Preliminary draft*

Universal Banking and Shadow Banking in Europe

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Abstract:

The outbreak of the subprime crisis in 2007 revealed the existence of a completely parallel funding system outside of regular banking, the so-called shadow banking system (SBS). Different features specific to continental Europe make it difficult to just copy and apply the analysis of the US SBS to a reality that is different on the old continent. We examine these questions in five parts. We begin with (1) the distinctive features of continental European banks and their regulatory situations. We proceed to take up how (2) the financialization of universal banks gave rise to "market-based banking," corresponding to a new form of financial intermediation. This may help us understand (3) the differences and similarities between the shadow banking systems in the US and Europe. (4) Understanding interconnection in the shadow banking system is as important as understanding the conditions in which it emerged. Finally, (5) European shadow banking has been "hybridized" by certain innovations borrowed from US finance (such as securitization), grafted onto an already receptive model.

*This preliminary draft is part of a European project in progress on shadow banking.

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The outbreak of the subprime crisis in 2007 revealed the existence of a completely parallel funding system outside of regular banking, the so-called shadow banking system (SBS). Since then, this subject has become a central field of academic research with numerous studies seeking to evaluate its size, understand its functioning, describe the entities involved, and assess its degree of responsibility for the dire straits the world financial system has traversed in recent years. However, as far as analyses, detailed information, and data on this subject is concerned, there is a large gap between what is available for the US and what is available for Europe. It's true and has been well established that these methods of funding emerged in the US financial system before they did in Europe. However, there are different features specific to continental Europe that make it difficult to just copy and apply the analysis of the US SBS to a reality that is different on the old continent. We examine these questions in five parts. We begin with (1) the distinctive features of continental European banks and their regulatory situations, which were different from those of US banks. Reforms were implemented in the 1980s which led to extensive financial deregulation. We proceed to take up how (2) the financialization of universal banks gave rise to "market-based banking," corresponding to a new form of financial intermediation. This may help us understand (3) the differences and similarities between the shadow banking systems in the US and Europe. But it is also not possible to focus only on Europe, given the worldwide nature of shadow banking activity, as well as the high level of interconnections between its worldwide components and within the traditional global banking system. (4) Understanding interconnection in the shadow banking system is as important as understanding the conditions in which it emerged. Finally, (5) European shadow banking has been "hybridized" by certain innovations borrowed from US finance (such as securitization), grafted onto an already receptive model. The theory of financial intermediation provides us with a useful analytical framework. Within this perspective, we aim to demonstrate that the shadow banking system may be viewed as the

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latest stage in the evolution of financial intermediation resulting from financial deregulation and from financial innovations such as securitization.

1. Universal banking: a distinctive feature of continental European capitalism

In universal banking, banks operate extensive networks of branches, provide many different services, and hold different claims on firms (including equity and debt). The prototypical universal bank offers credit and deposit operations at minimum, as well as all forms of securities transactions (issuance, brokerage and securities deposits). Universal banks have been operating for a long time in several European countries. They played a major role in Germany during the industrial revolution from 1870 to 1914 (Calomiris, 1995). According to Calomiris, German industrial firms enjoyed lower financial costs than the United States thanks to universal banks. Universal banking was also considered one of the key factors of the reconstruction and the rise of industry in the Federal Republic of Germany after World-War II (Buschgen, 1979).

French banking history is different. Bank specialization was a key characteristic of the French banking system during the postwar period. The Banking Act of 1945 introduced a strict separation - in the US Glass-Steagall style – between two types of banks: business banks which can have industry shares, but cannot collect deposits, and deposit banks which may collect deposits from the population, but are not allowed to have industry shares. But the French banking Act of 1984 paved the way for universal banking, thereby mirroring the German universal bank model. With the Banking Act of 1984, a new framework was imposed on all “credit institutions”, which represented the first stage in the liberalization of the French banking system. This act abolished the legal distinctions between business banks and deposit banks. Since then, universal banking has been the dominant model in France.

There are different models of universal banking in Europe. The British banking system also has universal banks, but the proportion of investment banking operations relative to retail banking is much greater than for the universal banks in continental Europe. This may be explained by the strong connections of British banks with the City.

