SHADOW BANKING – NEW SHADOW ENTITIES COME TO LIGHT

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Abstract: *This paper summarises a methodological approach to identify and shed some light on financial intermediaries that perform bank-like activities. They take the form of several legal structures, from mutual funds to private equity funds, and risks for financial stability depend on redemption features, size of portfolio and degree of leverage. Does "shadow banking" still exists after the crisis? Banking regulators helped to shape shadow banking and yet they are now concerned with the end result. What is left on the agenda for them?*

Summary: 1. Introduction. 2. What shadow banking is not? 3. Credit Intermediation of shadow lending. a) Credit, maturity and liquidity transformation. b) Intermediation chain. 4. Shadow banks – how to bring them to light? a) Financial Stability Board. b) European Commission. c) Proposed methodology. 5. Examples of shadow banking structures. a) Money market mutual funds. b) Non-banks in direct lending and private debt markets. 6) Why care about non-bank direct lending ? 7) Why is collateral-based credit intrinsically different from loan-based credit? Integration of money markets and capital markets. 8) Conclusion: what is left for regulators?

1. INTRODUCTION

Shadow banking is credit intermediation not subject to bank regulation and supervision and without explicit and direct access to the safety net of banks[1]. In the run-up to the crisis and partially due to regulatory arbitrage this subset of financial intermediation was mostly performed by non-bank entities not subject to prudential bank supervision, for which reason they became known as banking in the shadows. Shadow banking is therefore mostly shadow

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1 "In the majority of countries, this is done through the creation of a safety net, consisting of 1) Supervision, 2) Deposit insurance, 3) Capital requirements, 4) A lender of last resort policy and 5) Orderly bail-out/ liquidation procedures". Freixas, 2010: 2.

lending and refers both to the entities and the activities performed under this label. "Examples of shadow banks include the now-failed Bear Stearns and Lehman Brothers, which were called investment banks but were not regulated as commercial banks, since they did not accept deposits. They became shadow banks when they began to act like commercial banks"[2].

Non-bank lending funded through deposit-like liabilities (so-called collateralised borrowing arrangements) exists not only because it finds innovative ways to evade prudential regulation (regulatory arbitrage) but because it is needed for the financing of the economy! Who are the new players? Mostly large cash-pooling vehicles like money market mutual funds[3]. "In Europe, around 22% of short-term debt securities issued either by governments or by the corporate sector are held by Money Market Funds ("MMFs"). MMFs hold 38% of short-term debt issued by the banking sector"[4]. The asset management industry[5] was the entry door for the demand for deposit-like instruments that fuelled the pre-crisis credit boom. Much regulatory reform (Dodd-Frank Wall Street Reform and Consumer Protection, the Capital requirements regulation and directive – CRR/CRD IV) focused on imposing stringent capital and liquidity requirements on commercial banks, "leaving the opportunity to "cash-rich entities (…to…) emerge as a source of inexpensive funding for the shadow banking system"[6]. Furthermore, banks were busy deleveraging and selling off assets to meet the new financial discipline and some of these divestitures occurred on their holdings of asset management practices. As a consequence, not only is the industry breaking records where the amounts of assets under management are concerned[7], but also, interestingly, in "the past ten years the number of independently owned asset managers in the top 20

2 Shiller, 2012: 43.

3 Although the majority of definitions include Monet Market Mutual Funds ("MMMFs") within shadow banking, this should not obscure two facts: MMMFs did not contribute to the crisis and, contrary to many other shadow banking entities, they are under strong oversight by the securities regulator. The same does not apply to other collective investment vehicles.

4 European Commission, 2013b: 4.

5 The largest asset manager in the world in 2013, Blackrock, had total assets under management of ($4.3 trillion), ahead of the largest bank in the world ("Industrial & Commercial Bank of China") with total assets of $3.1 trillion.

6 Tarullo, 2013: 17.

7 "Assets managed by the world's largest 500 fund managers rose by almost 12% to reach a record US$76.5 trillion in 2013". Towers, 2014.

has more than doubled and now account for the majority, overtaking both bank and insurer owned firms which have both declined in the same period"[8].

"Even with the reduction in activity following the crisis, the scale of shadow banking activity remains very large"[9], albeit with significant differences between the US and the Euro Area[10]. Financial intermediation through the banking system in the euro area is three times higher than in the United States (commercial banks assets in relation to GDP), leaving broader scope for market based lending in the US[11].

