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The Interconnections Between the Shadow Banking System and the Regular Banking System. Evidence from the Euro Area

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Abstract

One of the most important lessons of the global financial crisis has been the deep interconnectedness between the shadow banking system and the regular banking system. These two systems are linked through several channels, of which one of the most important is the financing provided by regular banks to the shadow banking system and vice versa. In addition, regular banks can originate loans that are securitized. Subsequently, part of the securitized instruments may remain on the balance sheet of the originating banks or be found on the balance sheet of other regular banks and shadow banking entities. These links between the two systems can increase contagion and systemic risks, which in turn may affect financial stability.

The financial crisis has acutely revealed the negative effects these interconnections can generate. The interconnections are underestimated by the available data because of the difficulties in gathering information on the euro area. Within this context, our paper tries to evaluate and analyze the interconnections between the shadow banking system and the regular banking system within the euro area, both in the pre-crisis period and currently. Finally, some measures to regulate the interconnections between these two systems are raised.

Keywords: shadow banking; traditional banking; the European banking system

Introduction

The global financial crisis revealed the negative consequences that the interconnections between banks and shadow banking entities have on financial stability. Moreover, the international dimensions of this interaction, more precisely the connections between the European banking system and the US shadow banking system, amplified the negative effects and propagated the crisis from the US to Europe. Against this background both researchers and regulators are interested in a better understanding of these interconnections in order to assess their size and find adequate measures to capture and manage the risks that this interaction raised.

One problem in the assessment of the interconnections between regular banks and shadow banking entities is the difficulty in gathering data and,

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sometimes, the lack of comparative data, due to the fact that there are various definitions for non bank financial institutions (NBFIs). Therefore, due to these limitations, we explicitly detail the definition used every time we present data.

In the euro area, the quarterly euro area accounts (EAA) include most shadow banking activities under the heading "other financial intermediaries" (OFIs). The OFI category comprises all financial institutions apart from those included in monetary financial institutions (MFIs), insurance corporations, and pension funds. It is important to note that OFIs exclude money market funds (MMFs) that are shadow banking entities.

In order to achieve our objectives, we organize our work in three sections. In the first one we analyze traditional banking and shadow banking from a comparative perspective. The second section presents and analyzes some data on the interconnections between regular banks and shadow banking entities in the euro area, but also in some other jurisdictions within Europe. Finally, we review some European regulatory measures that have been implemented in order to regulate the interconnections between banks and shadow banking entities.

1. Traditional banking and shadow banking - a comparative perspective

One of the main characteristics of the pre-crisis period was the development of a parallel banking system that was called shadow banking after having triggered the crisis. In the 20 years prior to the crisis, the US financial system was characterized by significant growth of non-bank credit intermediation. In other countries this phenomenon was not as obvious as in the US, but the banking systems of many countries had strong connections with the US shadow banking system via purchasing of credit securities, counterparties in derivative and repo markets, or the funding provided by the US shadow banking institutions (primarily the money market funds) (Turner 2011, p. 10).

The speciality literature has not reached a consensus on the shadow banking definition. The Financial Stability Board (FSB) (FSB, 2011) defines shadow banking in two ways:

- *The broad definition*: "credit intermediation involving entities and activities outside the regular banking system" (p.1).
- *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" (p. 3).