Another characteristic of British banks, but also of French and Spanish banks, is the development of their activities at the international level, much more so than most US banks.

This penetration into the international market was a normal response to increasing competition. But it is not a new phenomenon. The desire to expand banking activities abroad goes back a long way. In the case of the UK, France and Spain, the internationalization of banking activity is linked to their history as colonial powers. Another factor favoring the expansion of banks abroad more recently was the process of European integration, a process which is in full development today. The creation of the euro currency in 1999 led to an acceleration of mergers among banks in the eurozone.

Finally, the organization of national banking systems in Europe differs from one country to another regarding the role of government. The importance of public involvement is a common feature of "coordinated" capitalisms (using the theory of the "variety of capitalisms") in continental Europe. Germany has a long standing history of public involvement in its banking sector. Three particular institutions deserve mention here. They are the Sparkassen (savings banks), postal savings institutions, and the German development bank called the Kreditanstalt für Wiederaufbau (KfW), or Bank for Reconstruction. These institutions comprise a substantial share of the German financial system and they perform a wide range of financial services with a particular focus on building personal wealth and small business financing.

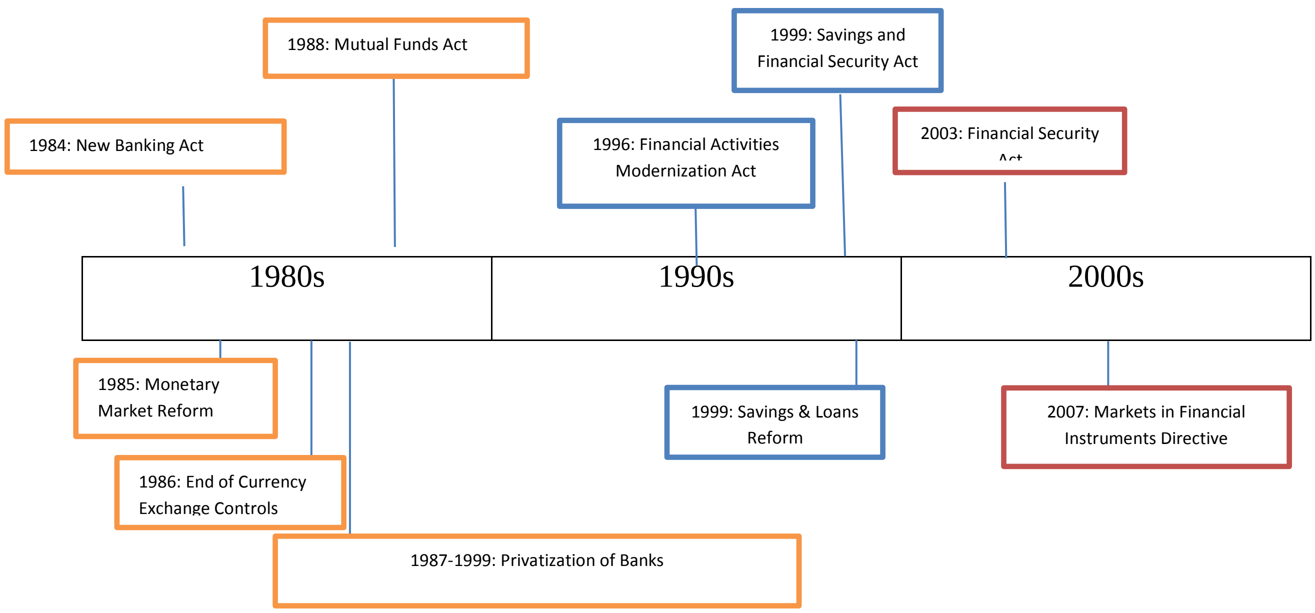
In the past century (from the 1930s up to the beginning of the 1990s), the Italian banking industry has been substantially managed by the state or by local public bodies. But after 1990 (thanks to the so called Amato law), the whole banking sector was "privatized" in a few years time. The "privatization" took place in parallel with an equally fast process of concentration, inspired if not directly managed by the Central Bank (Banca d'Italia). The target was to promote a system of large private banks in the form of limited companies. In addition, while the activity of the traditional commercial bank was limited to mainly providing short term commercial credit to firms, in the 1990s Italian banks were allowed to operate as "universal" banks.