Regulators helped to shape shadow banking, and yet they are now concerned with the end result. Why should they care about capital market lending, and what are their policy options? Should they focus on entities, or rather on activities and market infrastructure that support the shadow bank intermediation chain? And what are the implications for the organisation of financial sector supervision?

2. WHAT SHADOW BANKING IS NOT?

The term 'shadow banking' was coined by Paul McCulley on 2007 to refer to non-banking credit institutions which had little transparency and were not constrained by micro prudential supervision[12]. The expression was subsequently picked up by the Financial Stability Board ("FSB") in 2011, and the first articles on shadow banking date from 2008 (Pozsar) and 2009 (Adrian and Shin)[13]. Pozsar (2008) catalogues different types of shadow banks and describes the asset and funding flows within the shadow banking system[14]. Adrian and Shin (2009) focus on the role of security brokers and dealers in the shadow banking system, and discuss implications for financial regulation.

Nowadays and after Basel III regulatory reforms, most of these pre-crisis activities and entities (securitisation conduits, credit lines to SPVs) are indirectly covered by capital and liquidity requirements applicable to regulated

8 Towers. 2014.

9 Tarullo, 2013: 4.

10 For the classification of intermediaries in the Portuguese financial system, Banco de Portugal, 2013: 56.

11 For international comparison of financial system structures, Deutsche Bundesbank, 2014: 21.

12 "Over the last three decades or so, the growth of banking outside formal, sovereign-regulated banking, has exploded, in something that I dubbed the Shadow Banking System". McCulley, 2008: 4.

13 Adrian & Shin, 2009.

14 Pozsar, 2008: 14. Pozsar draws a comprehensive chart of the shadow banking system.

banks through bank consolidation rules for prudential purposes, but they are still qualified as shadow banking. On the other hand, the role of credit intermediary is increasingly also being played by new entities that operate outside the regular commercial banking system, such as money market mutual funds, private debt funds funded with retail investors, infrastructure open-end mutual funds, pension funds, to mention only a few.

Thus, in a rather concise and meaningful formulation, "shadow banking" is defined as "money market funding of capital market lending" [15] or alternatively "collateral-based credit system"[16]: the activity of "issuing very short term money market like instruments and investing the proceeds in longer-term financial assets". [17]

Shadow banking is indirect finance which excludes many non-bank-like lending activities either because they are not financial intermediation (that is, savers lending directly to borrowers) or not contingent on short-term funding (that is long-term credit is financed with long-term maturity matched funding). This is the same as saying that the narrative about shadow banking does not encompass the discussion about the whole non-bank financial system. Or, using a different formulation, non-bank financing to the economy goes far beyond shadow banking, embracing other forms of direct lending without maturity and liquidity transformation that pose little systemic risk. That said, let us focus on the so-called capital-market lending.

3. CREDIT INTERMEDIATION OF SHADOW LENDING

How do we qualify an entity that performs bank-like functions of maturity, credit and liquidity transformation and is not subject to bank prudential regulation? This is a shadow bank. While banks perform all these functions under one roof (their own balance sheet) with explicit access to central bank liquidity or public sector credit guarantees, shadow banks (financial intermediaries that play a specialised role of the shadow banking chain) need a complex network of highly specialised financial intermediaries to accomplish the same objective. With a major difference! From a finance point of view, banks as intermediaries offer liabilities (deposits) with different risk characteristics than its assets (loans) and the risks are born by subordinated creditors, shareholders,

15 Mehrling & Pozsar & Sweeney & Neilson. 2013: 2.

16 Mehrling & Pozsar & Sweeney & Neilson. 2012: 4.

17 Ricks, 2012: 1.

the central bank and the government. Thus the risk is not eliminated and the illusion comes from the fact that it is not being directly priced. On the contrary, modern shadow banking offers risk-free assets, and credit risk is transferred through capital markets (risk derivatives) in a more transparent manner but with several fragilities arising from the absence of a dealer of last resort to ensure market liquidity to assets embedded in risk instruments. But we shall come to this point later on.

Whereas initial formulation (such as FSB in 2011) emphasised the focus on the institutional nature of entities and activities ("entities and activities outside the regular banking system"[18]), it is now a consensual view that the organisational approach that shows both the steps of the intermediation chain and the roles played by different financial intermediaries is the best approach for regulators to qualify the financial intermediation chain and identify what remains in the shadows. And all the entities across this chain, from the origination of the loans to the very end of wholesale funding, are at any one time playing specific roles in the credit intermediation process and are called shadow banks. And this may be in three different ways[19].

a. Credit, maturity and liquidity transformation

Credit transformation is the enhancement of the credit quality of debt issued by the intermediary through the use of priority of claims. For example, the credit quality of senior deposits is better than the credit quality of the underlying loan portfolio due to the presence of junior equity. Shadow banks enhancement mechanism rely on tranching techniques in a securitisation process[20], whereby a loan is sliced into several pieces, creating subordinated claims usually acquired by hedge funds and senior tranches for less sophisticated investors.