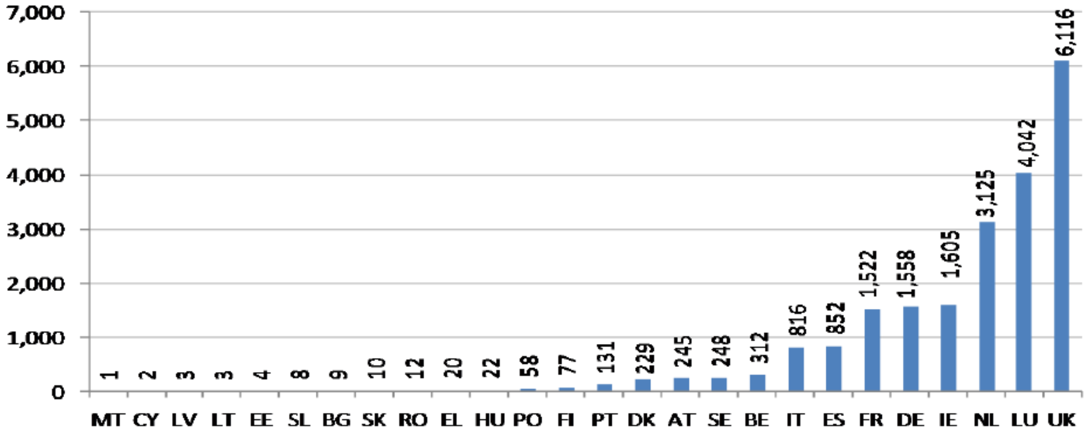
According to the recent data provided by the FSB, in the pre-crisis period, the global shadow banking system (SBS)[1] grew from $26 trillion in 2002 to $62 trillion in 2007. After a decrease in 2008, the level of the global SBS reached $67 trillion in 2011. As indicated by the same report issued by the FSB, the aggregate

[1] As indicated by the FSB (2012a, p. 3), the global SBS are proxied by "Other Financial Intermediaries". This category includes those financial institutions that are not: banks, central banks, public institutions, insurance companies, or pension funds.

size of the SBS in the period between 2009 and 2011represented about half the size of the banking system. It is important to note that even if the US has a very large SBS ($23 trillion in 2011), the SBS of the euro area ($22 trillion) is very close in size to the US SBS. Moreover, the SBS of the euro area combined with that of the UK ($9 trillion) is considerably larger than the US SBS (FSB, 2012a).

The size of the SBS differs from country to country. An overall picture of the size of the OFI sector across the EU 27 is provided by chart 1. The UK, Luxembourg, and the Netherlands have the largest SBS. At the same time, a lot of countries have a very small SBS (Malta, Cyprus, Latvia, Estonia, Slovenia, Bulgaria, Slovakia, Romania, Greece etc.). Most of these countries are new EU countries.

Chart 1. Size of the OFI sector across the EU 27 (December 2010, euros bn)



Source: European Commission, *Non-bank financial institutions: Assessment of their impact on the stability of the financial system*, Economic Papers 472, 2012a, p. 11.

Between traditional banking and shadow banking there are similarities and differences. Both traditional/regular banks and shadow banks perform credit intermediation. But while in traditional banking intermediation occurs under “the same roof” (Pozsar and al., 2010), in shadow banking intermediation occurs through a chain of entities. Therefore, operations are more complex in the shadow banking system than in the traditional banking system.

A notable difference between the two financial systems refers to regulation. Unlike shadow banks that are unregulated or little regulated, traditional banks are strictly regulated and supervised. Due to these constraints, regulated banks have access to central bank funding and deposit insurance schemes. Insured deposits are the main funding source for regulated banks. On the contrary, shadow banking is based on wholesale funding. The different sources of funding give also the differences in how panics materialize. The classical run on deposits manifests itself in traditional banking while a run on repos etc. is specific to the shadow banking system.

Traditionally, banks grant loans and hold them on their balance sheets until maturity (originate to hold model). Through securitization on the other hand, loans are sold and converted into securities (originate to distribute model). Apart from the systemic risk concern, shadow banking can be used to divert activities from the regulated financial segment to the unregulated segment (the regulatory arbitrage concern).

The development of shadow banking has raised a range of concerns for global regulators and supervisors. The FSB (2011a, p. 3) notes the systemic risk and regulatory arbitrage that shadow banking may pose. Besides these risks, the European Commission (2012, p. 5) also underlines the cross-jurisdictional reach of risks created by shadow banking entities and activities.

In this respect, the ICMA European Repo Council (2012, pp. 9-10) outlined a number of issues related to:

- the size of shadow banking;
- the regulatory gaps and the possibility of regulatory arbitrage;
- the problems associated with misalignments in the securitization process;
- the interconnections between shadow banking and traditional banking;
- the lack of transparency, due to the complexity of operations;
- the mispricing of risks;
- the possibility of allowing over-leveraging;
- the possibility of amplifying pro-cyclicality.

2. Connections between the banking system and shadow banking. Evidence from Europe

One of the lessons of the global financial crisis was the interconnectedness between the shadow banking system and the regular banking system, which can affect financial stability.