As was the case in all the "advanced" economies, the 1930s crisis led the French government to strengthen the institutional framework and increase the state's role in financial and macroeconomic governance. These early post-war reforms were then extended during the period of the socialist government in the early 1980s, when the role of the state in financial ownership, control, and regulation was expanded considerably. However, after the mid-1980s, the state's role in finance was rapidly reduced due to extensive financial deregulation and privatization.

2. Financialization and the move to "market-based banking" in Europe (UK, France, Germany) in the 1980s following the neoliberal reforms[5]

In all the countries of the European Union, comprehensive neoliberal reforms were implemented in the 1980s, leading to extensive financial deregulation. This evolution culminated in 1990 with the creation of the common market of financial and banking services in the European Union, following the enactment of the Single European Act in 1987.
In France, the deregulation policies took the following steps during the period 1980 – 2000:

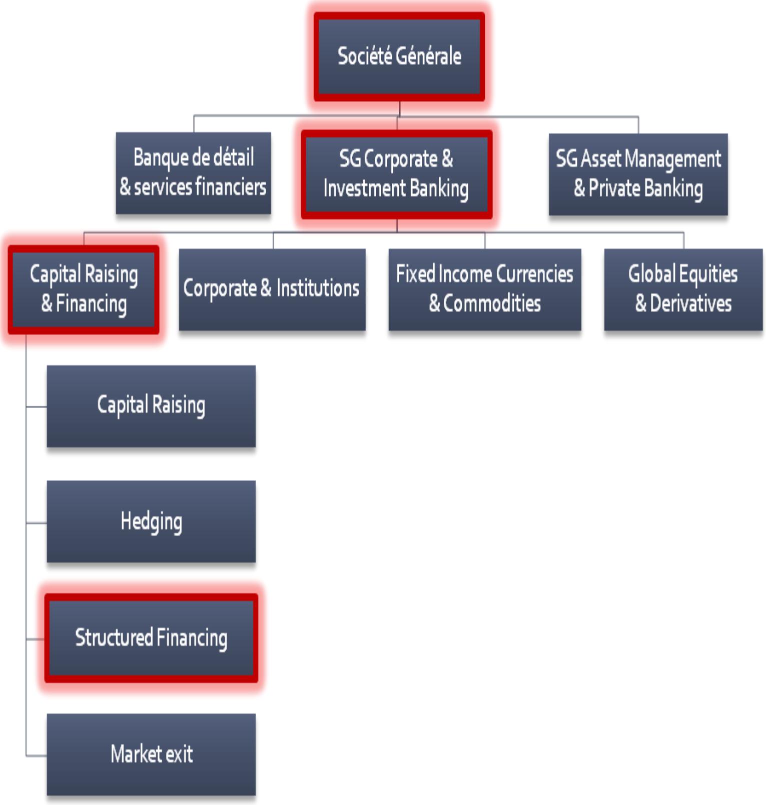
Deregulation Timeline in France



Source: E. Jeffers, Banking deregulation and the financial crisis in the US and France.

[5] Hardie & Howarth, 2010

As a result of financial deregulation, banking systems underwent financialization in the 1980s and the 1990s. This process accelerated in the 2000s until 2008. The financialization of universal banks involved a wide range of activities, from increasing retail activities internationally to derivative trading and investment in complex securities. It also included increasing use of market-based sources of borrowing to finance the asset side of the banks' balance sheets. On the asset side, banks add a new "market portfolio" to their "traditional credit portfolio". The structure of universal banks changed with the growing importance of investment banking relative to retail banking. The French bank Société Générale, very active in financial markets, provides a good illustration of the impact of financialization on bank structures: besides retail banking ("banque de détail"), investment banking and asset management have also become major pillars of the bank's activity and revenues.



Source : Société Générale

The financialization of universal banks gave rise to “market-based banking” which corresponds to a new form of financial intermediation we will call “market intermediation” and which can be characterized by:

- Profound changes in the structure of banks’ balance sheets with a spectacular increase of securities both on the asset side and the liability side, as illustrated by the table below for French banks.
- New strategy among banks with respect to risk management: traditional banking is based on internalized risk management (risks remain within balance sheets), whereas market-based banking uses recent financial innovations (derivatives, securitization) to externalize risks, i.e. to transfer risks to market investors.

