow banking system in the form of liquidity or credit guarantees. One of the main lessons was that, although the idea behind practices such as securitization was to transfer credit risk off the banks’ balance sheet, ultimately the banks remained interlinked and exposed, and took most of the losses. Arguably, systemic risk was underpriced and allowed banks to engage in regulatory arbitrage by using the shadow banking system, to a large extent through the creation of off-balance sheet vehicles and exposures. The Belgian banks Fortis, KBC and Dexia were no exception, and incurred heavy losses on exposures to the shadow banking system.

The markets reacted quickly in the wake of the crisis and the flawed market segments (such as securitization involving subprime loans) were shut down. Many entities of the shadow banking system, such as SIVs and ABCP conduits, vanished or were consolidated on the banks’ balance sheets. Some regulatory reforms were developed to improve the reflection of the risk associated with the banks’ exposure to shadow banking system activities. Specifically, banks now face higher capital charges for securitization exposures, and also for exposures due to support for off-balance-sheet entities.

The crisis revealed the need for broad regulatory reform at the micro-prudential and macro-prudential level. Due to the need to stabilize the banking system, regulatory efforts concentrated first on a new regulatory framework for banks. This framework has been set up and has already been implemented, or soon will be. Regulators have now turned their attention to the shadow banking systems and are currently developing proposals for improving the supervision and regulation of the shadow banking system. This is warranted, as the shadow banking system still plays an important role. According to some estimates, the size of the European shadow banking system amounted to 9.5 trillion EUR by end of 2010, which is equivalent to 30% of the total liabilities of European banks (Bouveret, 2011). (1)

Section 1 of this article provides an economic definition of the shadow banking system; Section 2 reviews some of its main manifestations and provides a Belgian perspective. Section 3 discusses the risks and benefits of the shadow banking system. Section 4 reviews the current regulatory efforts at the global level. Lastly, Section 5 concludes.

(1) See also Boglio et al (2011) for similar estimates of the size of the shadow banking system of the Euro area. Note, however, that these are somewhat rough estimates because the available data sources are not exhaustive and do not permit a clear delineation of the shadow banking system.
1. An economic definition of the shadow banking system

What is the main economic role of the shadow banking system and how can it be defined? The term “shadow banking system” highlights broadly its three main characteristics: 1) it performs similar functions as banks, namely credit intermediation; 2) it is a system that involves several actors who interact with each other and who are often market-based; 3) it is in the “shadow” of banks – i.e. it is subject to less regulation and monitoring than “regular” banks. (1) Echoing these properties, the FSB (2011) has broadly defined the shadow banking system as “the system of credit intermediation that involves entities and activities outside the regular banking system”. Note that this definition refers not just to entities but also to activities, which in turn involve multiple actors, possibly including banks.

The two charts below contrast the traditional and the shadow banking system in a highly stylized way which helps in summarizing the main difference between the traditional and the shadow banking system and also in outlining the main characteristics of the shadow banking system. A more detailed description of these characteristics follows in the next sections and throughout the article.

Figure 1 depicts the case of traditional bank intermediation. Figure 2 shows a stylized shadow banking system comprising different credit intermediation chains (the arrows indicate the flow of funding; the credit intermediation functions are in the other direction). Some of the credit intermediation chains involve only non-bank institutions (the chain involving securitization (SPVs), SIVs, MMFs), others involve banks (for instance banks investing in securitized products and refinancing them through repos). This shows that the extent to which credit intermediation is performed in an integrated way or in a “dis-intermediated” way involving several actors may vary. As will be discussed further in the following section, the shadow banking system and the banking system are not separated but most of the times heavily intertwined and interlinked. That is, the process of credit intermediation in practice often involves bank as well as non-bank institutions.

In the following, the three main characteristics of the shadow banking system as mentioned above will be explained in more detail: 1) credit intermediation; 2) systemic and market-based nature; 3) light regulatory framework.

Credit intermediation

Traditional credit intermediation denotes the transformation of liquid short-term savings or deposits into illiquid loans. A traditional bank typically performs credit intermediation in an integrated way; that is, the bank issues demandable deposits for savers and grants loans

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(1) The term “shadow banking system” is not meant to be pejorative. It was coined by Paul McCully in 2007 and has been used since by the supervisory sphere (other terms are the “parallel banking system” or “market-based financing”).

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**FIGURE 1** TRADITIONAL BANK CREDIT INTERMEDIATION

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**Note:** The diagram illustrates traditional bank credit intermediation. It shows how a bank collects short-term deposits from demandable depositors, uses this capital to make long-term loans to borrowers, and operates under prudential regulation and public support. The diagram also highlights the role of liquidity facilities and deposit insurance in supporting the bank's operations. The overall system is subject to regulatory coverage and prudential regulation to ensure stability and safety.

