

Understanding Shadow banking from a European Perspective

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Please notice that is a very preliminary draft. Please do not quote.

Abstract

This paper offers a comprehensive and structured framework to present recent evolutions of intermediation nature with the rise of the *Shadow Banking* and its implications in a global funding system insurances and flow of funds. This contribution aims to emphasize the need of an enlarged approach to not consider Shadow Banking only as an outside-of-regulated-banking system but as a new component of a global funding one which offers an extremely high level of interconnections and interdependencies involving new stability regulatory issues. It is no longer possible to describe shadow banking as a closed unregulated and uninsured banking like system as it presents impressive levels of interconnectedness with more or less regulated and insured entities, leading to recognition of a global publicly backstopped funding system. This contribution also aims to underline Europe involvements in this system development, especially through European banks roles in several different parts of the presented framework. It concludes on a need to overtake dichotomy between an US and European Shadow Banking system in order to lead a more global analysis and delivers concerns about sustainability of the global financial system capacities.

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1. Introduction

In the aftermath of the 2007 worldwide financial crisis, the so-called *Shadow banking* system became a major subject not only for regulators studies but also for academics. *Shadow banking* denomination is a Paul McCulley legacy, and was originally aimed to describe the *whole alphabet soup of levered up non bank investment conduits, vehicles and structures*². Since 2007, the *Shadow banking System* definition widened to describe the complex web of non bank entities running credit intermediation through maturity, liquidity and credit transformation (Pozsar&al., 2009) and such a system interconnections with regulated intermediaries in a more global approach. Despite of a growing consensus on the mismatch between the *shadow* notion, commonly used to describe illegal activities, and the *Shadow banking System* reality³, this denomination is still used nowadays. Understanding of such a complex and wide interconnected framework of financial intermediaries evolved in time, starting from a basic idea of an unregulated and unsecured banking-like system and evolving in a more mature and complex framework through a global funding system approach. Since 2009, there is an abundant literature which provides various descriptions: Shadow system size assessments (Pozsar&al, 2009⁴; Bouveret, 2011; ECB, 2012), frameworks (Adrian & Shin, 2010; Pilkington, 2008; Gennaioli&al. 2011), logical explanations for run-like and insurance problems during the subprime crisis (Gorton, 2009a, 2009b; Gorton & Metrick 2010; Copeland&al 2011; Mehrling &al 2012) , regulation objectives (Adrian & Shin, 2009; Gorton & Metrick, 2010; Ricks, 2012; Schwarcz, 2012; FSB, 2012)⁵. Every single contribution on this stunning intermediation evolution in funding markets helped to build a common understanding of what happened in the global funding system, giving various explanations for why and how financial innovations led to such a new deal.

Ongoing literature on Shadow Banking is mainly focused on US, as key innovations, which allowed *Shadow* Banking development, come from. But in such an interconnected worldwide financial system, it is also legitimate to look out of US to understand how an American house market specific sector default spread in the whole world and launched an unprecedented world financial, banking and sovereign crisis. This study aims to offer a comprehensive and understandable framework of funding system evolutions exposing interconnections, various

² First use of the *Shadow Banking System* label was done by Paul McCulley in 2007 at PIMCO Global Central Bank focus.

³ It's important to underline such a mismatch, because even if it's not described in this contribution, as literal *shadow* banking does exist in China, where credit activity out of regulated public banks is illegal.

⁴ Revised in 2012.

⁵ For a complete review of litterature, see Adrian & Ashcraft, 2012

insurances levels and flow of funds between ultimate borrowers, ultimate creditors and the new global funding system including the so-called *Shadow banking system*. This paper also considers European involvements in this system through a special focus on European Banks.

2. On the way between traditional intermediation and the *Shadow banking System*

2.1 Context

It is a long established fact that banks and banking activity are master pieces of the whole financing system, especially for their ability to run credit intermediation activity without suffering from any kind of asymmetric information or moral hazard issue (Leland & Pyle, 1977). Banking activity is considered as a global social improvement to conduct funding activity, but leads to a risk concentration, as a traditional bank provides a three way transformation of maturity, liquidity and credit by collecting and converting deposits in credits from and for households. Each step of this three way transformation implies different risks. First, by collecting short term deposits in order to fund long term credit projects, the bank is running a maturity transformation, leading to a maturity mismatch between assets and liabilities, exposing the bank to difficulties in liabilities management with interest rate, rollover and duration risks. Moreover, by conducting liquidity transformation by using liquid liabilities (mostly instantly withdrawable deposits) to fund illiquid assets (loans), a bank is exposed to liquidity risk. This specific risk arises when a bank need to quickly sell illiquid assets to face a funding gap : such mass exits at fire-sales prices will lead to a growing gap between assets and liabilities values, leading to bank insolvency. Nowadays, this particular risk is a central subject of worries, which best illustration was the global liquidity dry up in 2007-2008 (Gorton, 2009). Last but not least, a bank provides a credit transformation when servicing credits, which means a quality enhancement on lenders' side with prior claims for every single depositor on bank's assets and a quality transformation on borrowers' side by providing specifics funding in order to fit borrowers expectations. The combination of these three transformations leads banks to collect homogeneous, liquid & short term deposits considered as senior claims to provide heterogeneous, long term & illiquid credits.

2.2 A pool-of-lenders framework for traditional banking activity

Actually, we can present such a funding activity as specially focused on credit market completeness, which means a focus on the borrower side of the lender-borrower relationship. On the one hand, by collecting funding, a bank can, through an "over the counter" relation

with borrowers, provide very specific amount of credits with particular conditions indexed on a multi-criteria analysis of borrowers. On the other hand, funding collection by banks is led with a high homogeneity level among lenders, especially depositors. Several reasons can explain such a difference between assets and liabilities sides, like legal obligations involving limited deposits rates, deposits insurance or the need of harmonized rules on withdrawable deposits. Moreover, by conducting payment facilities between every single economic entity, a bank offers a relative attractive deposit opportunity. We can formalize such a credit side focus of traditional banking activity in a simple framework consistent with previous studies in Figure 1, presented below (Pozsar & Singh, 2011; Pozsar & al., 2012; Gorton 2010, 2011; Mehrling & al. 2012).

Figure 1: Traditional Bank as pool of funding capacity with "super lender" role

[Insert Figure 1]

This framework offers a helpful base to present traditional banks' interconnections in the funding process, and to support the definition of traditional banking activity as a pool of homogeneous lenders servicing heterogeneous credits. First of all, it appears that this activity is mainly conducted by collecting deposits and providing credits from and for households. Deposits offer a relative attractiveness essentially driven by their public insurance backstop, as deposits yields are traditionally low and statutorily limited. Indeed, deposits enjoyed different kind of insurance with more or less direct and formal public backstop. As banks offers a funding activity improvement, it explains incentives to prevent them to experiment bankruptcy, or any problem involving bankruptcy possibility : that is why insurances are admitted since decades as a requirement to protect banks' solvency and depositors' wealth especially through lender of last resort (Bagehot, 1873) and deposits insurance (Diamond and Dybvig, 1983), supported by recapitalization from governments and liquidity facilities through central banks balance sheets (Liquidity dealer of last resort⁶). We insist here on the public nature of these three kind of backstop, by assuming that, despite of the private nature of deposit insurance entities, this kind of insurance will be publicly backed in the end⁷ if a major default event would occurred. These insurances are mainly free banking era and historic banking crisis common legacy⁸, and are designed to improve banks' resilience to insolvency and illiquidity. This whole traditional funding system is widely watched,

⁶ Mehrling, 2012.

⁷ For example, in the recent crisis, the FED announced official support for FDIC in case of need.

⁸ US free banking period 1838-1863

controlled and regulated, with a special influence of Basel committee recommendations on regulators decisions. Insurance do have a cost for banks, as we can observe a wide and structured prudential regulation framework designed not only for banks (Basel III) but also for others financial intermediaries such as insurance companies (Solvency II directives).

Traditional banking system is a widely regulated and insured system providing both safeness and homogeneity for depositors, as yield, insurance and liquidity are identical for every single depositor, but it is also providing heterogeneous other-the-counter credits opportunities for borrowers with high level of customization on amount, cost, maturities and so on. Banking activity is focused on **credit market completeness**, as it is focused on demand side of credit, by offering already gathered large lending capacities to match credit expectations. We assume that credit market completion is to maintain a wide offer in it, helping every single borrower to find a credit opportunity which fits its characteristics. This framework was widely developed since decades, reinforcing the *too big to fail* idea widely accepted on banks by a *too insured to fail* improvement.

This idyllic description have to be contrasted: it is obvious, by looking on Figure 1, that banks are only designed to partially attract household savings, meaning that a significant part of it can't be converted in credit through banking mechanism. It could be explained by the traditional split between intermediated and direct finance as showed in Figure 2.

Figure 2: Long and short term saving split in funding system

[Insert Figure 2]

Traditionally, assets managers, including variety of funds (hedge funds, sovereign funds, MMMF...) mainly buy more or less safe long term assets, with a major long term funding, the so-called fund shares. Such entities can't pretend to enjoy full explicit backup from public sector, and have to deal with withdraw and return expectations from "shares holders". This statement imply to find a way to attract investors not interested by deposits characteristics, and it leads funds to perform risk limited investment such as high quality sovereign and corporate debt, in order to provide both return and relative safeness. Funds shares attractiveness stems from deposits' limits: limited return and capped insurance (see Table 1).

Table 1: Deposits insurance variety

[Insert Table 1]

Nowadays, deposit insurance generally cover at least 100 k € and even more, depending on local insurance rules and backstop, but it was significantly lower before the global financial crisis, especially in Europe. Deposits insurance is designed to prevent banks run and banks insolvency, but it is not designed to protect all deposits. Such runs are mainly performed by households during confidence crisis in banking sector, and insurance have to protect major part of run-sensible depositors from losses to prevent them to occur. It appears that pre-crisis level were sufficient to prevent banks run, implying that depositors holding amounts exceeding these limits couldn't consider traditional deposits as a full insured option. This incapacity of insured and yield limited deposits to attract larger depositors was emphasized by several studies since 2009⁹ (Gorton, 2009; Gorton and Metrick, 2011) and underlined a large incitation to not hold amount of deposits exceeding insurance limit for large savers and investors.

In this framework, assets managers are the closest substitute for savers to invest long term saving in more or less risky activities with significantly higher return than deposits, providing a massive pool of funding capacity typically invested in developed countries high quality sovereign debts, with a high attractiveness for US and European debt. Such investments are driven by a need for safeness in funding activity development, as emphasized relatively stable "Safe assets share" in recent studies (Gorton & al., 2012), supporting a regular expansion of high quality sovereign debt¹⁰.

Since 1990's, this riskless appetite was one of several explanations for sovereign debt expansion, more specifically in Europe and US, by offering, with relatively riskless investment strategies, an increasing demand for sovereign bonds. Thus, this funding system framework approach underlines banks limited capacity to collect anything but deposits from households to lead the three way transformation credit activity. Long term savings were "confiscated" by various assets managers in order to mainly fund corporate and sovereign debt, preventing banks to use long term saving to conduct long term credits activity for households. But major financial innovations emergence and development contribute to find a "new" way to provide credits for and from households, through the *whole alphabet soup of*

⁹ Gorton and Metrick constructed a Shadow Banking framework based on a "free banking era like system" out of the regulated and insured banking system which suffered from "banks" run on REPO, depicted as Shadow deposits.

¹⁰ Rise of Sovereign debt is documented in section 2.2

*levered up non bank investment conduits, vehicles and structures*¹¹ , the so-called *Shadow banking System*.

2.3 A rated, securitized, and insured pool-of-borrowers framework

Since the second half of the 20th century, two major financial innovation development leads to consider a new way to fund households credits. Securitization and credit rating both appeared in US and grew heavily since 1980's (Gorton and Metrick, 2011), offering a new borrower-lender relationship opportunity through the so called *Shadow banking system*. A *shadow bank* can be described as a non-bank entity or chain of entities running a banking-like three-way transformation of maturity, liquidity and credit. Previous studies describe it as a non-bank entity running an unsecured uninsured bank-like activity, by providing credit funded by short term debt. In this new approach mostly formalized by Pozsar & al.¹² in a multiple steps chain (*see Appendix I*), credit activity is no longer performed in a single entity with the previously described risk concentration but through a more or less wide web of intermediaries. The shadow credit activity can be simply formalized in three parts: loans origination **(1)**, warehousing, quality transformation & enhancement and intermediation of loans and securitized products issued from **(2)**, and externalization of funding and risk bearing in wholesale market **(3)**. All activities described in **(2)** could be done by and in more or less entities and steps, depending on the output product transformation degree comparatively with previously originated credits in **(1)**.