<u>Changes in the banking balance sheets in France*</u>

Assets (in %)	**1980**	**2000**	**2006**
Customer loans	84	41	30
Securities	5	45	55
Fixed assets	9	7	5
Others	2	7	10
Total Assets	**100**	**100**	**100**
Liabilities (in %)			
Interbank opération (net)	13	10	5
Customer deposits	73	26	24
Securities	6	48	54
Others	0	7	10
Shareholder equities and provisions	8	9	7
Total Liabilities	**100**	**100**	**100**

* AFB banks, excluding mutual and cooperative banks.

Source: D. Plihon Commission bancaire data.

The internal market of financial and banking services, which is at the core of European construction, played a major role in the rise of “market-based banking”. The European directive on investment services, issued in 1990, provided a legal framework for banks to provide investment services. This led to the recognition of the dual dimension of bank intermediation: traditional intermediation based on loans and deposits, and market-based intermediation (i.e. market intermediation), whereby banks borrow and lend through market instruments.

One of the conclusions of our analysis, which provides evidence for the growing role of “market-based banking”, is that the categorization of financial systems between bank-based and market-based systems put forward by Allen & Gale (2001) is problematic. In fact, in Europe, banks became major players in financial markets.

3. Shadow banking system (SBS) in the US and in Europe: similarities and specificities

To what extent does the SBS extend the evolution that led from traditional banking intermediation to market intermediation? For that evolution did lead to a new and distinct form of financial intermediation: shadow banking.

First, let us examine what the SBS is.

Definition of the SBS

Different definitions of the SBS have been given. It is interesting to note the variety of definitions; they result from the difficulty of defining precisely what constitutes the SBS.

- The Financial Stability Board (FSB, April 2011) gives two defintions, one broad, the other narrow:
- *The broad definition*: “credit intermediation involving entities and activities outside the regular banking system”.
- *The narrow definition*: “a system of credit intermediation that involves entities and activities outside the regular banking system, and raises (1) systemic risk concerns, in particular by maturity/liquidity transformation, leverage and flawed credit risk transfer, and/or (2) regulatory arbitrage concerns”.
- The European Economic and Social Committee (EESC, 2012) underlined [that] “there are many ways in which shadow banks replicate traditional banks, and some shadow banks **are part** of traditional banks.”

This definition reflects the fact that shadow banking occurs both outside and partially within the banking system. We find this definition more useful in understanding the European SBS, as it is closely linked to the universal banking model which is dominant in Europe.

In order to better understand what the SBS is, we will examine the activities it performs, the entities involved, and its size.

Activities

The two shadow banking activities that are economically most bank-like concern credit intermediation involving maturity/liquidity transformation and credit risk transfer. The main channels through which they give rise to shadow banking are securitization and funding of financial entities and collateral intermediation.

The securitization function serves the needs of large institutional cash pools that seek short-term investments and—more controversially—the demand of banks for assets that can be used to secure repo funding.

The key difference between bank-based intermediation and securitization is that banks transform risks on a single balance sheet, while in securitization the risks are supported by a chain of multiple balance sheets and various sources of capital. Such an activity may be used in excessive maturity and liquidity transformation, leverage, as well as avoidance of bank regulations.

The key difference between securitization and the allocation of cash pool savings to government debt is that the latter does not involve credit risk transformation (although it still involves some maturity and liquidity risk transformation, since cash pools can prefer assets with shorter maturity and higher liquidity than that of long-term government debt).

Entities

- On the borrowing side, the SBS includes entities (SIV, SPV) involved in securitization and on the funding side, the repo markets and MMF. When examining shadow banking entities other than MMF, the FSB stressed the fact that credit intermediation activities by non-bank financial intermediaries that are close in nature to bank activities create a potential for “runs” by their investors, creditors, or counterparties and are potential sources of systemic risk.

Primarily, these entities are:

- Special Purpose Vehicles (SPV)
- Broker-dealers
- Hedge funds (whether they are part of the shadow banking system is debatable)
- Securities lenders
- Cash funds
- Money Market Funds (MMF)
- Investment banks

➢ The EESC definition (2012) shows that some shadow banks are part of commercial banks.