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**Legend:**
- **Bank:** Central entity collecting deposits and issuing loans.
- **Long term borrowers:** Firms or households.
- **Long term deposits:** Funds collected for long-term lending.
- **Demandable deposits:** Short-term funds available on demand.
- **Depositors:** Individuals or entities providing short-term funds.
- **Credit intermediation:** Process of transforming short-term funds into long-term loans.
- **Public support:** External support for the bank.
- **Regulatory coverage:** Supervisory oversight to ensure stability.
- **Prudential regulation:** Internal controls to prevent risks.

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**Source:** NBB Financial Stability Review
to borrowers, thereby creating liquidity and sustaining a maturity mismatch (“qualitative asset transformation”, Noeth et al, 2011). However, the credit intermediation process may also be “sliced” or “stripped” and performed by different entities. According to Pozsar et al (2010), credit intermediation can be decomposed into the following three functions (and in the following order):

- **Credit transformation** refers to the issuance of instruments and application of techniques that reallocate credit risk. Examples include the issuance of tranches of securities with a prioritization of claims (senior, mezzanine, equity) against a portfolio of loans (securitization). Credit guarantees, credit default swaps (CDS) and credit insurance are other examples of credit risk transformation.

- **Maturity transformation** denotes the funding of long-term assets with short-term liabilities by an intermediary. The intermediary (bank, vehicle, conduit) is exposed to risks related to the debt refinancing, namely rollover risks and duration risks. Rollover risk is the risk of not being able to renew funding; duration risk refers to interest fluctuations that have an adverse impact on the difference between the return from the long term assets and the costs of short term funding.

- **Liquidity transformation** corresponds to the funding of illiquid assets by liquid liabilities. Liquid liabilities can be demandable deposits or rated securities that trade in liquid markets. For instance, a pool of illiquid loans typically trades at a lower price than a rated security issued against the same pool. Demandable deposits are also highly liquid – MMFs thus also perform some liquidity transformation even though they invest in assets that are highly liquid except during severe crises (such as commercial paper and sovereign bonds).

In a shadow banking system, at least one of these functions is performed by a non-bank entity.\(^1\) The degree of fragmentation or dis-intermediation of the credit intermediation may differ between the two extreme cases of possible credit intermediation configurations: the case of “qualitative asset transformation” performed by a traditional bank and the case where credit intermediation is performed solely by non-bank institutions each specializing in one of the different functions. Often, though, credit intermediation involves both banks and non-bank institutions where the latter perform only some of the functions related to credit intermediation as shown in Figure 2.

**Systemic and market-based nature**

The shadow banking system in practice is mainly characterized by the involvement of several entities. Many of these entities are non-banks, have a market-based nature and perform several activities of the credit intermediation process (“dis-intermediation” of credit intermediation).

\(^1\) Note that credit rating agencies (CRAs) also played an important role through their ratings of securitized products. The focus here is on financing flows, hence CRAs are not considered explicitly in this article.
Owing to the dis-intermediated nature, there is an additional layer of frictions and asymmetric information problems in comparison with the traditional banking system. For instance, the underwriting standard of mortgage loans that were subsequently securitized and sold to other parties has in some cases been lower (e.g. subprime mortgage loans) than the standard applied to loans that were kept on the balance sheet of banks. Market discipline may in theory limit the adverse consequences of such problems, but in practice market discipline has not proven to be sufficient to alleviate the asymmetric information problems.

The market-based nature of many entities involved in the shadow banking system implies a higher exposure to market price fluctuations. For instance, such an exposure may be due to balance sheet adjustments using mark-to-market techniques. The market-based nature makes credit intermediation through the shadow banking system more volatile than traditional credit intermediation through banks (Adrian et al, 2009). Note that shadow banking system activities may involve banks which, in turn, are also exposed to market fluctuations. In fact, the exposure of banks to market fluctuations (such as by repos) is indeed a hallmark of the shadow banking system (Turner, 2012).

In general, the shadow banking system tends to increase the degree of interconnectedness of the financial system and can establish linkages between different segments of the financial system (such as between banks and pension funds, for instance – see the next section for a discussion of some activities that create such linkages). Such linkages may give rise to contagion channels in crisis times.