According to the FSB (2011), the main channels that feed the interconnections between the two banking systems are:

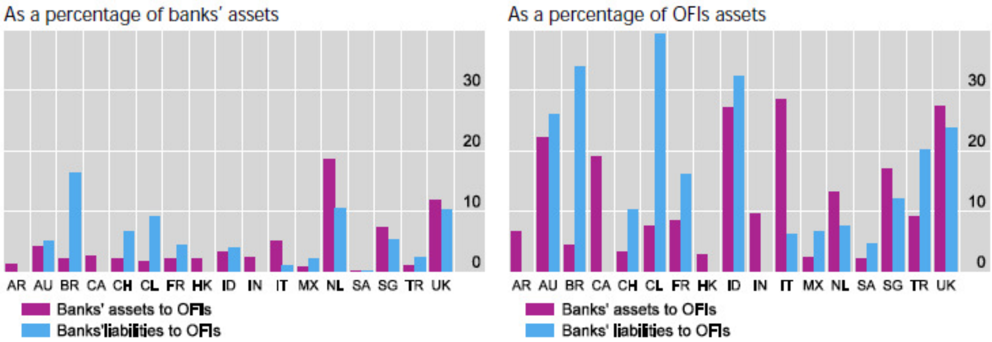
- regular banks may be part of the chain of the SBS;
- regular banks can provide support to the SBS through temporary exposures (warehousing), provision of funds, contingent credit lines;
- regular banks can invest in financial products issued by the SBS;
- regular banks can be funded by money market mutual funds or other entities that are part of the SBS.

Apart from the direct channels of contagion, the risks taken by the shadow banks can spread to regular banks via indirect channels, such as the massive sale of assets that could cause the decrease of prices of financial and real assets (European Commission, 2012, p. 6).

As stressed by the FSB (2012a, p. 20), the interconnectedness between banks and shadow banking entities (or non-bank financial intermediaries, NBFIs) can be measured by using the following indicators: banks' credit exposures to shadow banking entities and banks' dependence on funding from shadow banking entities (and vice versa). From this perspective, according to the FSB's findings, there are differences between financial systems taken into consideration in the 2012 global monitoring exercise of shadow banking.

Only in the Netherlands and the UK, is banks' credit exposure to NBFIs relatively large (ratios of banks' assets to NBFIs are above 10% of banks' total assets). Regarding banks' dependence on funding from NBFIs, note that the Netherlands and the UK are the jurisdictions that depend most on funding from NBFIs (the left- hand chart 2).

Chart 2. Banks' assets and liabilities to non-bank financial intermediaries



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

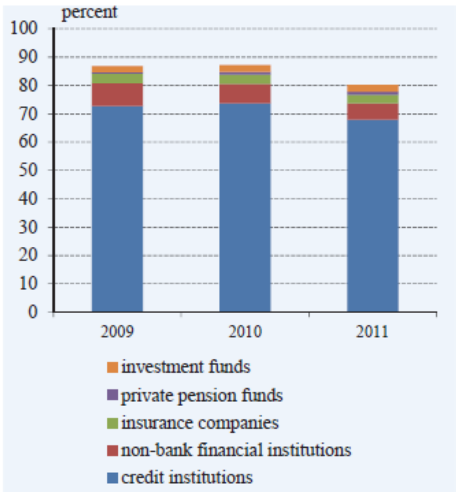
Note: Liabilities of banks to OFIs are not available for Argentina, Canada, Hong Kong and India. Countries with no data on assets and liabilities of banks to OFIs include China, Germany, Japan, Korea, Russia, South Africa, Spain and the United States.

Source: FSB, *Global Shadow Banking Monitoring Report 2012*, 2012a, p. 22.

The data provided by the same report reveals that the interconnections between the two sectors present greater risks to NBFIs compared to banks (right-hand chart 2).

This latter development is also consistent with other financial systems like the Romanian financial system, even if it is dominated by credit institutions and the SBS in that country is not large (chart 3).

Chart 3. Structure of the Romanian financial system (assets as a share of GDP)



Source: NBR, *Financial Stability Report 2012*, p. 21.