➢ In Europe “Other financial intermediaries” are a category of fund flows covering financial institutions that are not banks, central banks, public financial institutions, insurance companies, or pension funds. It covers most of the agents engaged in shadow banking. Whether insurance companies are in some cases to be included in the SBS remains debatable.

Size

In the United States, flow of funds data make it easier to identify shadow banking activities. In the euro area, most shadow banking activities are covered indistinguishably in the quarterly euro area accounts (EAA) under the heading “other financial intermediaries (OFIs)”. The OFI category excludes intermediaries like MMFs, which are included in other sectors, but engage in activities that can be considered as shadow banking. More work still needs to be done before a clear picture can be drawn.

Numerous studies have attempted to estimate the size of the shadow banking sector, however the size varies significantly from one estimate to another. The Financial Stability Board considers that the **global** shadow banking system, measured by “other financial intermediaries” (see definition above), grew rapidly before the crisis from $26 trillion in 2002 to $62 trillion in 2007 and, after a decrease in 2008, to **$67 trillion in 2011**, which represents approximately 111% of aggregated GDP of all the countries under review. According to the FSB, the SBS of the Euro area was roughly equivalent to the US SBS in 2011, and the European SBS (basically, the Euro area plus the UK) was significantly larger than that of the United States, as shown in the figures below.

SBS global size in 2011:	$67 trillion
of which US:	$23 trillion
Euro area:	$22 trillion
UK:	$9 trillion

Source: FSB, 2012

The SBS share of total financial intermediation did, however, decrease from 27% in 2007 to 25% in 2009-2011. The US has the largest SBS with assets of $23 trillion in 2011 (its share of the global SBS decreased from 44% in 2005 to 35% in 2011). Bouveret estimates the size of the European shadow banking system at $13 trillion, but the FSB 2012 report estimated the euro area SBS at $22 trillion and the UK at $9 trillion.

As Turner (2012) explains, "measures of 'the size of the shadow banking' system are not only varied but also not all that useful – because it is the nature of a complex interconnected system that any measures of its size depend crucially on the counting system used."

Non-bank financial intermediaries

In the US, in the second quarter of 2011, the size of the shadow banking system was 53% of the total of banks and shadow banks. In contrast to the US, banks continue to be the main financial intermediaries in the euro area, where they intermediate more than three times the assets intermediated by shadow banks. That is why the overall size of the shadow banking was "only" 28% of the total in the euro area. The Netherlands is the country where non-financial banking institutions (NFBI) have the largest percentage of total assets (45%) compared to the US (35%), the euro area (30%), and the UK (25%) (FSB, 2012).

In other words, Europe continues to be financed by banks which through their universality integrate market intermediation as well as securitized intermediation or securitized banking (Gorton et Metrick, 2011).

Like traditional banks, shadow banks intermediate credit. But unlike the traditional banks where intermediation occurs under "the same roof" (Pozsar and al., 2010), it is through a chain of non-banking intermediaries that it is done in the SBS in different stages. These stages include a vertical slicing up of the credit intermediation process usually carried out by traditional banks.

Financial flow can take place through banks (bank intermediation) and the advantages of such intermediation in terms of information, transaction costs, and risk mitigation are well-known.

Bank

Short-term deposits ------- > Long-term loans

But many financial flows do occur outside banks. These flows can go from small savers (households) to borrowers (corporations or government) via the financial markets (market intermediation) or non-bank credit intermediaries. Not all of them constitute shadow banking intermediation but they are labelled as such when they involve those distinctive features of banking – leverage and maturity transformation – features that create distinctive risks.

Shadow bank chain

Instant access deposit ---> MMF -----> SIV ----- >Long-term loans

Conduit

ABCP

Specific features of the European SBS

Securitization is smaller in volume in the euro area than in the United States. However, the euro area is not a homogenous group—witness the strength of shadow banking in a country like the Netherlands as compared with other euro area nations. In fact, euro area banks have been increasingly relying on funding from other financial institutions, including securitization vehicles. Although there is definitely a certain degree of heterogeneity among these countries, a strong interconnection exists between the European banking sector and shadow banking.