Light regulatory framework

Over the course of history, an institutional and regulatory arrangement has emerged to safeguard banks and to prevent bank runs. This arrangement grants privileges to banks in the form of a safety net that comprises deposit insurance and central bank liquidity facilities, but also imposes obligations in return in the form of prudent regulation. The safety net implies that bank credit intermediation is “publicly enhanced” through public support. (1) This arrangement has generally proved effective in preventing bank runs and protecting depositors. (2) Such public support does not apply to the shadow banking system or at least only in an indirect way:

– In terms of the privileges (deposit insurance and liquidity facilities), non-bank entities lack public support and may only benefit from incomplete private support. Specifically, the operations of non-bank entities may benefit from credit guarantees or liquidity lines typically granted by banks or other financial institutions, though they are often limited in terms of scope and reliability (a bank may unable to honour its obligations). Hence, such “private enhancement”, if available, is much less powerful in providing a backstop. Shadow banking credit intermediation thus includes all credit intermediation which lacks direct official enhancement (Pozsar et al, 2010);
– In terms of the obligations (regulation), many non-bank entities are not subject to prudential regulation but only to lighter regulation such as market regulation.

It should nevertheless be noted that during the financial crisis of 2007/08, many non-banks in the US received emergency public support in the form of liquidity facilities and credit guarantees that normally only banks would receive. (3)

2. A review of relevant entities and activities of the shadow banking system

This section describes the main segments of the shadow banking system. Some of them played a major role before the crisis but are now largely dormant; others continue to be active segments. The article follows broadly in this section the FSB’s grouping of the most relevant activities and entities.

One of the objectives of this section is to illustrate the manifold but interrelated manifestations of the shadow banking system. Most often, the shadow banking system comprises activities that involve a chain of different entities (banks and non-banks). Only in some cases, single entities such as MMFs exhibit significant shadow banking features on their own. This requires a systemic perspective to assess credit intermediation chains and also implies that a clear delineation of the shadow banking system is not straightforward. Certain activities, such as the securitization and repo activities comprise a large number of markets, actors and are ultimately a full-fledged banking system. However, many of the segments on their own are also fulfilling various other functions and are only

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(1) See the article “The notion of support in bank ratings” in this FSR for an analysis of how public support may lead to an uplift of banks’ standalone ratings (van Roy et al, 2012).

(2) Instants of bank runs both in Europe and the US are extremely rare after deposit insurance has been introduced. Moreover, in the case where a bank run occurred, depositors have always been compensated by the deposit insurance.

(3) Examples of such public measures that are normally “reserved to banks” (in an emergency situation) include the Asset Backed Commercial Paper Money Market Mutual Fund Liquidity Facility; the Term Securities Lending Facility provided collateral substitution for dealers ($235bn); as well as guarantees extended by the FDIC to uninsured transaction account deposits; and guarantees to the money market fund industry.
contributing to credit intermediation outside the regular banking system in a remote way.

A second objective is that, most of the time, banks remain embedded in the shadow banking system. In the past, banks were closely linked to the shadow banking system in various functions (e.g., as investors and provider of support) and incurred a large part of the losses. Banks are also involved as counterparties in activities that remain important segments such as repo and securities lending.

Shadow banking activities

SECURITIZATION

Definition

Securitization involves the pooling assets and the subsequent sale to investors of the tranching claims on the cash flows backed by these pools. Securitization is a tool for credit risk transfer and allows thereby the originator of a loan to remove the credit risk from its balance sheet and to shift it to other entities. In order to securitize loans, sponsors and originators of loans typically set up Special Purpose Vehicles (SPVs) as independent legal entities that issue the tranching securities. Such SPVs also issue Collateralized Debt Obligations (CDOs), which is a type of security product with multiple tranches. Closely linked to the securitization activity are also entities such as SIVs and ABCP conduits that invest in the tranches and fund themselves short term.

Securitization was one of the main shadow banking system activities before the crisis. Especially in the US, securitization played an important role as part of the originate-to-distribute business model (in Europe, securitization was often part of an originate-to-hold business strategy). In this regard, securitization also “greased” other shadow banking activities (such as repo funding) by providing large amounts of presumable low-risk assets as collateral. Similarly, securitization activity was driven by demand from institutional demand for low risk assets.

Credit intermediation functions

Securitization comprises mainly credit transformation: special purpose vehicles allow for the issuance of “tranching” securities (senior/AAA, mezzanine, equity) against pools of mortgages (“asset-backed securities”, ABS). Maturity transformation was obtained by the use of conduits and SIVs that invested in the ABS but were funded with short-term debt (due to their close linkages to securitization, these entities are discussed here as part of the securitization activity).