However, in the pre-crisis period, non-bank financial institutions did develop in Romania. Total net assets of non-bank financial institutions represented 8.4 percent of GDP (at end-2008) (NBR, *Financial Stability Report 2009*, p. 57).

But, according to the National Bank of Romania (NBR) data (NBR, *Financial Stability Report 2012*, p. 76), beginning with 2008 Q4 the activity of these institutions deteriorated (the crisis manifested itself in Romania with a small lag compared to the more developed countries). The worsening of the loan portfolio and dependence on external funding are among the main vulnerabilities of non-bank financial institutions.

It is worth mentioning that the great part of non-bank financial institutions is subject to prudential supervision by the NBR (92 percent of total assets of the sector, NBR, *Financial Stability Report 2012*, p. 76).

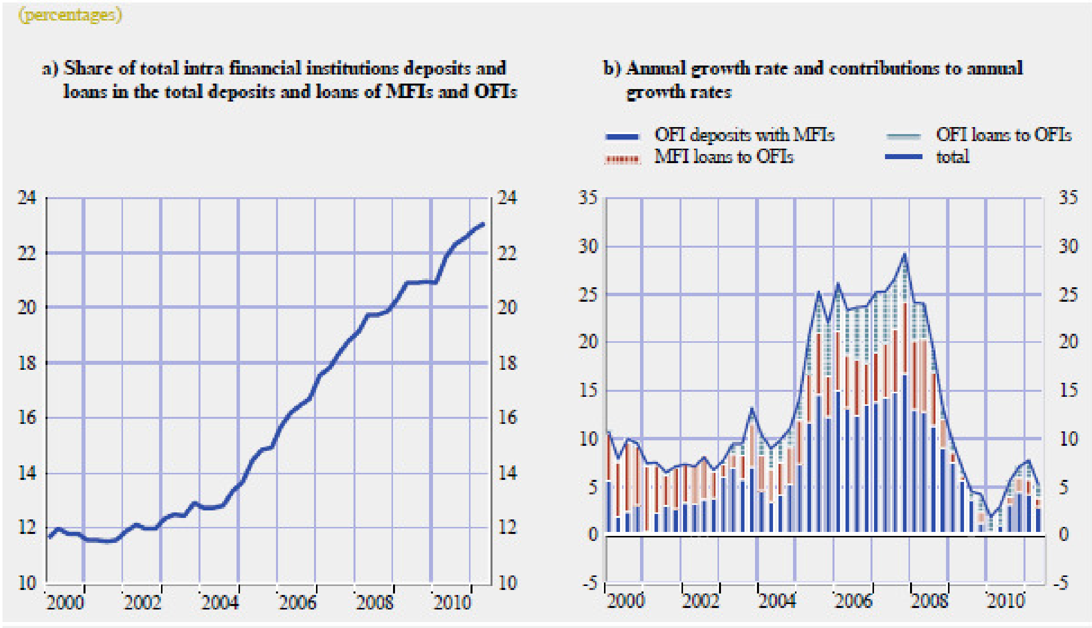
The interaction between credit institutions and non-bank financial institutions has been reduced. In June 2012, credits granted by credit institutions to non-bank financial institutions accounted for 1.5 percent of total credit to non-government. At the same time, 15 percent of total borrowings of non-bank financial institutions were provided by credit institutions. Nevertheless, from the interconnection perspective, a reason for concern is the fact that non-bank financial institutions are above all entities affiliated to credit institutions and the worsening of the activity of non-bank financial institutions affects the entire group through reputational risk (NBR, *Financial Stability Report 2012*, p. 79).

Similar observations are also valid for another new EU country, Poland. According to the National Bank of Poland (NBP), the connections of non-bank financial institutions with banks in Poland are limited. Deposits placed by NBFIs (investment funds, pension funds, and insurance companies) constituted 5 percent of the total amount of deposits (at the end of September 2012). At the same period, loans granted to these entities compared to total bank loans represented only 0.7 percent (NBP 2012, p. 77).