The *Shadow banking system* is a wide and complex credit intermediation chain which permits to originate, transform, and transfer credit and credit risk bearing out of the traditional banking system. This leads to a completely different approach of credit furniture and risk bearing, as credits originators and final ultimate risk holders are mostly different.

This alternative way for lender-borrower relationship, presented in Figure 3, is not consistent with intermediation justification theories previously presented, as it is an uninsured unsecured system in an explicit way¹³. Banks can be considered as secured and insured pool of lenders looking for real investments projects opportunities funded by liquid insured deposits. *Shadow banking* is mostly pools of securitized assets made of credits, that is to say pool of borrowers

¹¹ First description of the Shadow Banking System by Paul McCulley in 2007 at PIMCO Global Central Bank focus.

¹² *Shadow banking*, 2012.

¹³ Explicit and implicit, direct and indirect insurances notions descriptions are well performed by Pozsar&al, 2012.

gathering debt and debt products enhanced through large interconnected chains. The final product of this so called *shadow system* results in credit intermediation anyway, but in a different approach, with different insurance's levels implications. Even if it seems to be too much underlined, insurance implications for Shadow banks and the whole *Shadow banking* system explain major issues in regulator perspectives for this parallel funding system¹⁴.

Figure 3: A global funding system emerging framework

[Insert Figure 3]

Previously, we determined a split between short and long term saving of households, the first one obviously attracted by traditional banking sector to fund credit intermediation, and the second one mainly "confiscated" by assets managers shares to fund sovereign and corporate bonds. Figure 3 presents some major differences with the previous naïve framework of the "good old system" by including Shadow Banks in it. Previous studies (Pozsar & Singh, 2011) highlighted a reverse maturity transformation done between long term savings from households and credit furniture to households through short term funding of *Shadow banking* intermediation activity. To cut a long story short, assets managers have had to face liquidity and return obligations, as shares attractiveness is built on flexibility, relatively low riskiness and significantly higher return than deposits. As shares are kind of withdrawable, assets managers have to deal with liquidity issues and can't count on any bank-like low-cost official liquidity backstop (through central banks facilities for example). In order to avoid such problems, these funds usually performed swaps between long term riskless bonds and cash, as source of collateral for privately insured markets. Holding cash could have been enough to face liquidity issues without returns expectations from "share-holders", and this expected performance pressure led to invest in riskless short term products like T-bills. But outstanding volume of such public debt weren't enough to face a more and more important demand for short term investments opportunities. The whole Shadow Intermediation model is based on a wholesale funding of each single step of credits warehousing, enhancement, transformation and intermediation in the form of complex securitized products. Major short term products markets implied were commercial papers (**CP**), assets backed commercial papers (**ABCP**), and repurchase agreements (**REPO**), providing both funding and investment opportunities. By providing a variety of short term investments opportunities, shadow banks found a way to channel, after reverse maturity transformation, cash received in exchange of long term bonds

¹⁴ See last ECB and FSB / FED publications.

into credits (and securitized products made of credits) to lead a three way transformation of maturity, liquidity and credit. This global funding system component is interested in **investment opportunities market completions**, which establish a complementary role of *Shadow* activities to traditional banking activities, with different completion targets. Assets Managers and banks are also traditionally closely linked both on assets and liabilities sides of their balance sheets, making such a global funding system highly interconnected.

Such interconnectedness offered what we assume to be "Shadow insurance", which doesn't mean hidden but indirect various insurances combination. First, as Shadow activities rely strongly on banks one, with various liquidity backstop offered to various kind of off-balance sheets vehicles and *originate to distribute* model links, it enjoyed something we can called *waterfall* insurance : as banks are publicly backed and insured, and as they backed and insured *Shadow* entities, *Shadow* component of this funding system is also insurance eligible. It also benefits from central banks facilities for both banks and wholesale funding market (in case of non-conventional facilities), implying an even more wider insurance web all around this global funding system. Shadow activities benefits from assets backed insurance structure of the large panel of investment opportunities it propose, but also from previously described external intermediaries helping to improve original debt overall quality.

Figure 4: Shadow intermediation quality enhancements¹⁵

[Insert Figure 4]

Such a representation helps to highlight different kind of insurance and labels allowing reaching a good confidence level to attract investors on securitized products. Usually, financial intermediaries proving credits carried them in their balance sheet until maturity, supporting liquidity, maturity and interest rate risks. But since 1980's, securitization process allows to offload balance sheets of granted loans, following the *originate to distribute* model. Basically, securitization means sale of assets (especially credits) to off balance sheets legal entities like special purpose or structured investments vehicles (SPV / SIV), which issued various kind of Asset Backed Securities (ABS) to fund such buyouts. Off balance sheets vehicles offered various interesting features, among which liquidity and quality enhancements, bankruptcy remote and risk diversification.

¹⁵ inspired from Prof. Ian Giddy (New York University) Securitization process description, converted in shadow quality enhancement description.

First of all, off balance sheet vehicles are bankruptcy remote structures, which means that particular precautions in legal design builds were taken to avoid vehicles' assets to be taken to liquidation by credit originator shareholders in case of default: when an asset is sold to a SPV, it no longer belongs to its originator, and so as its various inherent risks. Each security issued by this kind of vehicle is a claim on pooled assets future cash flows and bear a specific part of hierarchized default risk. By pooling together various kinds of assets (or geographically or timely diversified same kind of assets), securitization help to diversify specific risk because bonds exposure is to a broad pool of assets , which diminish the losses risk in case of specific market shocks. Nowadays, in an ex-post analysis, we assume a clear misevaluation of systemic risk, but in an ex-ante one, it was a logical plan to reduce securities risks. Moreover, tranching method offered liquidity and quality transformation with hierarchized yield priorities and risk bearing allowing high rated securities issuance.

Figure 5: Asset-backed securities structure overview

[Insert Figure 5]

Basic or initial securitization process, as described above, offers a liquidity transformation between illiquid assets (or securitized products) and liquid securities issued for funding purposes. Vehicles issued senior (or prior) claims with low yield and risk levels and junior claims with higher ones, issuing high quality securities from various quality level pooled assets. But it didn't stop on this basic step, and poor-quality securitized products tranches (i.e. non investment grades) were also pooled and trached, making more or less long chains of securitized products re-securitization, each step producing senior and junior tranches, allowing highly rated bonds issuances and junior tranches "recycling". It is also possible to improve overall pool quality by associating assets with various private insurance on rate, currency and default risk. Issued ABS enjoyed tranching and diversification quality improvements, with a quality signal notified through rating agencies grades, but it also enjoyed both private and Trustee (mainly banks) insurances through credit line commitments and various kinds of derivatives, producing synthetically high quality investment opportunities. But this whole securitization machine relied on a huge systemic risk omission, offering perfectly diversified products only considering specific risks.

2.4 Main issues

Despite of its naïve progression, this framework help to underline several important ideas. First, *Shadow* activities are based on a reversal maturity transformation, leading to broaden funding capacity collection and devoted for household credits, even if global completion target followed by both kind of activities are definitely not the same: banks are **credits market completion** oriented when *Shadow* entities are **investment opportunities market completion** oriented. Both activities provide funding to household, but banks collect funding to offer other-the-counter credit activity when *Shadow* entities offer short term investment opportunities in order to fund “already issued” credits (and securitized products linked) warehousing through a reversal maturity transformation. Such an activity helps to attract households’ long term savings to improve credit servicing, at least in theory. Moreover, this framework underlines what we called *insurance waterfall effect* which, through massive interconnections between banks, assets managers and *Shadow* entities lead to an insured global funding system in case of systemic events. Such a wide insurance nowadays relies more and more on central banks capacities and credibility only, as private and sovereign insurances also enjoyed central banks backstop. Financial world is more insured than ever, but duties of central banks as stability guarantors are growing at an impressive rate, and may ask one day central banks credibility limits. Even if a deep dive is highly needed today to improve our understanding of financial mechanism, we no longer can describe banks, assets managers and *Shadow* entities as close-groups strictly delimited by various kind of borders, especially in case of a major systemic event like 2007 financial crisis.

This pressing need of understanding and data on both Europe and US can’t be done without an interconnected worldwide study, and even if European *Shadow* activities seemed to be less developed than in US, European entities role in funding outside of Europe *Shadow* activities need to be emphasized and documented.

3. European Banks implications in the new funding system framework

3.1 Context

During last few years, one of major asked questions in the aftermath of financial crisis was to understand how the Subprimes event, a specific part of American house market collapse, could lead to a worldwide financial crisis. *Shadow banking* role was underline since 2009, and massive contributions were done to assess its size and origins. First evidences on evaluating the *Shadow banking* system size were masterly given by Pozsar & al. in 2009 and their approach was followed and improved since both on US and European data (Pozsar & al., 2012; Shin 2010, Bouveret, 2011; ECB 2012). In this understanding run of this wide and complex system, an important focus was done on this size question leading to, American *Shadow banking* and a European one separated identification, mostly through central banks aggregated data collections on both banks and other financial intermediaries. Following the previously presented framework on a global funding system, and even if it is legitimate to assess *Shadow Banking* weight in Europe, we prefer defend the idea of one and global funding system depicted as a wide web made of various intermediaries, banks or non-bank entities, worldwide interconnected on wholesale funding markets. The turning point of the crisis started in 2007 definitely was the collapse of Lehman Brothers, in September 2008, driving the idea of a crisis coming and spreading from US entities' collapse to foreign ones. But we can't omit that European banks problems started before Lehman's end: between July 2007 and September 2008, BNP Paribas, Northern Rock, UBS, Citigroup and Société Générale experimented massive losses and difficulties. Massive use of dried short term funding markets and *rogue traders* were emphasized to explain such bad events occurrences, but we can point out that there is no real lag between US and European troubles, and it is one of multiple evidences of European intermediaries massive interconnection with US entities and markets in a more global point of view rejecting countries borders.

This section is designed to complete the framework presented in section 2 by emphasizing European banks major role in development of intermediation going through the emerging new part of global funding system. It is going through existing literature and data collection, revisited through the prism of previously described framework, to go beyond dichotomy between banks, *Shadow banking* as described in FSB definition, and others not previously included intermediaries.

3.2 Assessing worthwhile indicators sizes of European crisis concerns

The 2007 financial crisis not only brought light on European banks liquidity or insolvency problems, *Shadow banking* size assessments and European intermediaries involvement in securitization, but it also brought concerns about sovereign debt levels and sustainability, mostly in the euro area. A banking system confidence crisis has been followed by a sovereign debt one, leading to several rating adjustments (meaning downgrading) for historical euro area members such as France, Italy, Spain, Portugal and Greece. This sustainability confidence crisis followed wide and costly economic stimulus planning to stabilize both financial and real markets. As underlined in our framework, the global funding system expressed a strong demand for safe assets¹⁶ and safe-assets-like to insured its liabilities needs on short term markets. It was one of several explanations (Gorton&al, 2012) for the rise of various highly rated sovereign bonds, which mainly described US and European countries debts. Euro area countries¹⁷ were especially focused by such a demand, as they presented strong integration and guaranties, leading to favorable indebtedness costs and incentives to contract debt. Obviously, it is not possible to only explain it by the pre-crisis strong demand for highly rated bonds: we can consider a potential effect of such a demand, but we can't measure it as it remains only on strong assumptions. Indeed, sovereign debt is anyway a strong indicator we have to look for, as sovereign debt sustainability is highly correlated with governments' interventions capacities in crisis events as lender of last resort.

3.2.1 Sovereign debt sharp increase and its consequences on financial insurance

Sovereign debt is a major investors' concern nowadays, as evidenced by recent pressures on European countries expressed through several downgrading waves, and we have to carefully examine it before dealing with banks indicators. We assume that a significant part of banks insurance systems, enlarged to Shadow intermediation, is publicly backed, which means that global funding system insurance credibility, implying overall financial stability, mostly depend of central banks and public sector capacities to play insurances dealers role. Central banks capacities to act as liquidity and quality dealers on financial markets can be considered as a binary thing, as it depends of money printing which only one limit is central bank and issued money credibility. For a strong money like US dollar, limits of such a credibility isn't questioned yet and may only rely on speculations and questionable forecasts, while Euro is

¹⁶ Especially short term assets (T-bills & replications) for Assets managers and long term highly rated bonds for collateral purpose.