The report presented by the Basel Committee on Banking Supervision (2011) on the development of securitization shows that US and European issuance has evolved differently since 2008. After a strong increase until 2008, issuance (retained or placed) decreased sharply in Europe. In contrast, volumes in the US securitization markets fell sharply in 2007 and 2008, but increased slowly in 2009 and 2010. Overall issuance has continued in Europe and in the United States despite the crisis, though at lower levels and supported to a significant degree by public institutions. In Europe the ability to use securitized products as collateral for eurosystem or Bank of England credit operations has increased demand, whereas in the US, government-sponsored enterprise (GSE) securitization markets have played a leading role.

The majority of securitization transactions in the euro area have consisted of monetary financial institutions (MFI) loan securitizations, in particular those of household mortgage loans. These transactions result in the issuance of residential mortgage-backed securities (RMBSs). Other common types of securitization by MFIs involve commercial mortgage loans (commercial mortgage-backed securities or CMBSs) and consumer credit, e.g. auto loans or credit card debt (consumer ABSs).

Other types of transactions are also concerned, such as securitization of commercial paper (asset-backed commercial paper or ABCP), bonds, trade receivables of non-financial corporations, tax receivables of general government, and re-securitizations of already securitized assets.

The United Kingdom, the Netherlands, Spain, and Italy are the main issuers of securitized products in Europe. In addition to the issuance of assets for use as collateral, some evidence of market-based demand has emerged in Germany, the Netherlands, the United Kingdom, and also in Italy in 2010.

Concerning the various asset classes, residential mortgage-backed securities (RMBSs) represent by far the most prominent asset class except in Germany and Greece.[6] Issuance in Europe remained very high between 2008 and 2010, ranging between 53% (2009) and 76% (2008) of total issuance. RMBSs are also the most important asset class in the US. But the situation is quite variable in Europe. In Italy, the origination of mortgages is mainly bank-branch driven, and origination through independent advisers and other direct channels form only a small share of the market.

The ABCP market has traditionally been more developed in the United States than in Europe, even if both markets have seen their outstanding volumes decrease: in the United States, volumes went from $842 billion in January 2008 to $396 billion in October 2010, and in Europe from €125 billion to €38 billion.

[6] ECB, Recent developments in securitization, February 2011

Some European banks currently target the US market and choose to issue mainly in US dollars. The Netherlands has become one of the main European markets for securitization.

French banks, unlike other European countries, did not employ securitization techniques for residential mortgages. Few RMBS deals have been priced in France in recent years. Of those that were priced, the majority were issued from the French Residential Asset Program which Calyon (Crédit agricole Corporate and Investment Bank) leads. From 2004 to 2006, five transactions were issued, totalling €1.3 billion.

French mutual funds are established, managed, and distributed by big banks or insurance companies—they are captive (bank-controlled). Pre-existing customer relationships contribute to high inflows of funds managed by banks. This is possible because of the « universal » character of French banks, one consequence of which is to partially integrate the SBS into the traditional banking system.

Since securitization is a practice according to which an asset or a pool of cash flow-producing assets is converted into marketable securities, it often necessitates the use of entities—financial vehicle corporations (FVCs) —dedicated to holding the securitized assets and/or issuing the marketable securities. That is how FVC are engaged in securitization. Banks offer support to SPVs, and also directly invest in safe tranches of securitized debt.

FVCs may be set up for a single transaction acquiring specific assets from one originator, or they may acquire assets from various sources and/or buy new assets throughout the life of the FVC. Some vehicles of the latter type include ABCP conduits, structured investment vehicles (SIVs), and collateralized debt obligations (CDOs).

4. The interconnection between the two SBS at the heart of the international crisis

Role of monetary policy in the development of the SBS

Monetary policy has affected shadow banking in more than one way. First, the US dollar has played a major role in the rise of shadow banking. It is the international currency and a reserve currency and therefore is in great demand. This flows from the current account imbalance, with current account surpluses ending up as a claim against some category of equity or credit elsewhere in the world.

For a variety of historical reasons, the United States has very developed non-bank asset management, in contrast to countries with more bank-based systems. Investors and asset managers in other countries have used the US SBS to meet their needs.