A picture of interactions between shadow banking and traditional banking in the euro area is provided by Bakk-Simon et al (2012). Deposits and loans between MFIs (which include banks) and OFIs represent a useful indicator to assess the interconnections of OFIs with the regulated banking system. According to Bakk-Simon et al (2012, p. 21) based on euro area accounts source in the euro area, deposits and loans between MFIs and OFIs grew from around 12% of the total at the beginning of 2000 to around 23% in the second quarter of 2011 (Chart 4a).

It is important to note that the intra-financial institutions' activities developed between 2005 and 2008 (Chart 4b).

Chart 4. Intra-financial institutions' assets/liabilities: deposits and loans between MFIs and OFIs (the euro area)



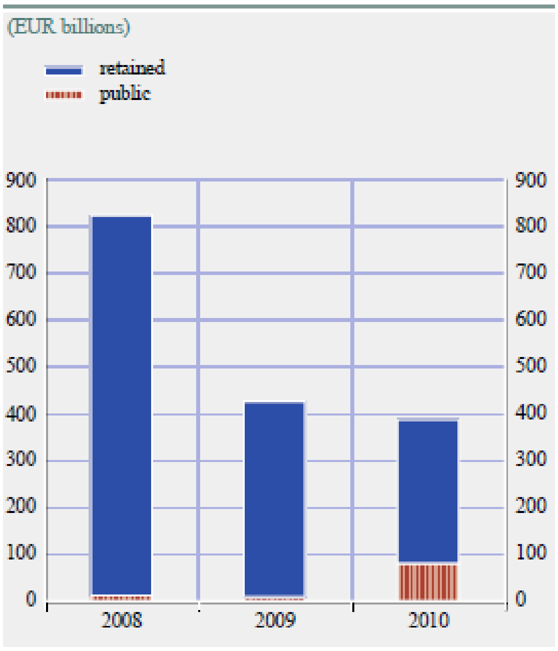
Source: Bakk-Simon et al., *Shadow Banking in the Euro Area: An Overview*, European Central Bank, Occasional Paper Series no. 133, 2012, p. 21.
Note: Excluding interbank deposits

The interconnection between traditional banking and shadow banking also manifests itself when regular banks invest in securitized products. From this perspective in Europe, securitized products were mainly retained in bank balance sheets between 2008 and 2010:

- 2008 – 99% of total issued volumes,
- 2009 – 98%,
- 2010 – 79% (chart 5).

This development is likely due to the fact that securitized products are used as collateral for Eurosystem credit operations (ECB, 2011, p. 11).

Chart 5. Retained and placed issuance in Europe



Source: ECB, *Recent Developments in Securitisation*, European Central Bank, February 2011, p. 11.

A trend in the business models developed by many European banks in the pre-crisis period was the growth of dependence on other sources of funding than classical deposits, among them securitization. Banks resorted to these sources of funding in order to finance their increased loans.

However, there were differences between countries and institutions. Sometimes, deposits represented up to 85 percent of banks' total liabilities in countries with less mature financial markets. On the contrary, they accounted for only about 30-50 percent of banks' total liabilities in countries with more developed financial markets (ECB, 2009, p. 10).

Between 2000 and 2007, European securitization issuance grew from 78.2 billion euros to 453.7 billion euros (table 1). This growth was significant but, comparatively, issuance in the US grew from a total of 1,088 billion euros in 2000 to 2,455.8 in 2006 and 2,147.1 in 2007.

Starting with 2009, European issuance decreased, down to 372 billion euros in 2011. The same declining trend of issuance was also noted in the US from 2006 until 2011, where issuance dropped to 1,013.7 billion euros (AFME/ESF 2012, p. 4).

Table 1. European Securitization issuance

Billion euros

	Q1	Q2	Q3	Q4	Total
2000	14.1	16.4	21.4	26.3	78.2
2001	20.5	43.2	22.7	66.2	152.6
2002	24.3	42.6	35.7	55.1	157.7
2003	43.3	51.9	39.7	82.4	217.3
2004	55.8	59.0	53.2	75.5	243.5
2005	47.8	94.4	41.5	143.3	327.0
2006	69.0	114.3	112.8	184.9	481.0
2007	128.7	152.0	98.3	74.7	453.7
2008	40.0	169.5	134.1	367.6	711.1
2009	123.2	81.2	114.7	94.9	414.1
2010	75.5	32.2	111.5	163.6	382.9
2011	114.6	67.1	53.8	136.4	372.0
2012	59.3	67.6			126.9

Source: AFME/ESF, *Securitisation Data Report Q2: 2012*, p. 4, available at http://www.afme.eu/Divisions/Securitisation.aspx.