¹⁷ United Kingdom was also focused, out of the euro area.

weakened by internal euro area divergent positions. Since decades, sovereign bonds were considered as riskless assets, especially for developed countries, and a sovereign default wasn't considered as a concrete risk. Times changed, and one of the less (in volume) indebted European countries partial default launched a new sovereign debt era with strengthening monitoring and volatility. Public intervention to stabilize a banking crisis needs cash to recapitalize or nationalized collapsing entities presenting a significant systemic risk, and this cash usually comes from easy access to quick and costless debt access. Recent concerns about sustainability of sovereign debts have hardened this debt access, leading to diminished intervention capacities.

Chart 2: Sample of euro zone sovereign debt evolutions in front of US/EU debt

[Insert Chart 2]

Selected euro zone countries showed a strong continue rise of their sovereign debt from 4 € trillions in 1998 to 6 € trillions in 2008, which means almost 50 % rise in 10 years. The pervasive demand for safe assets during 2000's offers opportunities for a widened sovereign debt market, even if it is an obvious multifactor driven growth. The French Central Bank (Banque de France, 2012) documents in a recent study several factors as social insurance expenses, public sector size and public deficit recurrent growth as also responsible for developed countries sovereign debt explosions. At the same time, US and European sovereign debt experimented similar growth until 2008. The post 2007-2008 may be considered as mainly crisis-driven, as governments had to offers recapitalization and *junks bonds* balance sheets offloads to financial sector associated with massive economic stimulus plan¹⁸, leading to an impressive amount exceeding 25 € trillions for both Europe and US. Such high levels of indebtedness associated with disadvantageous ratio of debts reported on GDPs clearly emphasizes recent global concerns about sovereign debts sustainability of developed countries, leading central banks, both in EU and US, to insure opportunities for current and future sovereign debt issuances, through direct buyout or others mechanisms¹⁹.

Chart 3: European debt to GDP ratios

[Insert Chart 3]

¹⁸Stimulus plan were accounting in € billions, see appendix 2 for examples.

¹⁹ For example through the FESF in Europe (European Financial Stability Fund), designed to buy under pressure European countries debt, backed by EU members, and ECB is now able to directly buy euro area sovereign debt, even if none was bought until today. In US, FED buy significant amount of US treasuries since decades.

Global debt on GDP ratio clearly goes up and, in addition with low or negative GDP growth in Europe, without omitting waves of downgrading, there are, in theory, clear signs of sustainability conditions degradation. It is not true for every single country, as showed by France example where sovereign bonds issuances are done at historically low price levels, even with negative interest rates. It is counter intuitive with negative perspectives on France rating done by majors rating agencies, low GDP growth and high indebtedness, but it could be explained by diversity of situations with a leading group composed mainly by France and Germany, and a followers one with Spain, Portugal, Italy, the Greek case set aside. In December 2012, Standard&Poors downgraded European special mechanisms (FESF & MESF) with negative perspectives, weakening²⁰ a little more the Euro Zone situation in its sovereign debt management.

The more indebtedness goes up, the less government's recapitalization capacities credibility to support their local banking sector is, and the more central banks have to deal with every single part of overall financial system insurance, including sovereign debt support on its insurance duties. Both banking and *Shadow Banking* components of the global funding system have significant sizes which need to be remembered, even under the form of imperfect approximations.

3.2.2 Assessing Banking and Shadow banking funding system components sizes in Europe

European Central Bank and the Federal Reserve both collect aggregated data on various kinds of financial intermediaries provided in global outlook reports or databases, offering precious aggregated information pools. We could suspect that assessing *Shadow banking* system size is a too much focused subject, as data are either neither sufficient nor sufficiently granular²¹ to give a detailed enough satisfying description. However, recent studies and reports provide useful calculation methods for proxies to approach global assets size of both banking and shadow banking components of global funding system. The more important information here is the global size of European component of what we called the global funding system: it is still consistent with defended approach of a global system which relative data need to be desagregated for better understanding.

²⁰ Germany, France, ECB, Standard&Poors and Japan insure that downgrading will not diminish FESF capacities to rise 440 € billions.

²¹ Pozsar&al., Mehrling, Adrian&Ashcraftt, FSB and ECB underlined this granularity problem in EU and US flow of funds and point out several improvements methods in their contributions.

Chart 4: A European snapshot of funding system components

[Insert Chart 4]

According to the proxy given by ECB calculation method, the global euro zone total banking assets²² is almost 30 € trillions at the end of year 2012, when the *Shadow Banking*²³ reach a 10 € Trillions. In its overview of Shadow Banking in Euro area published in April 2012, ECB underline an extreme data aggregation leading to approximate proxies, with several notorious bias, like European hedge funds exclusion from the other financial intermediaries group because of insufficient data collection or the one of foreign hedge funds interconnected with European activities, because of a leak of cover in ECB statistics. It is interesting to note that both components followed a growing curve with significant slopes differences : between 2003 and 2008, OFIS sector size increased with significantly higher rates than traditional banking sector, with an 100 % on the period from 5 to 10 €trillions.

We assume that such proxies are useful to give a rough estimate of *Shadow Banking* component of the wider funding system, but it is definitely not a good approach to assess its significant impact on various markets completeness. We already insisted on data incompleteness and on exaggerated focus on assessing *Shadow Banking* size through more and more bigger approximation: last evaluation of the worldwide *Shadow Banking* global assets by Pozsar&al. stated the stunning amount of 67 USD trillions. This proxy is, in fact, quite meaningless as it only show consolidated balance sheets data of presumed non-bank intermediaries involved in *Shadow Banking* activities. Two major problems follow from this observation: first, it is all about global assets amount, not about activities such as effective impact on households, corporate and sovereign credits furniture. European *Shadow Banking* size could be compared with sum of top 5 European banks²⁴ assets representing almost 10 € trillions, but for a same amount of assets, it is nothing comparable with, as a lot of differences exists between banks regulation, risk exposition levels, funding methods, and more broadly, between banks activities and other financial intermediaries ones, and it is even worst in its own.

²² Estimated through MFI sector assets minus Eurosystem assets and money market funds shares issued by MFIs.

²³ Estimated through Other financial intermediaries assets plus money market funds shares issued by MFIs sector minus mutual fund shares issued by inv. funds other than MMFs.

²⁴ Respectively Deutsche Bank, HSBC, BNP Paribas, Credit Agricole and Barclays.

Shadow Banking study have to be led broadly because of its extremely interconnected nature all around the world, but it also need to have a deep dive in granular data to give a more understanding description not only of its size but also for what it did in the global intermediation furniture. Both ends of *Shadow Banking* chains are real economy, and there is a pressing need for analysis on how it could have had influenced on real project funding before proposing any radical regulation reform on this innovative way to collect short term savings to fund already issued securitized credits, with a growing need on securitization analysis.

3.2.3 Was Europe was a major actor of Securitization?

Chart 5: US and European cumulated Securitization issuances

[Insert Chart 5]

Between 2005 and 2007, securitization issuance levels remains stable, but European and US securitization took different evolution paths: US issuance show a continuous decrease on the period when European one shows a regular increase. Publicly backed²⁵ securitization was decreasing in US during this period, and was partially replaced by private one, explaining a significant part of such a decrease but not all of it. Between 2005 and 2007, US stats fell by 11 % while European stats rose of 86 %, to finally reach comparable levels of 7 and 5 € trillions respectively in 2008, after a massive private US decline²⁶. The overall level start to rise again in 2009, reaching a level not that far from the one of 2005-2007 but with a massive publicly backed issuance role since 2008, which Europe remaining major issuer of private securitization. Cetorelli and Peristiani (2012) investigate the role of US banks in assets securitizations and concluded on a substantial implication, especially for commercial banks in non-agency securitization, but nowadays private securitization, especially for MBS related products, is close to zero.

Nowadays, data availability on securitization in Europe presents similar limits with *Shadow Banking* ones, as it remains too much aggregated, and need a further focus as it exists sizable differences among European Countries implications in securitization issuance, with various explanations fields (like accounting and fiscal rules).

²⁵ Through Fany Mae and Freddy Mac.

²⁶ Several major actors of securitization collapsed between 2007 and 2008.

Chart 6: European countries market shares in global European securitization issuance

[Insert Chart 6]

Between 2001 and 2011, UK, Netherlands, Italy and Spain represented in average 71 % of total European securitization issuance, when other historically and financially important countries like France and Germany only represent respectively 2.5% and 4.5% in average. These differences stress the need for studies on these specific countries to underpin explanations for such huge differences, which may be explained by massive cross borders subsidiaries issuances in UK and Netherlands.

Rated securitization is the *sine qua none* condition for the whole *Shadow Banking* system existence. We need to clearly understand how it used to work, especially for cross-borders transfers through special purposed subsidiaries incitation before launching wide regulatory reforms. Cross borders transfers, and more generally all kind of inter-countries transfers, are also major concerns subjects, with more attention given to European banks implication in US *Shadow Banking* activities.

3.3 European banks interconnectedness with foreign *Shadow* activities

In 2005, Ben Bernanke exposed for the first time the *global saving glut* hypothesis, followed by several improvements last few years. By looking on gross capital inflows on long term assets in US, it described both Europe and net saving countries influences and targets. The global saving glut hypothesis relies on the belief of the leak of investment opportunities in global saving glut countries, which invest massive amounts on US long term assets markets, with a special focus done on government sponsored entities securitized products. But Bernanke also underlined Europe important influence and focus on private labels products such as mortgage based or corporate ones. Both group aimed to buy low risk liquid assets, but they did it in different ways. It is a big turn in *Shadow* activities funding understanding and it emphasized its worldwide status.

3.3.1 European banks in the global saving glut

Global imbalance study is nowadays an important field of research, and it allowed highlighting of Europe significant influence in US securitized markets. Bernanke showed that, among advanced economies, Europe (Euro area and United Kingdom, netted from their mutual relations) is the most prominent source of gross capital flows into highly rated US

securities between 2003 and 2007. Europe bought a much wider range of assets than GSG countries, focused on treasuries and agencies securities, through corporate and private activities funding, even on under AAA opportunities. A net lending position to nonbanks and others sector was also highlighted, with evidences of funding of US assets buyout through short term dollar liabilities like commercial papers which attracted US investors (McGuire & Von peter, 2009; Acharya and Schnabl, 2010). Between 2003 and 2007, more than 6 USD trillions of securitized outstanding were owned by foreigners, with a major role of Europe on private securitized products buyout. As described previously, private securitization closely disappear in the aftermath of 2007 financial crisis, with a global relay done by GSE activity.

The initial global saving glut hypothesis was improved in a Global Banking Glut one (Hyun Sung Shin, 2012) and gave a further look on European banks implication in Europe private US securitization buyout

Figure 5: European banks influence in US

[Insert Figure 5]

All of this emphasizes the need of a more carefully done tracking of gross capital flows as European banks showed massive US dollar foreign claims owned by European banks against US counterparties matched by large gross liabilities to US based savers. European banks borrowed on US wholesale market to lend it back to non banks entities in US. All of this is not even noticeable in net flows, as netting only notice differences between liabilities and claims without taking care of size questions. Shin's study underline massive interconnections between US money market funds and European banks, with a 50 % share of MMF assets in 2008 devoted to foreign banks obligations buyout. Moreover, 70 % of ABCP devoted to US assets SPV were issued in dollars, and most of these SPV were sponsored by European banks, knowing that outstanding of US dollar ABCP reached almost 1.2 USD trillion at the end of 2007.

The major role played by European banks may be explained by various differences such as ongoing banking regulation or collateralization rules.

3.3.2 Did Europe enjoyed specific advantageous characteristics to become a major foreign *Shadow* activities counterpart?

This subsection deal with differences in collateral management between US and Europe, with obvious advantages on both true sale aspects and rehypothecation without regulatory limited re-use based on initial counterpart exposition and collateral level. Moreover, it provide a focus on possible wrong incitation of Basel II application, which strongly relies on ratings, and may have led European banks to invest in highly rated securitized products.

3.4 Are European banks insurers or insured?

European universal bank model, associated with massive interconnections between banks holding companies, *Shadow Banking* activities and other financial intermediaries provided incentives to broaden traditional insurance to the global funding system, as underlined in section 2 framework. Cetorelli (2012) shows that significant parts of insurance companies, money market mutual funds and brokers dealers assets are owned by Banking Holding Companies²⁷, strengthening global perspectives way. Assuming that a banking or *Shadow Banking* distress will lead to a global financial one, central banks decided to backstop every single part of the system in order to stabilize financial markets. But European banks are not only insured by two central banks, , as they enjoyed a ECB and a full FED support between 2008 and 2010, but they are also broadly exposed as risk insurance counterpart through derivatives activities, reinforcing the increasing (and stunning) waterfall-like insurance provided by central banks to global funding system.