In addition, when interest rates are low, a steeper yield curve that increases the payoff for maturity transformation and risk-taking can lead to a rapid expansion of shadow banking, potentially leading to financial fragility (Adrian and Shin, 2010; De Nicolò and others, 2010; Singh and Stella, 2012). For this reason, shadow banking is a concern in monetary policymaking.

European bank links with the SBS

There are differences between the SBS in the US and in Europe. However, these differences did not insulate the European banking system from shadow banking losses and risks.

One of the reasons for this was that the European banking system was involved in the shadow bank intermediation of credit flow from US savers to US borrowers.

The second reason was that European banks were large receivers of short-term dollar funding from US money market funds. MMMF funded banks as well as ABCP conduits. Other segments of shadow banking provided funding to the regulated banks.

The third reason is that banks sponsored ABCP conduits and SIVs. The liabilities of these financial vehicles, which were set up outside bank balance sheets, may actually have been guaranteed in some form by the originator banks, thus creating an additional link.

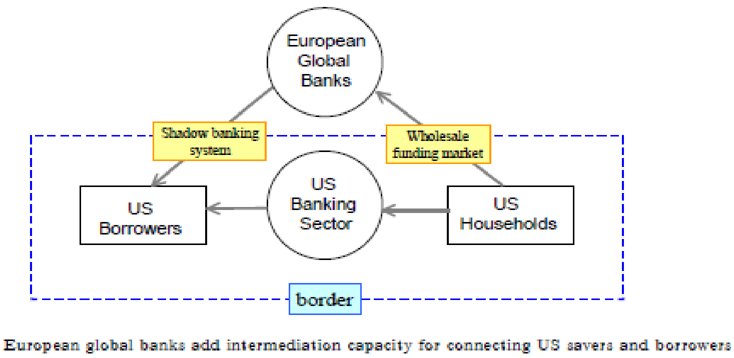
The fourth reason is that London is a major center for the trading and risk management of structured credit and derivatives relating to securitized credit extension to US borrowers. Major European banks such as UBS, Deutsche bank, BNP, RBS, and Barclays were involved just as much as Citigroup, Goldman Sachs, or Morgan Stanley in the complex intra-financial links of the SBS, both via their London and New York operations.

The fifth reason is the fact that large European banks, such as the German Landesbanken, played a major role as buyers of US structured credit. European banks used securitized assets to attract repo funding, raise funds more cheaply, and boost their returns. Both US and European banks hold a good portion of AAA tranches of securitized assets (at least a third of total issuance in 2006, according to Greenlaw et al, 2008).

Finally, sovereign bonds account for two thirds of the EU-originated collateral used in repo transactions. The role of these markets became evident with the sharpness of the euro area crisis.

The global crisis has revealed the strong interconnection and links of short-term secured funding markets—such as repo or prime broker finance—with money market mutual funds, banks, investment bank broker dealers, hedge funds, and asset managers all seeking to earn bigger returns through security lending around the world.

As shown by Shin (2011), European global banks have been very active in the US financial system, taking advantage of the easy credit conditions up to 2007. A large share of the operations of European banks in the United States took place within the SBS. US subsidiaries and branches of European banks were raising wholesale funding through money market funds (MMFs). They lent massively to US market-based financial intermediaries involved in the securitization of loans. In doing so, European banks influenced the credit conditions in the United States. They contributed to the crisis and to its international extension.



Source : Shin (2011)

5. Hybridization, path dependency, and variety of capitalism

Initially, shadow banking seemed to originate in the US, where the development of non-bank credit intermediation was most advanced, and many of the events which marked the developing crisis related to non-bank institutions and markets. Today, however, two-thirds of shadow banking occurs outside the U.S., in the Euro area, the UK, and emerging markets.

Shadow banking did not begin in 2007 or in the 2000s. As seen in the first part of this paper, it finds its roots in the deregulation which took place in the beginning of the eighties to respond to major changes in the seventies (floating exchange rates, inflation, interest rate volatility, euromarkets, etc.) affecting their rate of return and profits.