Regarding European issuance by type of collateral employed, in 2011 the most widely used securitized assets were residential mortgage-backed securities (RMBS), which accounted for 224.1 billion euros (out of a total of 372 billion euros), followed by asset backed-securities (ABS) (73.5 billion euro). In 2011, the UK (99.5 billion euros), the Netherlands (85.6 billion euros), and Spain (61.7 billion euros) were the countries with the largest amount of issuance (AFME/ESF 2012).

It is worth noting that, as indicated in the chart 2, the UK and the Netherlands are also the countries with the greatest bank credit exposure to NBFIs.

An overall image of the European issuance by collateral type and country of collateral (2012: Q2) is provided in table 2. Regarding the value of issuance, the Netherlands (22.2 billion euros) and the UK (20.8 billion euros) are significantly greater than the other countries, with Italy far behind (7.6 billion euros), France (5.1 billion euros) and Belgium (4.1 billion euros).

Euro area banks at present rely more on short-term funding from shadow banking entities than in the past, which can lead to runs (Bakk-Simon et al, 2012, p. 4). The repo market played an important role in funding traditional banks during the crisis (ICMA European Repo Council, 2012, p. 3)

The important role of repos in the development of the shadow banking activities in the pre-crisis period was underlined by the FSB (2011a, p. 22):

1) repos allowed securitization instruments to be used as collateral for funding;
2) the use of repos was considered a low-risk and short-term secured form of funding.

But repos led to increased links within the financial system and involved maturity transformation.

Table 2. Issuance by collateral type and country of collateral (2012: Q2)

Billion euros

	ABS	CDO	CMBS	RMBS	SME	WBS	Total
Belgium					4.1		4.1
Denmark							0.0
France	3.9			1.2			5.1
Germany	1.5						1.5
Greece				1.3	0.6		2.0
Ireland	0.3			0.9			1.2
Italy	1.5			4.7	1.4		7.6
Netherlands	0.7		0.6	20.9			22.2
Portugal							0.0
Spain				1.6			1.6
UK	5.9		0.4	13.5		1.0	20.8
PanEurope				0.2			0.2
Other Europe	0.8						0.8
Multinational		0.5					0.5
European Total	14.7	0.5	1.0	44.2	6.2	1.0	67.6

Sources: AFME/ESF, *Securitisation Data Report Q2: 2012*, p. 5, available at http://www.afme.eu/Divisions/Securitisation.aspx.

3. Regulatory measures related to interconnections between shadow banking and traditional banking

Finding possible measures to regulate shadow banking activities and entities became a priority for global regulators only after the adoption of the Basel III framework for the traditional banking system.

In this respect, the G20 leaders asked the FSB to issue some recommendations to regulate the SBS at the Seoul Summit in November 2010. Since then, the FSB has issued several documents related to the oversight and regulation of shadow banking, among which it is important to note the report issued in October 2011 (FSB, 2011a) proposing initial recommendations for enhancing the regulation of the SBS, as well as the document issued in November 2012 (FSB, 2012) containing the FSB's integrated overview on recommendations regarding strengthening oversight and the regulation of shadow banking.

In October 2011, the FSB proposed five workstreams in order to enhance the regulation of the SBS:

1) the first one is an indirect regulation and refers to the regulation of the interactions (interconnections) between banks and shadow banking entities;

2) the regulation of money market funds (MMFs);
3) the regulatory framework for other shadow banking entities;
4) the measures to regulate securitization;
5) the regulatory framework of securities lending and repos (FSB, 2011a, pp. 4-5).

Subsequently, for each of the five above-mentioned workstreams, the FSB outlines some recommendations.

The first recommendation, related to the regulation of banks' linkages with shadow banking entities, refers to consolidation rules for prudential purposes. These rules are meant to ensure that any shadow banking entity that a bank sponsors is included on its balance sheet positions in order to be taken into account when calculating risk-based capital, leverage ratios, and liquidity ratios.