3.4.1 European Banks as financial system insurers

Securitization was previously described as liquidity and quality enhancements through the funding of illiquid assets by highly rated securities, and our framework underlined (*see Figure 4*) private insurance role through various derivatives influences in the particular quality improvement activity. Securities and derivatives combination furnished quality improvement relying on interest rate, currencies and credit default swap, with an emblematic role for CDS in *Shadow Banking* activities. A Credit Default Swap, or CDS, is a particular credit derivatives providing to the buyer insurance in exchange of a premium paid to the seller of protection, who is obliged to pay out on occurrence of a credit event defined in legal contract

²⁷ 38 % of insurance companies, 41 % of MMMF and 93% of largest brokers dealers, see Adrian & Ashcraft (2012) for more details.

documentation. A credit event is often defined as failure to pay, restructuring or bankruptcy events, and with the *Shadow Banking* activities encouraging *originate to distribute* model, such credit insurance encountered significant demand. Interest rate and currency swaps are multi-interest driven markets, and even if we can suppose a significant part of *Shadowy* driven activity, insufficient data detail again prevent us to use it. On the other hand, credit default swap are recent derivatives innovation answering new securitized products and sovereign debt need for quality improvement, and recent Subprimes crisis was triggered by default event on securitized products, spreading insurance activations. It exists two main way to describe CDS market, by describing global notional value of issued CDS or by collecting data on market gross value, with impressive differences between these two indicators.

Chart 7: Global CDS issuance in notional value

[Insert Chart 7]

The notional value of global CDS outstanding represent global amount of credit globally or partially insured against more or less important default levels. It is a stunning amount, almost 35 € trillions, exceeding European Banking system assets size. But its opacity level is significant, as credit derivative market is over the counter, and every single CDS is highly legally documented through massive contracts (sometimes composed of thousands of pages) leading to an impressive diversity level. It is impossible, with such aggregation in data, to evaluate or even anticipate the effects of credits event, even massive ones. But, even after all these serious limits observation, it is still the better approach we have to estimate the CDS market width and to consider the unbelievable eventual maximum refund in case of an highly hypothetical global default of all underlying credits. A gross market value study give different but, even with such biases on notional amounts, it is very far from describing such big commitments for insurance issuers.

Chart 8: Global CDS issuance in gross market value

[Insert Chart 8]

The gross market value of CDS market is at least ten time lower than its notional one, underlying two things: first, and we already documented it, real exposition to refund commitments by insurers in notional value relative value is different for every single CDS, but it also underlines very low cost of risk insurance between 2005 and 2007, with a very strong increase in global notional value and a growing gap with gross market value. This gap

starts a quick contraction in the end of 2007, with a significant increase during notional value outstanding in 2008. This situation highlights both insurance price increase and issuance level fall, as after 2008 major credit derivatives actors encountered severe financial distress and decided to stop insurance issuance and focused on buyout of their own issued derivatives to prevent triggering of massive linked insurance commitments. It is very interesting to have a look on insurance providers, as European banks are largely involved in.

Table 2: European banks influence in top 5 credit derivatives counterparties history

[Insert Table 2]

Since 2005, Fitch rating studies²⁸ emphasized a limited number of credit derivatives counterparties, describing it as a permanent factor of this market: in 2008, top 10 credit derivatives represented 67 % of exposure and 88 % of notional amounts, with a disproportionate importance of top 5 insurers. Various big European banks like Deutsche Bank, UBS, Credit Suisse or Barclays were top 5 usual members, but other big banks like BNP Paribas, Société Générale, Citigroup or Royal Bank of Scotland were often part of top 10. One of major event of the recent financial crisis linked with the CDS market was about AIG, the biggest insurance company in US. AIG was taken over by US government and funded through both maiden lanes II and III LLC, with a massive \$ 182 billion investment. Maiden lane II LLC was designed to offload securitized products made of mortgage from AIG subsidiaries, but Maiden lane III LLC was more precisely devoted to CDS exposition as it aimed to buyout CDOs insured by AIG CDS in order to cap triggered CDS level. Global investment represented almost 70 \$ billions for both vehicles between 2008 and 2009, and it was for an exposition which had nothing to deal with top 5 counterparties one. It gives here some material to imagine significantly higher amount top insurers were concerned by.

By giving high amounts of insurance on credit default event, mainly focused on securitized products like CDO which were mostly involved in 2008 and 2009 distress on securitized products markets, CDx²⁹ counterparties, in which numerous European banks, extend insurance to a wider and wider percentage of global funding markets, as insurers were finally backed themselves by central banks interventions. It gives additional consistency to

²⁸ 2005, 2006, 2009, 2010 and 2011 studies.

²⁹ Global acronym for credit derivatives.

previously described concerns about stunning amount of balance sheets backed by central banks and currencies credibility.

3.4.2 Massive European banks insurances programs

Traditional banking system enjoys several insurances we already detailed in framework discussion, improving overall banking activity stability. We also emphasized the spread of such insurances from traditional system to the global funding system, through various commitments and cross-activities between traditional and *Shadow* components. We know that in case of systemic events, non-originally backed by central bank insurances appears in central banks duties more or less directly. Between 2008 and 2010, central banks followed FED initiatives to launched non-conventional facilities in order to stem the crisis by enlarging interventions field, leading to massive amount of facilities accorded to traditional banking system but also in more direct ways to the *Shadow* one. European banks were deeply involved in global system insurance furniture, especially through derivatives markets, and enjoyed a double central bank support, a logical one through European Central Bank facilities, and another one, symptomatic of their deep involvement in US *Shadow* activities, through US Federal Reserve facilities.

3.4.2.1 Federal Reserve facilities

Between 2008 and 2010, US Federal Reserve launched successively Credit, liquidity, collateral swaps facilities for banks, enlarged to primary dealers, currency swaps with foreign central banks and decided to support MMMF investors and ABPC / CP markets. Involved amount of facilities exceed 1.8 USD Billions, and most of these facilities end in 2010-2011. European banks enjoyed most of it, as facilities were enlarged to primary dealers (*see list in appendix 3*) in which European banks subsidiaries represent a significant number of institution. The Federal Reserve was, at this time, going to play a world insurer role.

Chart 9: US Federal Reserve facilities for Banks and primary dealers

[Insert Chart 9]

Three major orientations were given to Banks and primary dealers Fed facilities : Last resort lending, through Discount window, Primary Dealers Credit facility and Term Auction Credit Facility (DW, PDCF and TAF), liquidity support through open market operations, collateral market support through quality swaps allowed by Term lending Facility and Security Lending

facility (TSLF and SLF), and currency swaps. Every single need of modern banks was furnished through Central Bank operation playing an all-in-one markets substitute. Interbank, short term funding and even credit market were experimenting liquidity dry up, and were successfully replaced by Fed facilities. European Banks experimented massive support from US Central banks, especially through currency swaps, which 80 % were designed to fulfilled European needs of US dollars, completing previous evidences emphasized by Bernanke and Shin on European Banks important activities in US dollar wholesale market, which needed interventions too.

Chart 10: US Federal Reserve ABCP facilities

[Insert Chart 10]

Moreover, the Fed decided to stabilize short term funding markets through special facilities designed to buy Asset backed commercial papers and single commercial papers, only for banks and MMMF issuance first through Money Market Fund Liquidity Facility (AMLF), and then in the overall high quality ABCP market through Commercial Paper Funding Facility (CPFF). As main ABCP issuers were US mortgages SPV backed by European Banks, it is again a very European end-focused intervention plan by US Central Bank. But European Banks also enjoyed a full ECB support.

Chart 11: European Central Bank facilities

[Insert Chart 11]

European Central Bank is younger than US Federal Reserve and enjoys more flexible interventions opportunities without making non conventional actions. It focused on refinancing operations, providing up to 800 € billons of facilities to European Banks, with additional collateral swaps. Both Central banks launched "liquidity rains", with wide furniture of direct support to banks, which were engaged with other global funding system intermediaries. By Insurances domino effect from central banks facilities and through traditional banks, the whole system enjoyed facilities and support.

All these facilities illustrate again the major impact of European Banking activity in US activities, as US Federal Reserve itself gave European Banks a full support in order to stabilize US markets. European Banks seems to enjoy the highest possible amount of insurance providers, and it makes big differences between assessing European influence in

Shadow Banking and more widely in what we called the global funding system, and measuring geographically European based *Shadow* activities, as a significant part of foreign *Shadow* activities were led and insured by European Banks.

4. Conclusion

The *Shadow Banking system* is a poorly named subsection of a more broader global funding system. Since 2009, our understanding of this "new" part of funding system allowing a reversal maturity transformation changed a lot. At the beginning, it was considered as an uninsured unsecured banking-like system outside of traditional banking system. But massive interconnections between banks, assets managers and *Shadow* entities were revealed on wholesale funding market, which provide a solid link between every single involved entity. Nowadays, we can talk about a global funding system, as it is barely impossible to cut it in different and independent parts, but we can also emphasize its insured nature. Indeed, massive interconnectedness between every single part described in our framework helped to understand, through a *waterfall effect*, the broadly spread insurance among it. Banks are insured since decades and have to follow a particular regulation in exchange of such an insurance. Government, private and central bank insurance are all provided to banks, but all these insurances are now injected in the whole system, leading to a fully backed (or close to) global funding system in case of systemic event. Moreover, with sovereign debt sustainability concerns and stunning amount of insurance beneficiaries, insurances are now fully backed by central banks, making them one and only insurer of the whole financial system. Impressive amount of assets, potential losses and facilities are insured by central banks balance sheets, and it may ask one day questions about central banks credibility limits. Very preliminary statements on *Shadow Banking* were wrong, as it's not only a US system, it is an world-opened system devoted to accept worldwide saving investments. European banking sector played a significant role in such a system emergence, and had a strong funding impact on US *Shadow* activities development, but it also developed its own *shadow* activities. When the 2007 crisis triggered, European banks enjoyed the larger pool of insurers ever seen, with both Federal Reserve and ECB facilities. Political pressure stress the need for new regulation for banks and the so-called banking system, but we need a deeper dive in disaggregated data to improve our understanding of this global system interconnections and potential risk before proposing rushed regulatory reforms. However, we mainly need to not forget what happened and all its insurance implications and keep going with regulatory questions : several problems underlined in the 2007 crisis already existed in 2000's dotcom crisis and even in 1997 asian

crisis. Back in time, literature emphasized the need for regulatory change, but it was obviously not followed.

As Jean Monnet said, *people see the need for change in necessity, and necessity in crisis period, but no longer after it.*