Our view is that financialization gave rise to shadow banking. The SBS should not be seen as something parallel to and separate from the core banking system, but instead deeply intertwined with it. According to the original banking system in place and the path followed, financialization took different forms but contributed through reciprocal borrowing to the rise of shadow banking in the US and in continental Europe. In the US, because of the Glass Steagall Act, shadow banking first developed outside banks, yet with strong connections to them. Regulation Q prohibited banks and S&L from offering a rate higher than 6% on deposits, meaning banks could not compete with Merrill Lynch, Fidelity, Vanguard, and other NBFI. These firms created money market mutual funds (MMMF) and in 1977, Merrill Lynch introduced cash management accounts (CMA), which made it possible for customers to write checks. But these accounts were not protected by FDIC deposit insurance. Banks argued their problems came from the Glass Steagall Act, which was finally repealed in 1999. By the mid-1990s, shadow banking was booming. In terms of total assets, it surpassed traditional banking for a brief time after 2000 and again between 2004 and 2007. In 2011 it appears to have once again passed traditional banking, although figures are subject to caution.

This phenomenon was not at all primarily limited to the Anglo-Saxon world. For example, France, too, was affected by the process of deregulation, even if it sometimes took on other forms due to the initial context and the respective roles of banks and financial markets in the economy. Deregulation had at least three major consequences there: (1) it increased competition between financial institutions, both among banks themselves and between bank and non-banking financial institutions; (2) it led to the restructuring of the banking industry, the purpose of which was to attain a critical mass or to have a presence in the various business lines (banking, investment, insurance, and so on), and (3) it furthered the development of the universal bank model to the detriment of specialized banks. Because of these changes, banks played an increasing role in market activities, and banks and capital markets became more closely interrelated. The financialization of French universal banks led to "market-based banking," corresponding to a new form of financial intermediation – i.e. market intermediation—that already contained the seeds of shadow banking within the perimeter of the banks.

Traditional banking vs market-based banking & securitized banking[7]

Traditional banking	Market-based banking	Securitized banking
Reserves Minimum levels set by regulators Shortfalls can be borrowed from central banks	**Whole sale funding of liquidity** Growing reliance on interbank and wholesale funding of liquidity from non-bank actors (MMF, …)	**Haircuts** Minimum levels set by counterparties No borrowing from central bank
Deposit insurance Guaranteed by the government	**Depositor protection** By new debt instruments close to stocks (subordinated debt)	**Collateral** Cash, treasury securities, loans, or securitized bonds
Interest rates on deposits Can be raised to attract deposits when reserves are low	**Interest on short-term bonds** Issuance of certificate of deposits when reserves are low	**Repo rates** Can be raised to attract counterparties when reserves are low
Loans held on balance-sheet	**Risks transferred to markets** Risk management using derivatives (CDS, …) and securitization to externalize risks => increase in off-balance sheet	**Loans securitized** Some securitized bonds may be kept on balance-sheet and used as collateral

Source: Gorton & Metrick (2010) and authors

Market-based banking can be viewed as an intermediate stage between traditional banking (originate to hold) and securitized banking (originate to distribute). In the market-based banking business model, banks are relying on the market-based financial system for their borrowing, lending, and risk management activity.

Conclusion

The SBS has become an essential pillar of global finance. Although it first grew up in the US, it has since taken on considerable weight outside the United States, particularly in Europe. This paper draws several conclusions. First, the SBS finds itself at the heart of the banking system, not parallel to it. This is particularly true in Europe, where the universal bank model has long dominated. Following deregulation, a "market-based banking" model was developed, whose effect was wide-ranging interconnectedness between banks and markets. The separation between market-based and bank-based banking does not exist in Europe. Secondly,

[7] We do distinguish between traditional, market-based, and securitized banking, whereas some authors such as Mehrling, following Pozsar (2011), indicate they prefer the term "market-based credit system" over "shadow banking system", showing by the same token that they do not distinguish between the two.

the European SBS has its own characteristics, even if it has been influenced and "hybridized" by certain innovations borrowed from US finance (such as securitization). Indeed, the European SBS exists within the framework of a different variety of capitalism than that of the US. Finally, while being different, notably due to distinct banking traditions, the US and European SBS are strongly interconnected, especially because of the deep involvement of the major European banks in the US financial system. These close ties played a prime role in quickly spreading the crisis throughout the world. International cooperation between the competent authorities is required in order to reduce the risks of instability linked to the global SBS.

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