The goal of the second recommendation is to limit the exposure of banks towards shadow banking entities.

The FSB's third recommendation considers the capital requirements for bank exposure to shadow banking entities. In order to better capture risks, the FSB requires special attention to treatment of investment in funds and treatment of short-term liquidity facilities for shadow banking entities other than securitization vehicles.

Finally, the last recommendation within the recommendations on bank interconnections with shadow banking entities refers to treatment of banks' implicit support to shadow banking entities (FSB, 2011a, pp. 16-20).

With regard to the regulation of shadow banking activities through banking, the EU addressed securitization issues through amendments to Capital Requirements Directive (CRD). The CRD II (the 2009 revision of Capital Requirements Directive) has taken two important measures: (1) it imposed originators and sponsors of securitized assets to retain a part of their risks; and (2) it improved the regulatory treatment of liquidity line and credit exposure to securitization vehicles. The CRD III (the 2010 amendments to Capital Requirements Directive) strengthened capital requirements for complex re-securitisation. Additional disclosure rules have been imposed to banks when investing in complex re-securitisation too. The CRD III has also taken into consideration reputational risks arising from complex securitization structures or products. The CRD IV proposes harmonized requirements for liquidity (comprising liquidity facilities for SPVs) (European Commission, 2012, p. 8).

These measures adopted in the EU are in line with the measures adopted within the Basel framework and the FSB recommendations.

The same document issued by the European Commission (2012, p. 11) reveals some issues regarding bank exposures to shadow banking entities that need to be investigated further: (1) whether the banking legislation related to the large exposure regime properly addresses all shadow banking exposures; (2) the modality to account for leverage investment funds; (3) whether the CRD II regulatory treatment of liquidity lines and credit exposures for securitization vehicles need to be applied to other shadow banking entities. In the European Commission's view, the implementation of the national supervisory treatment in the case of implicit support needs to be reviewed.

Some of these workstreams are consistent with those that the Basel Committee on Banking Supervision (BCBS) is currently developing. In order to improve the resilience of the traditional banking sector against the risks arising from the interaction with the SBS, the BCBS is developing some policy recommendations in the following areas: (i) improvement of the scope of consolidation in order to diminish regulatory arbitrage; (ii) development of a large exposure regime that captures the risks arising from the SBS; (iii) regulatory treatment of bank investment in the equity of funds (FSB, 2012, pp. 5-6).

Conclusions

One widespread concern regarding the development of shadow banking refers to the contagion channels between the SBS and the regular banking system. Under stress conditions, these channels can propagate the crisis from one system to another system and can affect financial stability and, subsequently, the real economy.

These channels can be direct (regular banks originate loans that are securitized; regular banks are part of the SBS chain of intermediation; regular banks invest in securitized products; they offer funding and guarantees to shadow banking entities) and indirect, through reputational risk or fire sales.

Interaction between regular banks and shadow banking entities can take place at the national level, but also between entities located in different countries. The crisis highlighted the international dimension of these interconnections. European banks invested in US structured products or were financed by US MMFs, contributing to the propagation of the crisis globally.

Recent FSB data suggest that the SBS of the euro area, combined with the UK SBS, is considerably larger than the US SBS. The size of the SBS differs from country to country; the UK has the largest SBS in Europe. In recent years the interconnections between regular banks and shadow banking entities have increased in the euro area. Because of data scarcity, this study is only a step towards the assessment of interconnections between regular banks and shadow banking entities at the European level. Efforts are being made to improve our research with data regarding bank exposure to NBFIs from other European countries.

Securitization is smaller in Europe than in the US and the most popular type of collateral are RMBS. The Netherlands and the UK are the main European issuers, being, with Italy and France far behind. At present, securitized products are mostly retained in banks' balance sheets for use as collateral for Eurosystem credit operations.

Increased interconnections between regular banks and shadow banking entities raise concerns for regulators who are trying to find appropriate measures to monitor this interaction. The FSB has an important role in formulating recommendations to regulate the links between banks and shadow banking entities.

Retention requirements, increased transparency, and greater capital requirements for complex re-securitization are among the main measures that have been taken at the European level through amendments to the Capital

Requirements Directive in order to improve the regulatory framework of securitization.

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