Figure 1: Traditional Bank as pool of funding capacity with "super lender" role

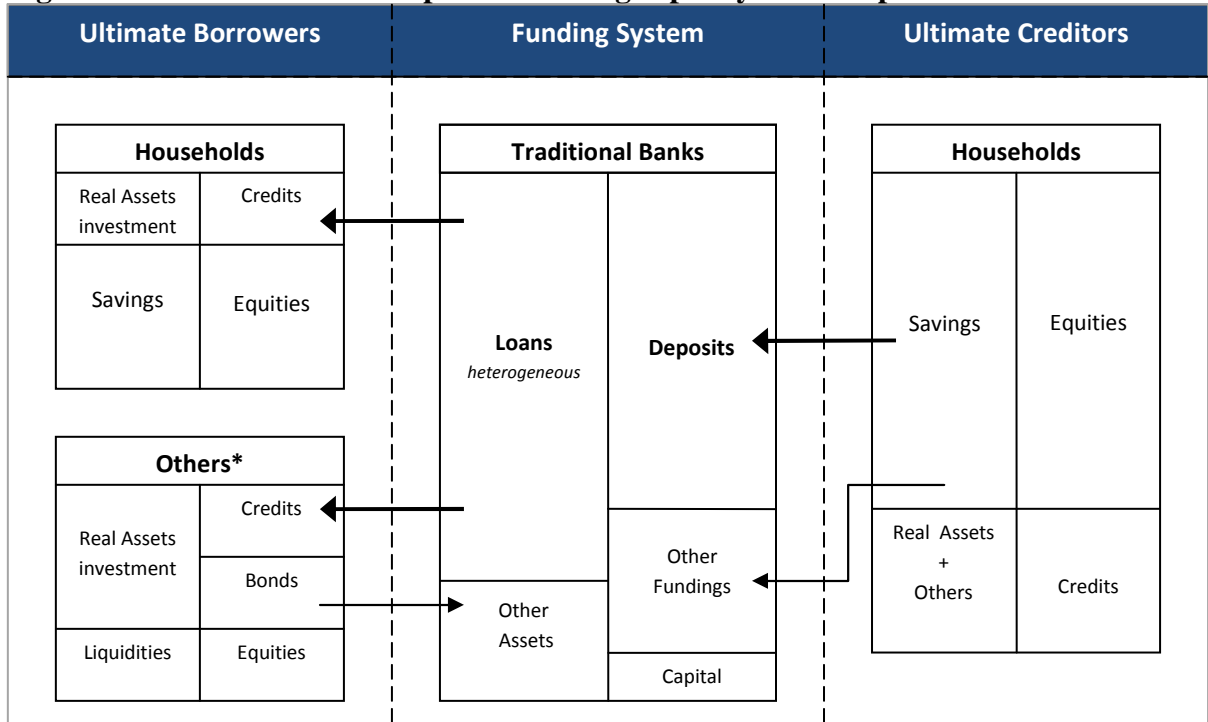


Figure 2: Long and short term saving split in funding system

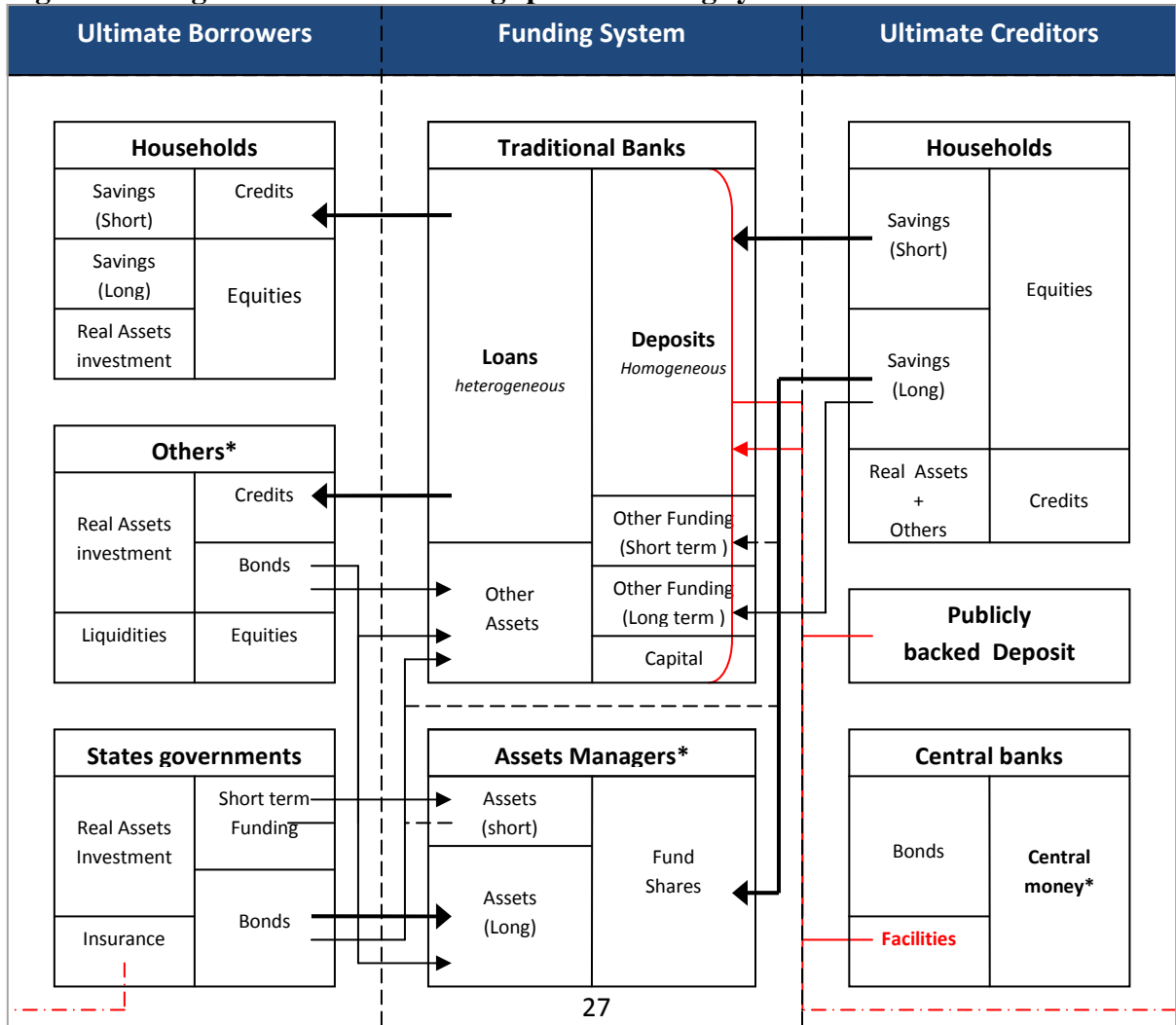


Table 1: Deposits insurance variety

Country	Pre-crisis level	Post crisis level	+/- (%)
<i>Belgium</i>	20 000 €	100 000 €	400 %
<i>England</i>	35 000 £	85 000 £	143 %
<i>Finland</i>	25 000 €	100 000 €	300 %
<i>France</i>	70 000 €	100 000 €	43 %
<i>Hong Kong</i>	100 000 HK\$	500 000 HK\$	400 %
<i>Switzerland</i>	30 000 CHF	100 000 CHF	233 %
<i>US</i>	100 000 \$	250 000 \$	150 %