Involvement of traditional banks

The securitisation model was built on the idea of transferring credit risk from the balance sheet of banks to the shadow banking system. However, banks remained heavily involved as provider of liquidity and credit lines to the SIVs and ABCP conduits involved in the securitization chain and as investors of securitized products. As investors, banks also refinanced these products by using them as collateral in repo transactions (see Figure 2).

Repos and securities lending

Repurchase agreements (repo) and securities lending are transactions by which financial institutions obtain funding against collateral (secured lending). From an economic perspective, they are quite similar; they differ, however, in terms of accounting and tax treatment.

REPOS

Definition

Repos are used by a wide range of financial institutions, including banks and non-bank financial institutions for funding purposes or to invest cash (in a reverse repo as the mirror case). A repo transaction is characterized by a set of parameters, such as the principal amount, the type of collateral, the interest rate, the haircut applied to the collateral and the maturity. The counterparties thus agree on the exchange of cash (or highly liquid assets) and collateral with the promise to unwind the trade at the specified date. The interest rate reflects the economic value of the funding to the borrower. The haircut denotes the discount that is applied to the value of the collateral and ensures that there is sufficient “overcollateralization” such that the borrower is protected against losses in case of borrower default and the need to sell the collateral.

Credit intermediation functions

Repo can be considered as shadow banking activities if they give rise to maturity and liquidity transformation and if they involve non-bank institutions. Repos perform maturity transformation if the funding obtained by repo
is invested with a longer maturity than the repo maturity or when the collateral is of longer maturity than the repo maturity. They perform liquidity transformation because they allow institution to obtain funding for illiquid assets in liquid short term markets.

Involvement of traditional banks

Banks are active players in various roles in repo markets. They incur counterparty risk if they provide funding and incur rollover risk if they fund themselves by running a maturity mismatch. Through the repo markets, banks interact with non-bank entities on both the borrowing and lending side of a repo. Before the crisis, banks as well as other market participants used securitized products as collateral for repos. In this way, they could finance their holdings of securitized products by short term funding in repo markets (currently, mainly sovereign bonds and other high quality assets are accepted as collateral in repo markets).

SECURITIES LENDING

Definition

In the securities lending market, owners of large asset pools such as pension funds, insurance companies and investment funds lend their securities to borrowers in need of specific securities, who in turn provide collateral. The borrowers are mainly proprietary traders and prime brokers who borrow on behalf of their hedge fund clients who need specific securities for short selling, market making and also the facilitation of trade settlements.

Securities lending is often a demand-driven business where borrowers are willing to pay a fee to get access to specific securities to cover short positions or for use as collateral in repo transactions. Some suppliers of assets, however, drive lending transactions in order to obtain cash collateral and to reinvest such cash collateral at a higher risk and return.

Credit intermediation functions

Because securities are often lent without a fixed maturity date whereby either party can terminate a transaction at any time, the reinvestment of cash may give rise to a maturity mismatch if it is invested in asset of longer maturity. Specifically, the cash may be invested in money market funds, which in turn invest in longer term assets including repos or bank funding instruments (certificates of deposits, etc...) or used to finance repos (accepting securitized products as collateral). In the past, cash has also been directly invested in securitized products (e.g. AIG). Such activities are an example of active sourcing of cash to finance leveraged investments rather than a passive reinvestment at minimum risk.

In the US markets, securities lending transactions are typically collateralized by cash, and the risks related to securities lending are present. Arguably, this phenomenon may play a lesser role in European markets where non-cash collateral is typically used. However, European institutions may also receive cash when they lend out US securities.

Involvement of traditional banks

Liquidity swaps are a recent example of banks engaging in securities lending. A liquidity swap is a transaction where a bank borrows highly liquid assets such as government bonds and provides less liquid assets (such as securitized products) as collateral. The bank can in turn use the highly liquid assets to obtain cash in repo markets or to satisfy liquidity regulation.

Shadow banking entities

Which are the main shadow banking entities? A distinction must be made between entities that exhibit the typical shadow banking functions and entities that are part of shadow banking activities but by themselves are mainly performing functions which are not related to credit intermediation. In this respect, the FSB has for the moment singled out MMFs as shadow banking entities. Whether hedge funds should be considered as shadow banking entities is still subject to discussion – other entities are being considered as candidates or are already being considered as part of shadow banking activities.

MONEY MARKET FUNDS

MMFs are investment funds that offer returns in line with money market rates and provide daily liquidity to investors. MMFs invest in a mix of short- and long-term assets, including commercial paper, certificates of deposits and repo transactions with banks, but also corporate and sovereign debt, and are hence also an important (short-term) funding source for banks.