Figure 3 : A global funding system emerging framework

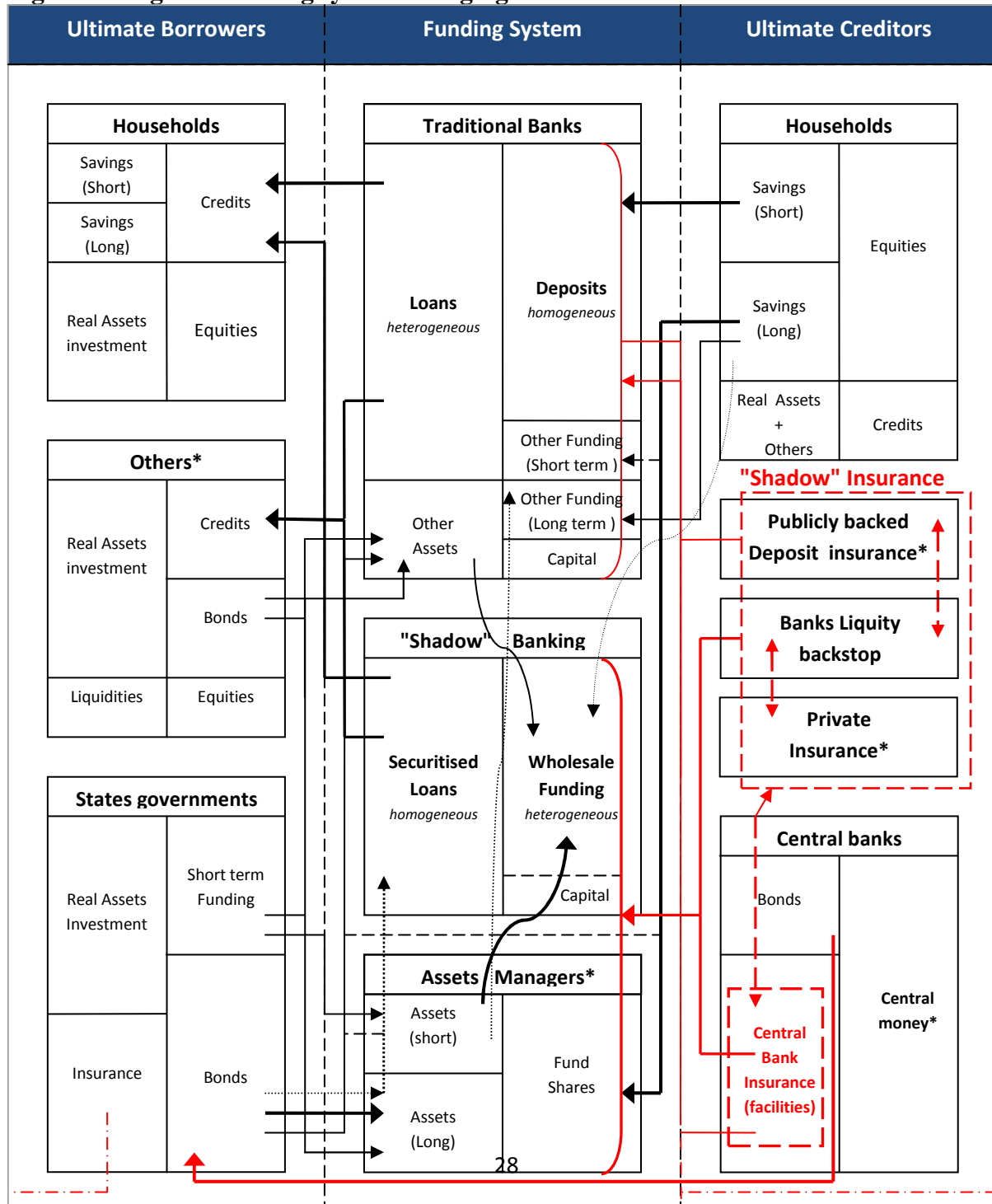


Figure 4: Shadow intermediation quality enhancements³⁰

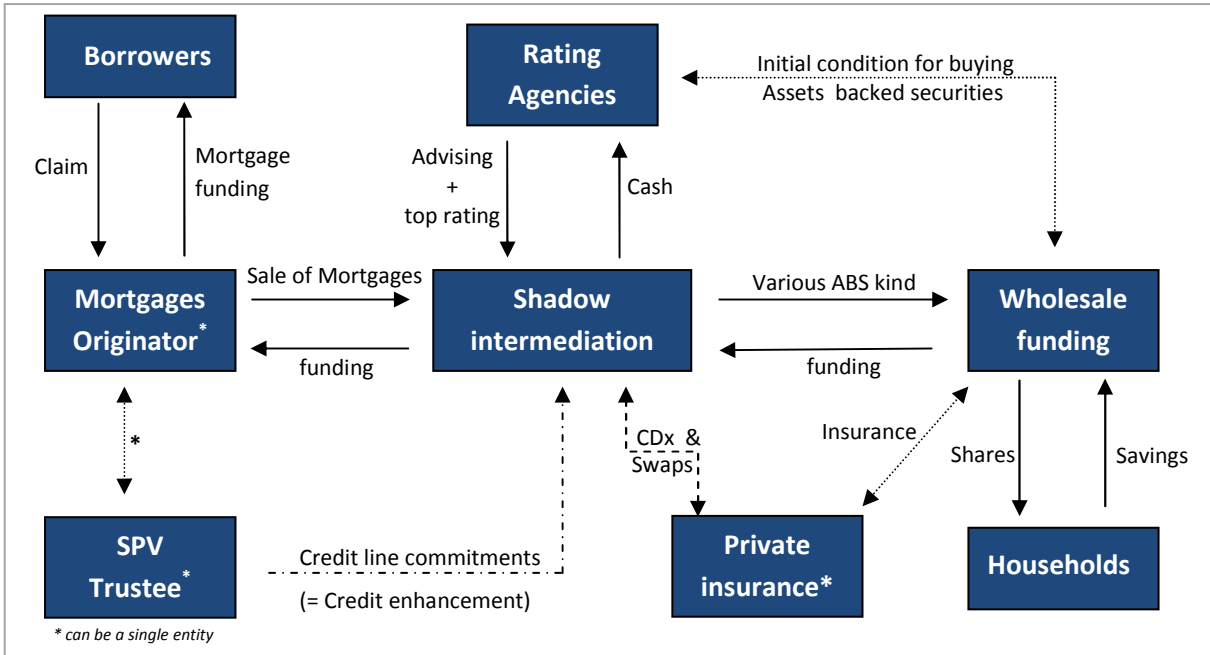
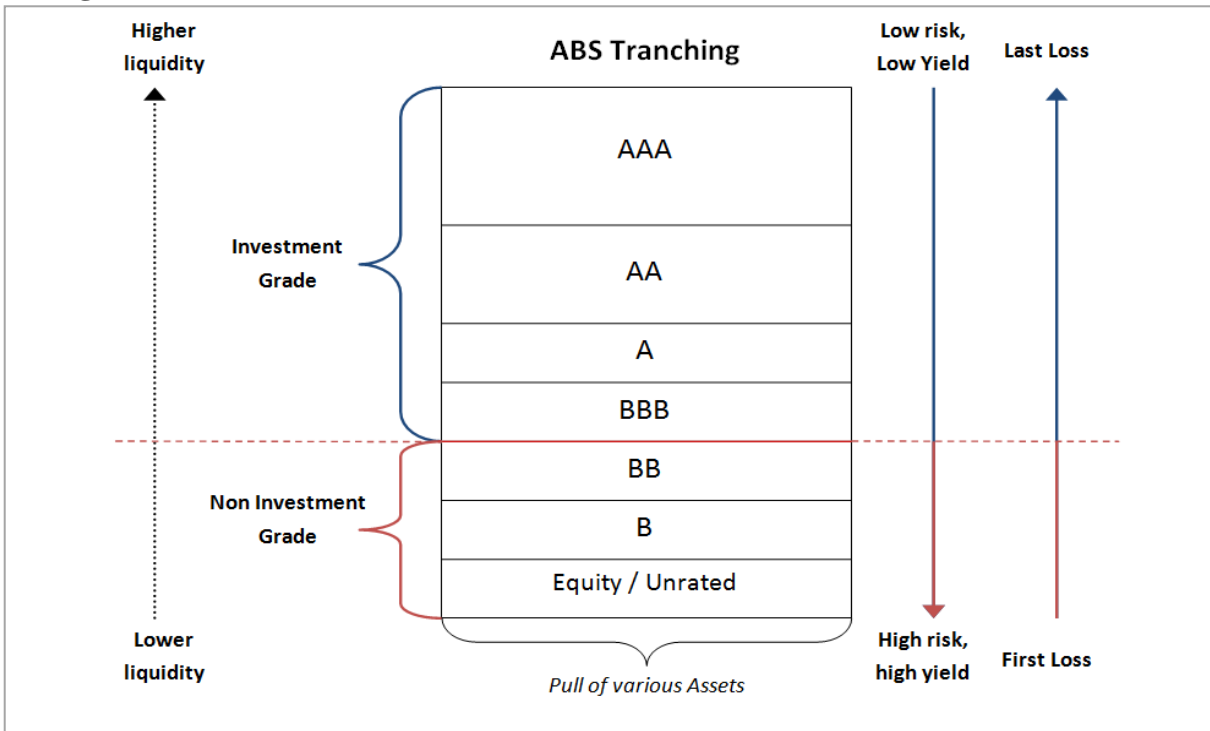
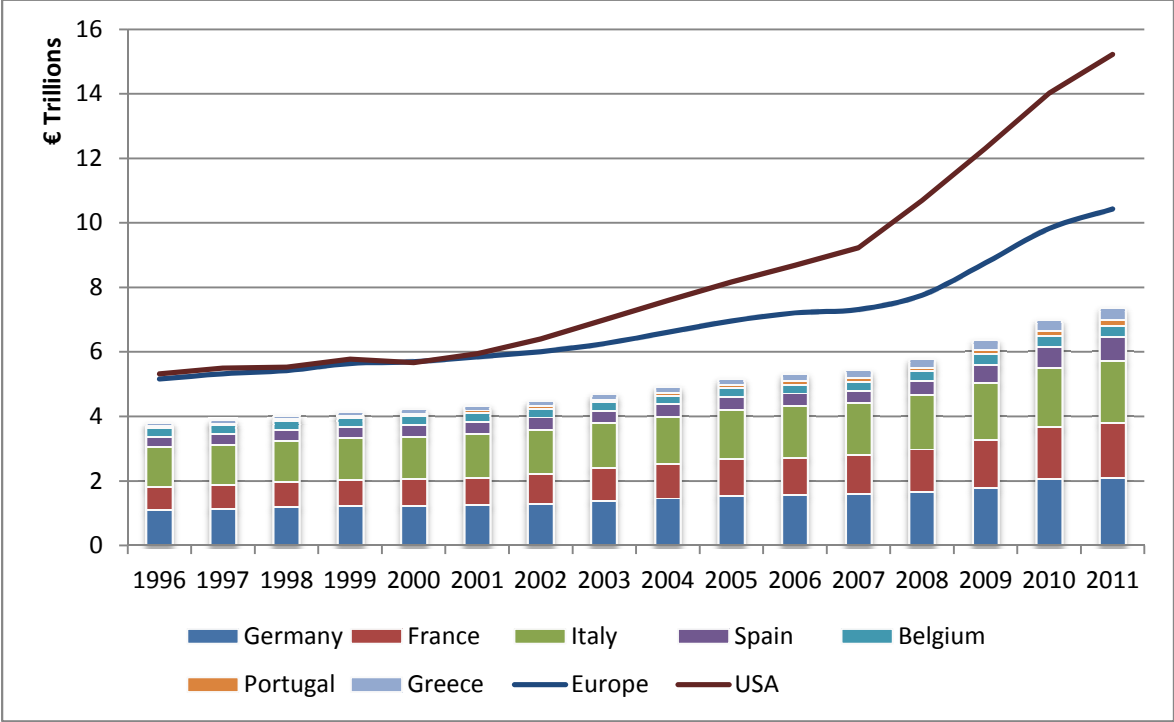


Figure 5: Asset-backed securities structure overview



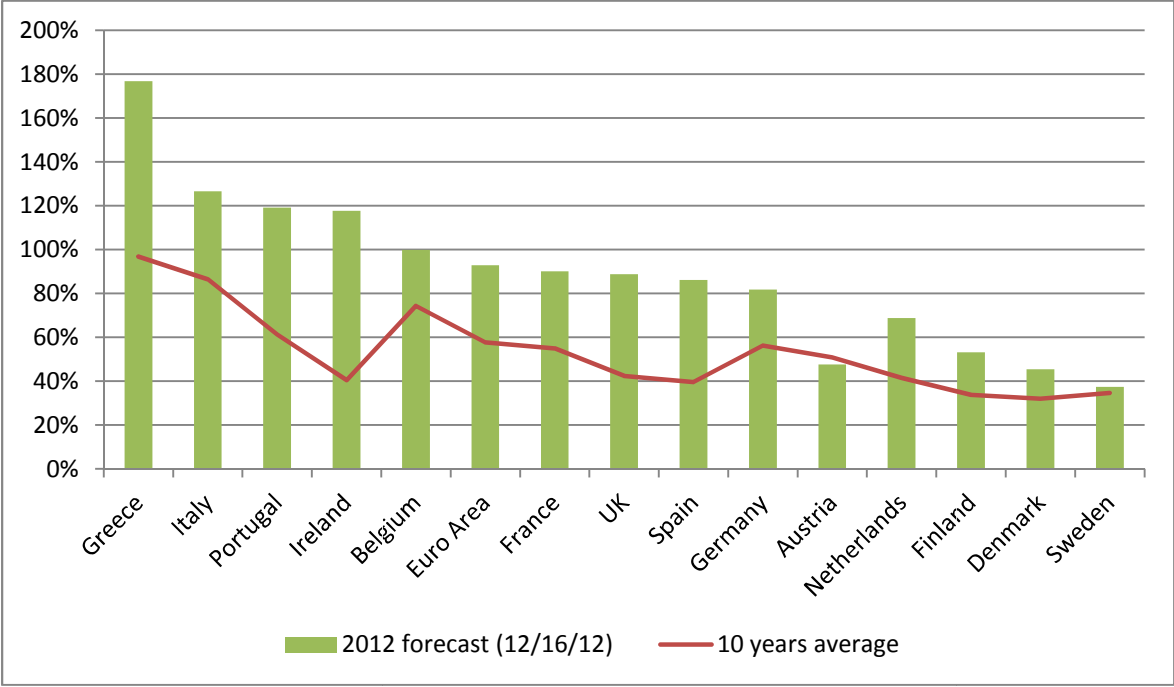
³⁰ inspired from Prof. Ian Giddy (New York University) Securitization process description, converted in shadow quality enhancement description.

Chart 2: Sample of euro zone sovereign debt evolutions in front of US/EU debt



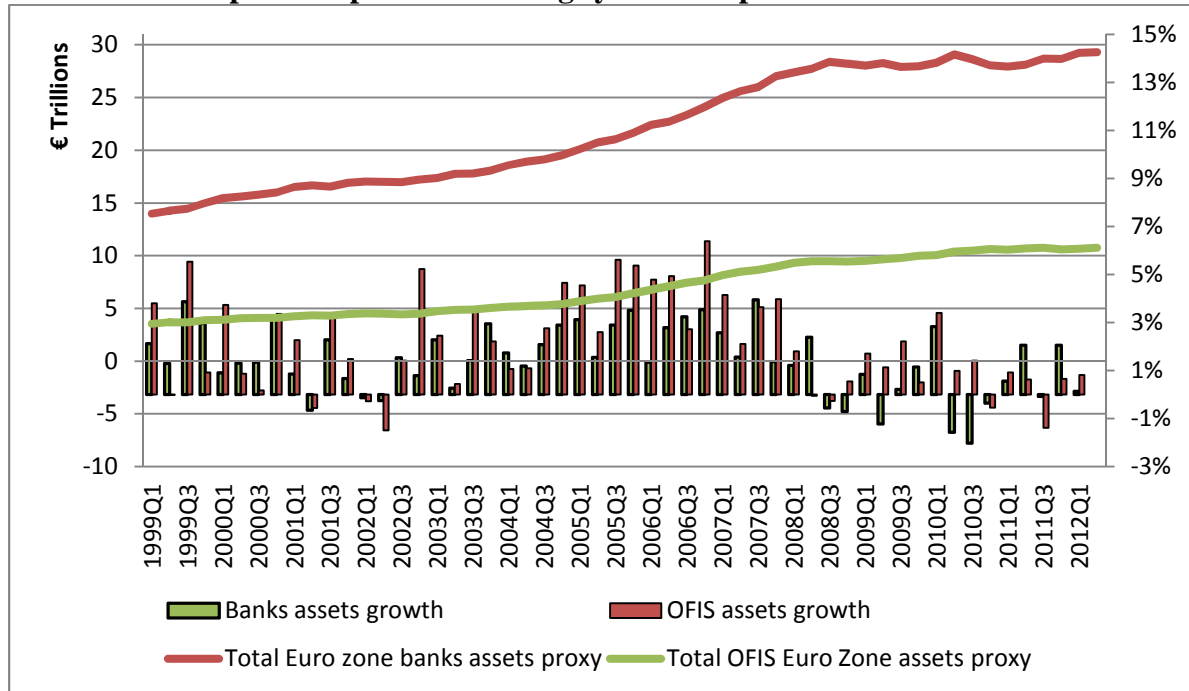
Source : Bloomberg

Chart 3: European debt to GDP ratios



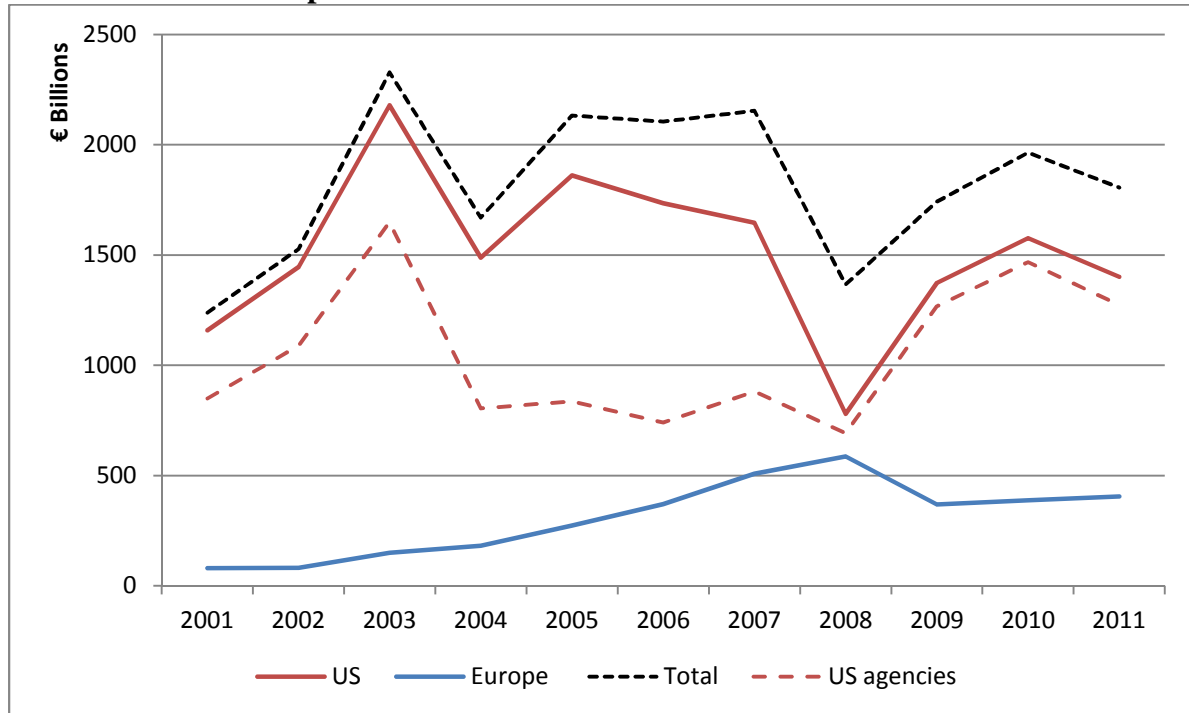
Source : Bloomberg

Chart 4: A European snapshot of funding system components



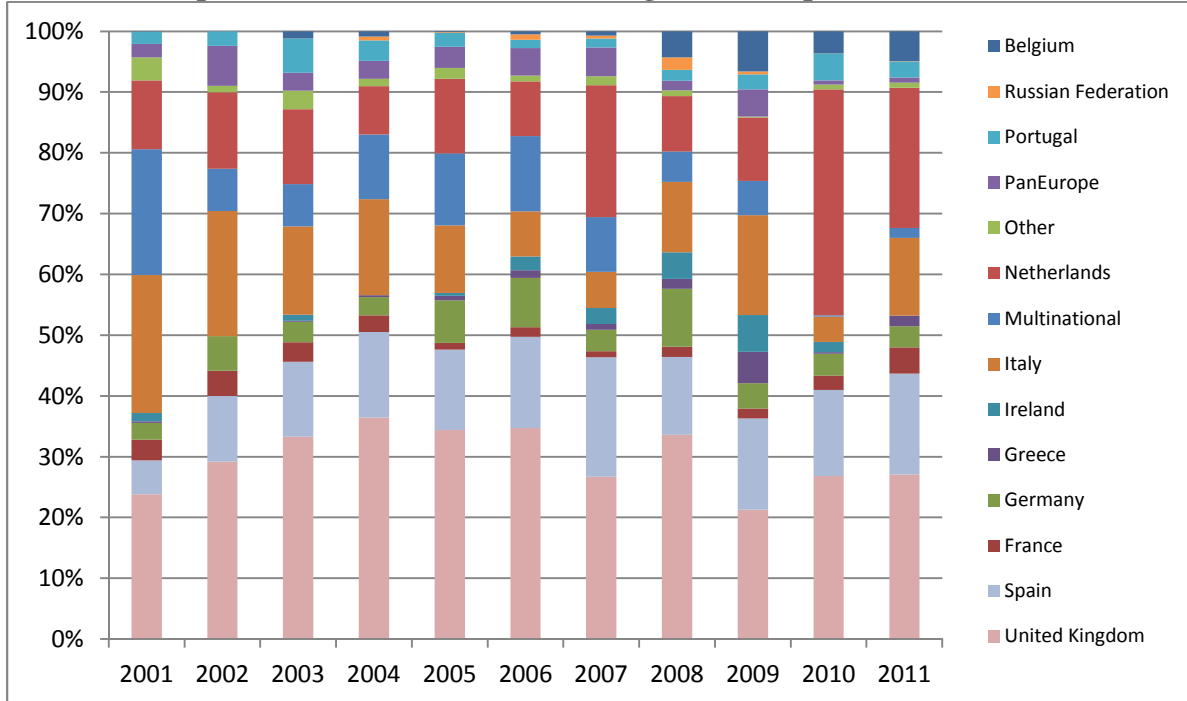
Source : ECB / Eurostat

Chart 5: US and European cumulated Securitization issuances



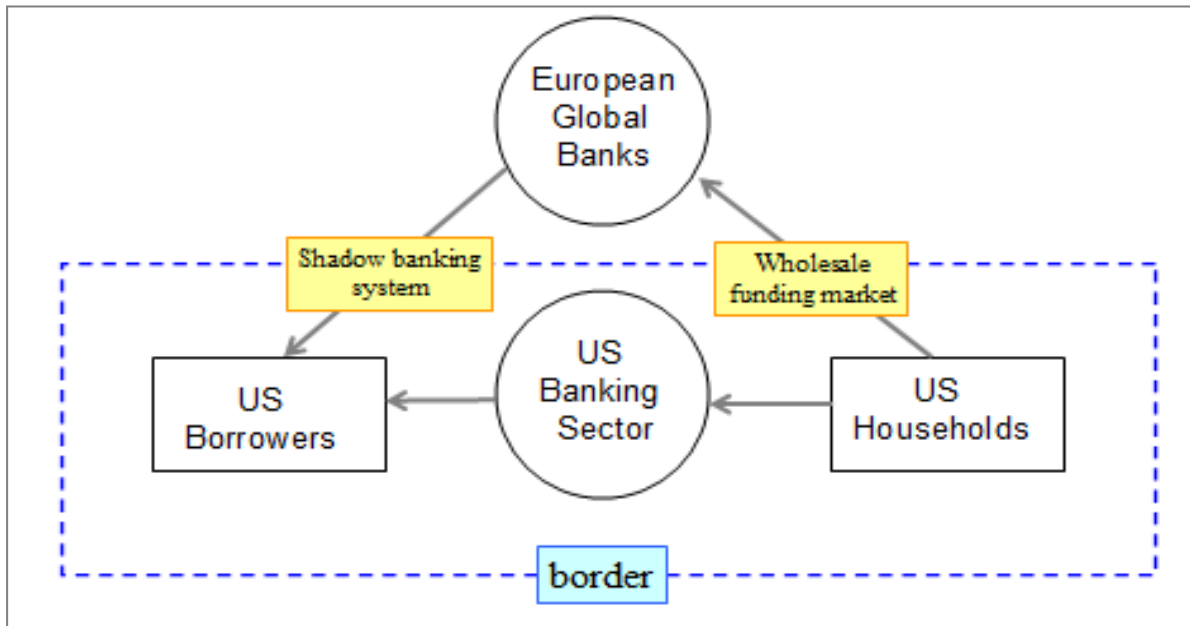
Source : SIFMA

Chart 6: European countries market shares in global European securitization issuance



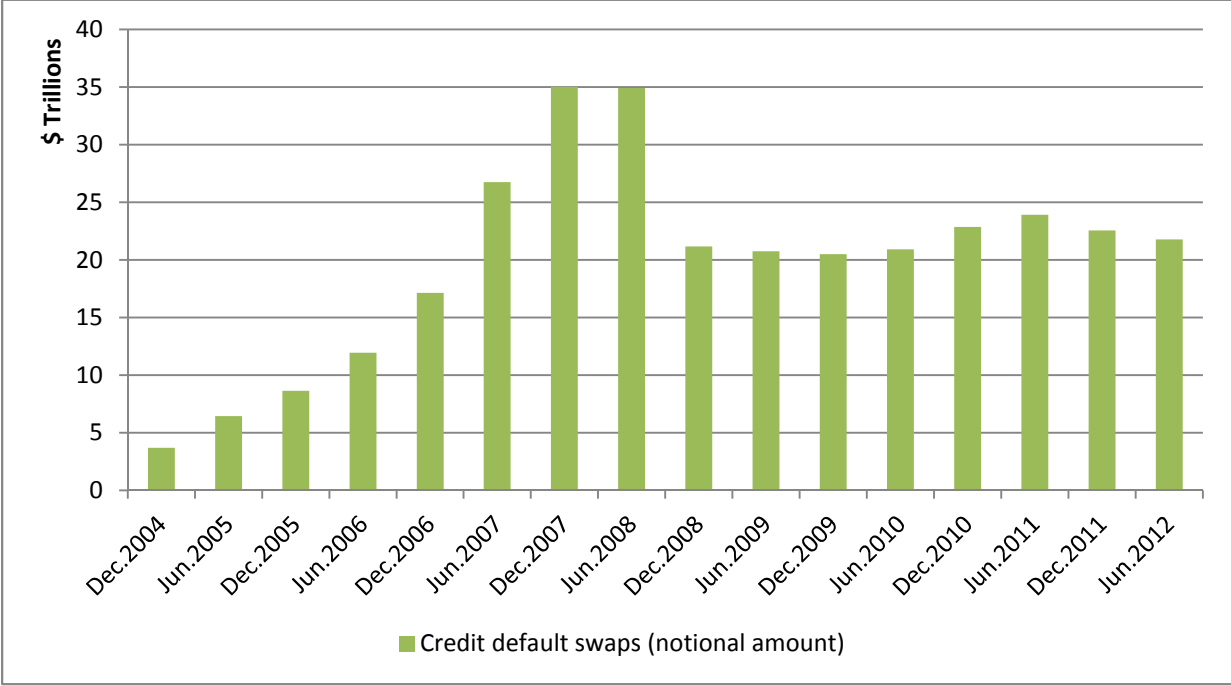
Source : SIFMA

Figure 5: European banks influence in US



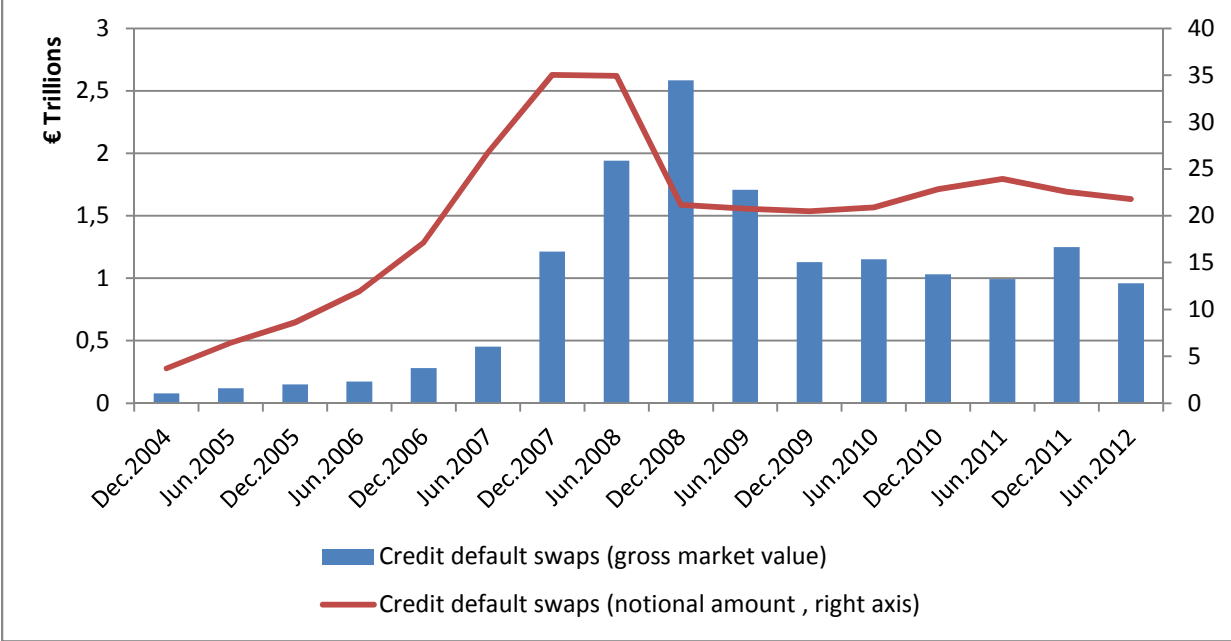
Source : Global banking glut (Shin, 2012)