MMFs were invented in the early 1970s in the US to circumvent caps on deposit rates by banks. They were introduced a decade later in Europe (France) for similar
reasons (Bengtsson, 2011). They invest mainly in safe or highly rated asset and promise a return that reflects short-term interest rates. They have grown considerably, and before the crisis they had become an important part of the financial system, accounting for 3 trillion EUR of assets under management in the US and 1.5 trillion EUR in Europe. Currently, assets under management of MMFs in Europe amount to 1.1 trillion (mid 2011), with three countries (France, Ireland and Luxembourg) representing an aggregate market share of over 90%.

**Credit intermediation functions**

MMFs perform some degree of maturity and liquidity transformation due to the issuance of demandable deposits and the investment in short and medium term assets. Some types of MMFs promise to repay investors at least what they have invested — this feature combined with maturity mismatch gives rise to run risk (if the fund’s value falls below par, e.g. through investor redemptions and the sale of assets in illiquid markets, the fund is basically broken; in anticipation, the investors will run and redeem once a fund's asset value comes close to par). MMFs are a good example of shadow banking entities that are similar to banks in their structure, but are not covered by the institutional and regulatory arrangement, i.e. they lack the safety net of deposit insurance and access to central bank refinancing.

**HEDGE FUNDS**

There is a debate as to whether hedge funds are part of the shadow banking system or not. At the outset, it can be said that they should not be included per se as entities, since they do not necessarily deal with credit or run a maturity mismatch. However, they may be part of a chain of activities that constitutes a shadow banking system. This shows the difficulty of delineating the shadow banking system. Many non-bank institutions may not be considered as entities forming part of the shadow banking system, but only as individual actors in the chain of several institutions representing a shadow banking activity.

**Credit intermediation functions**

Hedge funds can perform credit intermediation functions and be part of a shadow banking system in two different ways: a) credit hedge funds as shadow banking entities; and b) hedging as part of a shadow banking system activity.

**Credit hedge funds.** Credit hedge funds use investment strategies related to credit products, such as capital structure arbitrage, structured credit (correlation) or long short-credit. They also finance themselves with repos. In the run-up to the financial crisis of 2007/08, those hedge funds played an important role as investors in the securitization markets (such as Bear Stearns’ hedge funds that invested heavily in subprime and funded themselves through repos). Hence, they were part of the securitization chain and ran a maturity mismatch through the repo financing. Also, hedge funds performed credit transformation through the buying and selling of CDS. The credit hedge fund market segment remains an active segment. It is difficult to estimate its overall importance. According to some estimates, European credit hedge funds had 8 billion EUR in assets under management and credit hedge funds in offshore centres had 70 billion EUR in assets under management in Q1 2011 (Bouveret, 2011). Other sources estimate that the global hedge fund industry had approximately 1.5 trillion EUR under management at the end of 2011 (Hedge Fund Research); of which 470 billion EUR was managed by credit hedge funds (30% of total, see AIMA, 2012).

**Hedge funds as part of shadow banking system activity.** Hedge funds may also be linked to the shadow banking system in a more indirect way. For instance, securities lending establishes a possible link between hedge funds’ short selling activities and credit intermediation outside the regular banking system. Short selling is a major demand factor for securities lending. To the extent that hedge funds provide cash collateral for borrowing securities, a link between hedge fund shorting activities and credit intermediation within the shadow banking system is established when the security lender re-invests the cash collateral in money market funds or uses it as financing for repos. The re-hypothecation of assets that hedge funds provide to their prime brokers as collateral may also establish a link between hedge funds and the shadow banking system (re-hypothecation basically involves the re-use of assets, e.g. for repo financing).

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(1) Constant asset net value (CNAV) MMFs
(2) Several hedge fund trading strategies have a short selling component and hence are a source of demand; for example: convertible arbitrage, warrant arbitrage, risk arbitrage, options trading and long/short strategies.
Box 1 – A Belgian perspective on the shadow banking system

How relevant is shadow banking systems from a Belgian perspective? It is useful to distinguish between shadow banking entities domiciled in Belgium (that is the “Belgian shadow banking system”) and the involvement of Belgian banks in shadow banking activities.

The potential size of the Belgian shadow banking system entities

An interesting question concerns the size of the “Belgian shadow banking system”, or more precisely the size of Belgium-domiciled entities that can be considered part of the shadow banking system.

Regarding recognized shadow banking entities, there are 16 Belgian MMFs which together account for 1.8 billion EUR of assets under management (AUM) at the end of 2010 (the total AUM of European MMFs amount to 1.1 trillion EUR). The Belgian MMFs are all variable net asset value (VNAV) funds and hence do not exhibit run-prone features (constant net asset value (CNAV) funds are not allowed in Belgium). There are no credit hedge funds active in Belgium.

Regarding entities that warrant monitoring but whose shadow-banking risks are likely to be limited, Belgian real estate investment trusts (REITs) (Sicafis/Bevaks) play a significant role: the combined value of their portfolios amounted to approximately 8.8 billion EUR at the end of 2011. There are also credit insurance companies as well as finance companies (i.e. mortgage companies) active in Belgium.

Belgian banks’ exposure to the (global) shadow banking system

In the financial crisis of 2007/08, a substantial part of the losses that Belgian banks incurred was directly due to exposures to the shadow banking system, most notably to securitization activities.

Fortis incurred losses of 4.8 billion EUR in 2008 on its structured credit portfolio, which contains mainly positions related to securitized products, such as ABS investment and CDOs. Fortis also owns the ABCP conduit Scaldis Capital Limited which invested in securitized products and which was before the crisis one of the largest European conduits with a portfolio amounting to a size of 27 billion EUR.

In terms of exposures to the shadow banking system, Dexia incurred losses associated with its subsidiary Financial Security Assurance (FSA). FSA provided credit insurance and also held a portfolio that included securitized products. Dexia reported total financial crisis losses of 5.9 billion EUR. Of this amount, 3.2 billion EUR were due to FSA. This loss included the loss on the sale of FSA insurance which amounted to 1.6 billion EUR and 676 million on impairments of FSA’s Financial Products segment.

KBC acted as an originator securitized products, mainly CDOs, through its KBC Financial Products subsidiary, for which it also bought credit insurance from the US monoline insurer MBIA. The bank also invested in securitized products, including its own products. In 2008 and 2009 KBC took mark-to-market adjustments on its portfolio that amounted to around 6.1 billion EUR.

The securitization activities in which these losses occurred are mainly dormant now, and the remaining assets have been consolidated on the balance sheet.
3. A discussion of risks and benefits of the shadow banking system

Before reviewing the regulatory efforts being undertaken at the international level, it is useful to recall the systemic risk to which the shadow banking system may give rise, and to discuss some demand and supply factors. The stance that policymakers should take in the monitoring and regulation of the shadow banking system should be influenced by such an appraisal.

The financial crisis has demonstrated the potential of the shadow banking system to generate systemic risk. Indeed, the system as it has developed before the crisis revealed significant flaws. The market has reacted and most of the flawed practices have vanished. Arguably the shadow banking is thus currently less risky. However, the innovative nature of the shadow banking system may lead to new developments that may pose a source of systemic risk in the future. Policymakers must thus assess whether the current regulatory framework is adequate and start a regular monitoring of the shadow banking system.

On a general level, a pertinent question is whether there are mainly benign or malign raisons d’être of the shadow banking system. With respect to malign factors, history has shown that regulatory arbitrage is an important supply factor and a constant threat; hence authorities must aim at regulating the links between banks and the shadow banking system and to prevent an implicit subsidy to the shadow banking system. Depending on the importance of benign factors, policymakers need to develop appropriate regulation of all relevant activities and entities to address systemic risk concerns. If there are mainly malign raisons d’être but shadow banking activities are not avoidable, policymakers may focus on reducing the systemic importance of the shadow banking system, and on separating the banking system from the shadow banking system by making support prohibitively expensive or by restricting the counterparties with which a bank can deal. (1)

Systemic risk

The credit intermediation which the shadow banking system performs comes with some well-known, interrelated and self-reinforcing risks. Be it performed by traditional banks or by the shadow banking system, credit intermediation may give rise to “run-risk” maturity transformation liquidity risk due to the need to sell assets in illiquid markets at fire-sale prices, and credit risk due to the default of a borrower or counterparty. The most salient materialization of these risks is the classic bank run or, in general, a sudden withdrawal of short-term funding. (2)

The systemic nature of the shadow banking system also implies that such materializations of risk involve several institutions and markets.

All these features have been observed in the financial crisis of 2007/2008. The crisis started when market realized that the securitization of loans was subject to flawed incentives and led to low lending standards (e.g. subprime loans). The SIVs and ABCP conduits and other vehicles that bought the securitized products could not rollover their funding and had to be rescued by their sponsors, mainly banks. Credit hedge funds, banks and other institutions who had invested in securitized products incurred large mark-to-market losses. Those hedge funds and banks also funded their investment in securitized products through repos, using these securitized products as collateral. When the value of securitized products, most notable those containing subprime loans, fell, repo counterparties increased the haircuts on collateral (forcing borrowers to provide more collateral) or refused to roll over funding. This contributed to the default of the borrower (such as Lehman) or forced mother institutions to provide massive support (such as Bear Stearns to its hedge funds). Securitization and repo was thus closely linked such that some observers argued that securitization and repo resembled money creation and deposits, respectively and hence resembled a full-fledged banking system on its own (Gorton, 2011).