Chart 7: Global CDS issuance in notional value



Source : BIS

Chart 8: Global CDS issuance in gross market value



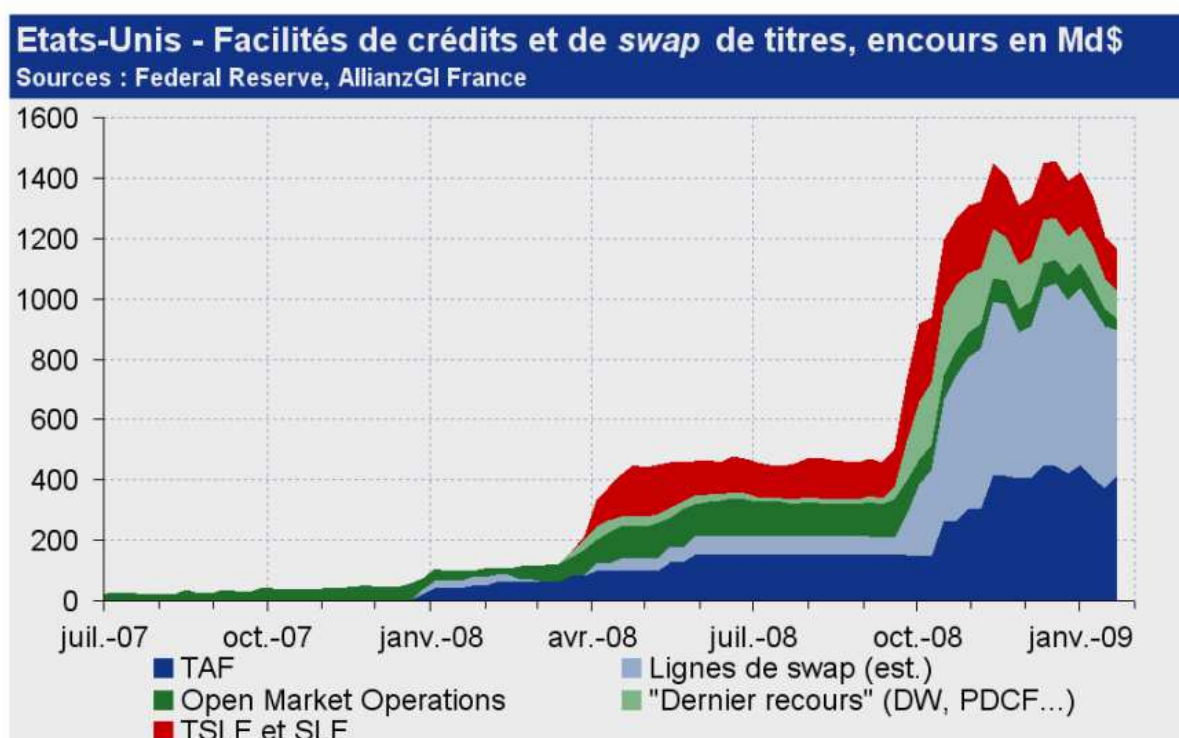
Source : BIS

Table 2: European banks influence in top 5 credit derivatives counterparties history

Nb / Year	2002	2003	2004	2005	2006	2008	2009	2010
1	JP Morgan Chase	JP Morgan Chase	Deutsche Bank	Morgan Stanley	Morgan Stanley	Goldman Sachs	JP Morgan Chase	JP Morgan Chase
2	Merrill Lynch	Deutsche Bank	Morgan Stanley	Deutsche Bank	Deutsche Bank	Morgan Stanley	Goldman Sachs	Goldman Sachs
3	Deutsche Bank	Goldman Sachs	Goldman Sachs	Goldman Sachs	Goldman Sachs	Deutsche Bank	Barclays	Bank of America
4	Morgan Stanley	Morgan Stanley	JP Morgan Chase	JP Morgan Chase	JP Morgan Chase	JP Morgan Chase	Deutsche Bank	Morgan Stanley
5	Credit Suisse	Merrill Lynch	UBS	UBS	Barclays	Credit Suisse	Morgan Stanley	Barclays

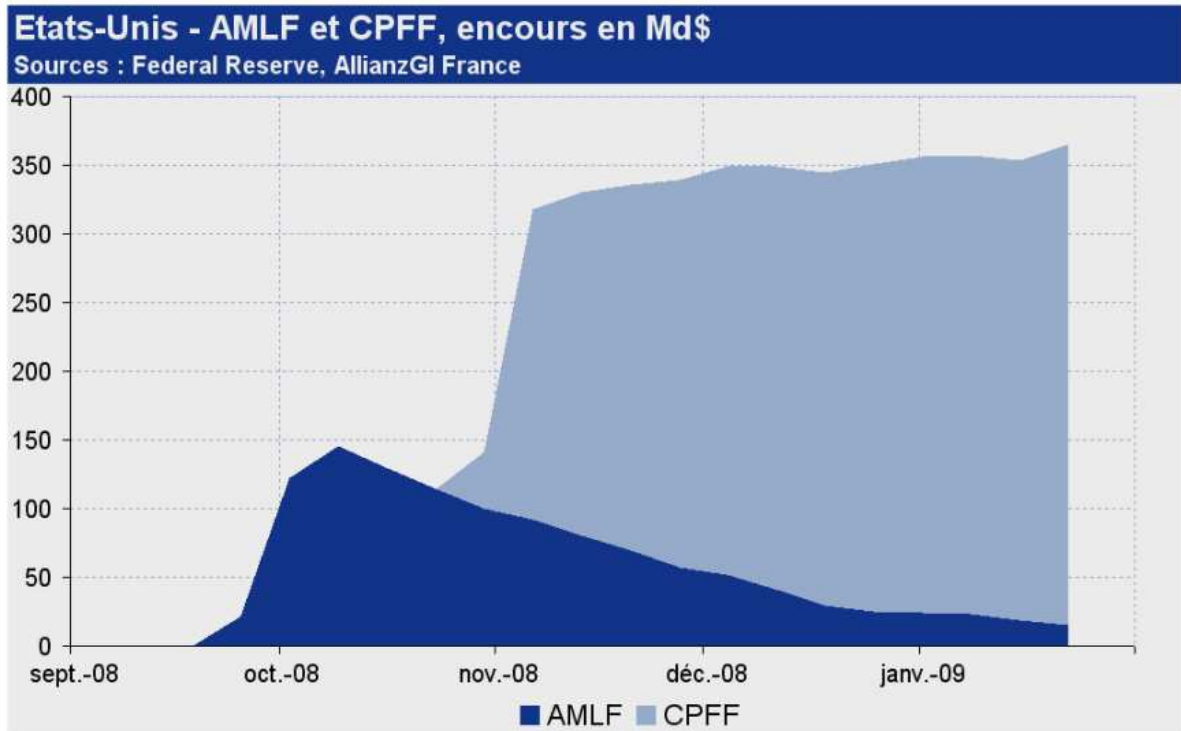
Source : Fitch rating studies 2005-2011

Chart 9: US Federal Reserve facilities for Banks and primary dealers



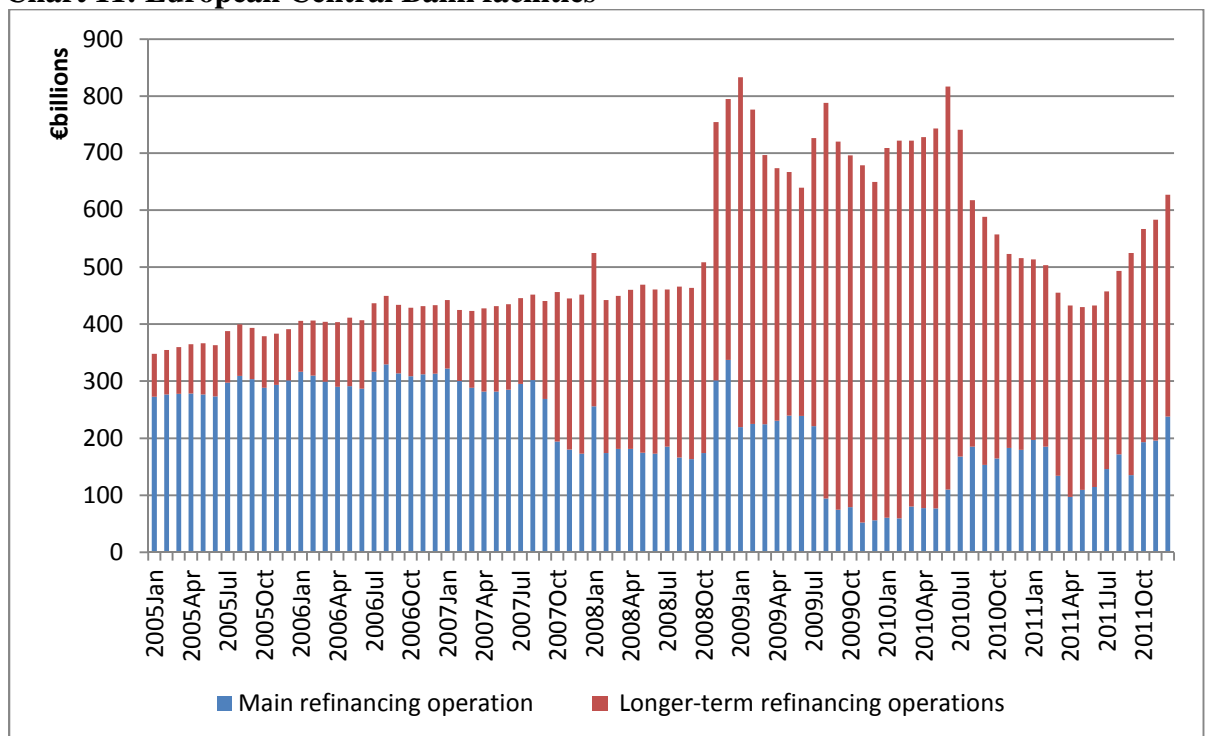
Source : Bentoglio & Guidoni (2009)

Chart 10: US Federal Reserve ABCP facilities



Source : Bentoglio & Guidoni (2009)

Chart 11: European Central Bank facilities



Source : ECB

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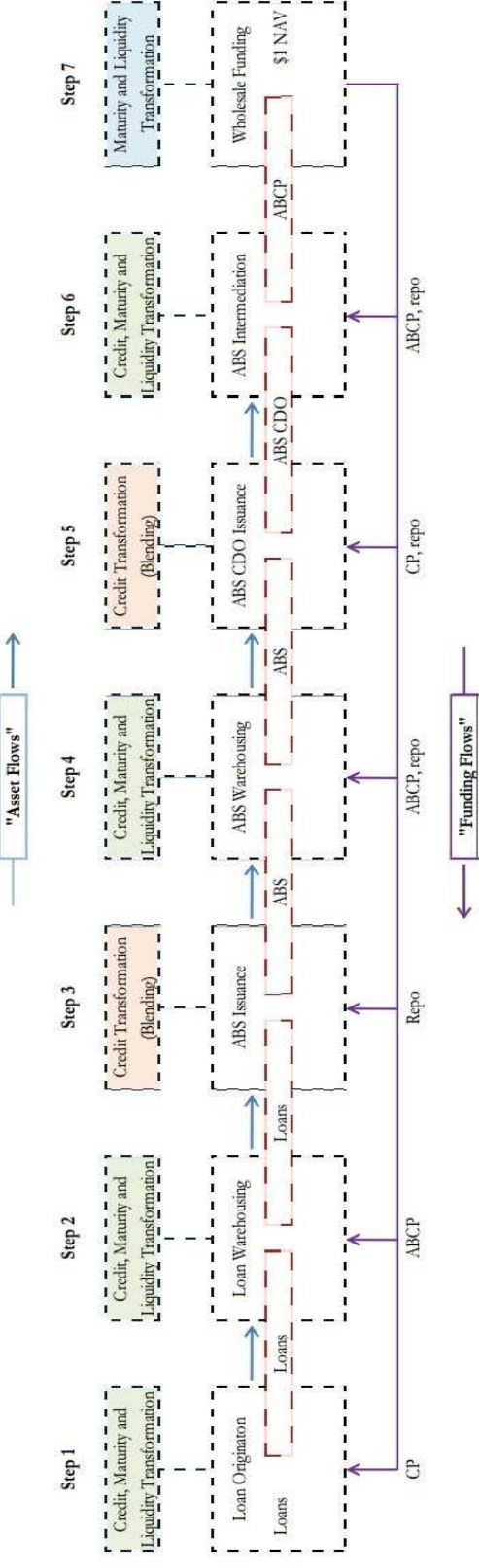
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Appendix 1: The Shadow Credit Intermediation Process

Exhibit 3: The Shadow Credit Intermediation Process

The shadow credit intermediation process consists of distinct steps. These steps for a credit intermediation chain that depending on the type and quality of credit involved may involve as little as 3 steps and as much as 7 or more steps. The shadow banking system conducts these steps in a strict sequential order. Each step is conducted by specific types of financial entities, which are funded by specific types of liabilities (see Table 2).



Source: Shadow Banking (Pozsar, Adrian, Ashcraft, Boesky (2010))

Appendix 2: Primary dealers list

N°	Name	Europe
1	Bank of Nova Scotia, New York Agency	
2	BMO Capital Markets Corp.	
3	BNP Paribas Securities Corp.	X
4	Barclays Capital Inc.	X
5	Cantor Fitzgerald & Co.	
6	Citigroup Global Markets Inc.	X
7	Credit Suisse Securities (USA) LLC	X
8	Daiwa Capital Markets America Inc.	
9	Deutsche Bank Securities Inc.	X
10	Goldman, Sachs & Co.	
11	HSBC Securities (USA) Inc.	
12	Jefferies & Company, Inc.	
13	J.P. Morgan Securities LLC	
14	Merrill Lynch, Pierce, Fenner & Smith Incorporated	
15	Mizuho Securities USA Inc.	
16	Morgan Stanley & Co. LLC	
17	Nomura Securities International, Inc.	
18	RBC Capital Markets, LLC	
19	RBS Securities Inc.	
20	SG Americas Securities, LLC	X