AIG’s losses in its securities lending business (around 4 billion EUR) was an example of the risks associated with securities lending. AIG re-invested the cash collateral it had received from its securities lending business in relatively long maturity instruments, including securitized products, to maximize returns. When the value of such products fell, the market value of AIG’s investments dropped below the value of the lent securities. The security borrowers could terminate their transactions at any time, which implied that AIG was running a maturity mismatch and leverage, and led to large losses on AIG when the borrowers did terminate the transactions.

MMFs played also an important role in the securitization chain, for example by investing in ABCP backed by illiquid ABS, and were a key factor in the crisis. A European “enhanced return” MMF that had invested indirectly in (sub-prime) ABS suspended redemptions in August 2007 and triggered a money market liquidity crisis. Investors became wary of MMFs in general, and withdrew funds regardless of their investment profile. Their sponsors (often banks) had to rescue them. In 2008, the US Primary Reserve Fund

(1) Such measures would be akin to efforts to separate or restrict banking activities as in the UK (Vickers’ retail ring-fencing) and the US (Volcker rule).

(2) Diamond and Dybvig (1983) is the seminal model describing financial intermediation and the fragility of banks.
“broke the buck” after the fall of Lehman, which was a catastrophic signal for investors as MMFs were considered to be of extremely low risk. Investors started a run; the Federal Reserve had to provide the MMFs access to the central bank facility and the MMFs’ sponsors (banks) had to inject capital to keep the funds running.

Demand and supply factors of the shadow banking system

In discussing whether a “raison d’être” exists for the shadow banking system, it is important to analyse the reasons why the shadow banking system has grown so much in the past and whether these reasons are mainly benign or mainly malign. In this respect, this section discusses some demand and supply factors which contributed to the development of the shadow banking system.

Supply factors

There are mainly two supply factors: regulatory arbitrage and efficiency gains. If regulatory arbitrage was the main supply factor, the shadow banking system would be undesirable. It is generally accepted that the growth of securitization before the crisis was to a large extent driven by the under-pricing of (systemic) risk (i.e. the AAA ratings of the senior tranches did not reflect real risk), and loopholes in regulation. For instance, the risk arising from banks’ support to SPVs and conduits in the securitization process and from banks’ investment in securitized products was not adequately reflected in the capital requirements of banks. An implication is that regulatory arbitrage-based shadow banking activities ultimately backfire and impose losses on banks when risks materialize.

Some commentators argue, however, that there are some benign supply factors and that the shadow banking system as “parallel” banking comes with some efficiency gains, such as (see Pozsar, 2010):

– diversification of risk, limiting risk concentration through “real” credit risk transfer (securitization);
– term ABS market that allows for matched funding (to raise long-term, maturity-matched funding);
– realization of economies of scale from loan origination platforms; some specialized finance companies are more efficient than banks in serving certain market segments;
– market discipline through the presence of market-based third party providers.

However, as the crisis has shown, all these factors may also give rise to adverse developments. A quantification of the factors is still lacking and an ultimate judgment on the overall value of the shadow banking system is not possible. It is certain, though, that regulatory arbitrage remains a constant factor due to the process of regulatory reform and innovative response by financial institutions.

Demand factors

There is strong demand from investors for low-risk and risk-free debt. Some argue that the traditional banking system cannot supply such debt (e.g. deposits) in sufficient quantities (see Pozsar, 2011). For instance, the demand for “safe” deposits from large institutional investors with large cash pools goes beyond the amount that banks can offer through deposit insurance protected deposits. The shadow banking system enables the creation of long- and short-term low-risk secured debt (securitized products as examples of the former, money market fund instruments as examples of the latter) and thereby caters to the needs of those institutional investors. However, the question remains whether the shadow banking system is able to “produce” such low-risk debt at true prices. As argued above, the crisis has shown that the low riskiness of, for instance, securitized products and money market fund deposits did not reflect systemic risk.

4. Current regulatory efforts

Policy efforts are now underway at the global level to “strengthen the oversight and regulation of the shadow banking system”. Specifically, the Financial Stability Board is coordinating and conducting work at the request of the G 20. Since there is an overall lack of information with respect to shadow banking system activities and entities, the policy efforts do not only focus on improving regulation but also on improving the monitoring of the shadow banking system (FSB, 2011).

It is too early to evaluate the outcome, since the outcome of the efforts will be published in the second half of this year. Do the initial recommendations already provide some view on the overall stance of the FSB, though? As discussed in Section 3, the regulatory stance might reflect a view on the raisons d’être of the shadow banking system. The FSB’s recommendations with respect to regulation cover all aspects: They address the linkages between banks and the shadow banking system but also the regulation of the shadow banking system and hence remain broad. It appears thus that the FSB has not yet taken on a stance but retains all options. An assessment of the stance will only be meaningful once the precise regulatory recommendations are finalized.
The set of recommendations that the FSB has developed in both areas are presented below.

**Recommendations for monitoring**

Taking into account the difficulties in delineating the shadow banking system and in identifying sources of systemic risk, the FSB proposes a three-stage process to achieve effective monitoring. The first stage reviews all those entities and activities that perform some form of credit intermediation and that are therefore a potential source of systemic risk. The emphasis at this stage is to ensure complete coverage. The second stage aims at narrowing down the set of relevant activities and entities to those where systemic risks really matter. The last stage then allows for an in-depth risk analysis of the identified entities or activities.

It is important to achieve effective monitoring of the shadow banking systems before – and parallel to – developing regulation. For that purpose, the FSB has developed “High level principles for monitoring the shadow banking system” (see the box below).

**Recommendations for regulation**

Since a single regulatory approach is not suitable due to the differences between the various shadow banking activities and entities, the FSB has devised some general principles and has also identified some areas for further action and developed some initial recommendations.

The FSB makes some recommendations that apply to the shadow banking system activities and entities discussed above. These recommendations broadly reflect the main

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**Box 2 – The FSB’s high-level principles for monitoring the shadow banking system**

**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.

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

**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 scope of 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.

**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.

**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.

**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.

**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 spillover and contagion of risks, and obtaining a view on the interconnections at the global level, are especially important for cross-border information exchange.
concerns as identified in the previous sections and also take into account the significant linkages between banks and the shadow banking system. Specifically, the FSB recommends further enhancement of the regulation of MMFs; the regulation of repos and securities lending should be assessed carefully and further enhanced from the prudential perspective as necessary; incentives associated with securitization should be adequately addressed, e.g. by risk retention on the part of the suppliers of securitization, and more transparency and standardization. Importantly, the FSB also makes specific recommendations on the involvement of banks in the shadow banking system. In this respect, the FSB recommends adequate consolidation rules, and limits on exposure to shadow banking entities.

The complete set of recommendations is shown in the box below.

**Box 3 – The 11 FSB recommendations with respect to the regulatory measures to be examined by authorities**

The regulation of banks’ interactions with shadow banking entities (indirect regulation):

- **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.

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

- **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.

- **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”.

The regulatory reform of money market funds (MMFs).

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

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).

The regulation of securitisation.

- **Recommendation 7**: Incentives associated with securitization should be adequately addressed. In particular, the following issues warrant further attention: a) Requirements to give suppliers of securitization (e.g. originators, sponsors) an incentive to retain part of the risks associated with securitization (i.e. retention requirements); and b) Transparency and standardization of securitization products.
5. Conclusion

Global policymakers are currently concentrating efforts on strengthening the supervision and regulation of the shadow banking system. These efforts are timely – as the financial crisis of 2007/2008 showed, the global shadow banking system inflicted large losses on the whole financial system. The shadow banking system continues to play an important role; although many of the pre-crisis practices vanished from the markets, innovative practices may spur the growth of the shadow banking system in the future. It is vital that supervisors strengthen the monitoring of the shadow banking system and assess the adequacy of the existing regulations.

This article describes the shadow banking system from an economic perspective and thus provides some means of understanding its various manifestations and identifying relevant activities and entities that form part of the shadow banking system.

One message of the article is that the shadow banking system comprises mainly activities that involve several actors, and that a systemic view is therefore necessary to identify the interconnectedness to which such activities give rise, and also to identify the systemic risks which may build up over a chain of actors.

Another important message concerns the significant linkage between banks and shadow banking system activities. This is likely to persist in the future, as stricter regulation of banks may shift certain activities from banks to the shadow banking system. Policymakers need to ensure that the risks associated with such linkages are taken into account by regulation. In addition, structural reforms, such as prohibiting banks from conducting certain activities or from separating core banking activities and non-banking activities, may also create scope for new shadow banking system activities and change the type of linkages between banks and the shadow banking system.

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.

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.

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

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


Financial Stability Board (2011), Shadow Banking: Strengthening Oversight and Regulation, 27 October 2011,