Maturity transformation consists in funding long-term loans through short--term deposits, which creates liquidity for the saver but exposes the intermediary to rollover and duration risks. Maturity mismatch put a strong liquidity pressure on financial intermediaries, and can lead to insolvency problems if not corrected in time. The explicit, official liquidity and credit backstops by central authorities and deposit insurance schemes (public sector safety net)

18 FSB, 2011: 1

19 Adrian & Ashcraft, 2012.

20 For a comprehensive analysis of credit enhancement mechanisms in securitisation in Portugal, Pinto & Marques, 2007.

have reduced this fragility for banks, in exchange for subjecting these institutions to oversight and regulatory capital and liquidity requirements. Shadow banks fund the aggregate amount (pool) of long-term loans through issuing short-term securities. In contrast to regulated banks, shadow banks transfer credit risk through credit default swaps and duration risk via interest rate swaps, while collaterals on short term funding replace deposit insurance schemes. However, the crisis revealed that there was a liquidity put of shadow banks on regular banks, either explicitly through backup lines of credit, contractual guarantees to special purpose vehicles and asset management subsidiaries, or implicitly where banks were forced to protect their brand. This misconception of risk contributed to the underpricing of liquidity and credit tail risks (by credit rating agencies, risk managers, and investors) that caused the credit boom in the run-up to the crisis, and explained why the cost of funding for shadow banks was not significantly higher than for normal banks.

Finally, liquidity transformation allows the banks to issue highly liquid securities that will be available at the depositor's discretion, backed by a pool of less liquid loans.

b. Intermediation chain

The intermediation chain is a useful tool to bring shadow transactions to light. Before the crisis period most of these entities and activities were not subject to bank regulation. For the most part, the post-crisis regulatory reforms aimed to extend the perimeter of microprudential regulation to these entities in an effort to eliminate regulatory arbitrage. This move contributed to the internalisation of some of the excess leverage and risk appetite of these activities, but the key difference with bank intermediation still remains. As one moves across the intermediation channel there are several steps of credit, maturity and liquidity transformation, each with specialised intermediaries. This specialisation is at the very core of the efficiency argument in favour of shadow banking versus traditional banking.

Credit Intermediation of Shadow Banking – organisational perspective

	INTERMEDIATION STAGE	ENTITIES	ACTIVITY	FUNDING INSTRUMENTS
	↓	↓	↓	↓
ULTIMATE BORROWER				
← INTERMEDIATION CHAIN →	Loan origination / servicing	Banks, Non-Bank finance companies	Origination of loans, receivables, and mortgages	CP, MTN, Bonds
	Aggregation of loans	Single- and multi-seller conduits	Loan warehousing	ABCP
	Administration (via conduits) and underwriting	broker-dealers' ABS syndicate desks.	ABS issuance	ABS, Repo
	Rating	Rating Agencies	Security rating	n.a.
	Aggregation of ABS	Trading books	ABS warehousing	ABCP, Repo, Total return swaps
	Administration (via conduits) and underwriting	broker-dealers' ABS syndicate desks.	ABS CDO issuance	ABS, CDO
	Intermediation	LPFCs, SIVs, SACs, and credit hedge funds	ABS Intermediation	ABCP, MTN, Repo, Bonds, Capital notes
ULTIMATE SAVER				

NOTES: CP – commercial paper, MTN – medium-term notes, ABCP – asset-backed commercial paper , ABS – asset-backed securities, REPO – repurchase agreement, CDO – collateralised debt obligation, LPFCs –limited-purpose finance companies ; SIVs – structured investment vehicles, SACs – securities arbitrage conduits; RMBS – residential mortgage-backed securities.

SOURCE: Adapted from Adrian & Ashcraft & Cetorelli, 2013: 5, 30.

How does the chain work? It all starts with a loan originator at the beginning. Regulated bank entities evolved from the "originate to hold credit intermediation model" to the "originate to distribute model" and maintained an important role in "feeding" the shadow banking system in their role at loan

origination[21]. For term loans, shadow banking organisations have emerged as ever more important investors over the past twenty years. This is particularly marked in infrastructure finance where the funding gap is inspiring intermediaries and regulators to create new structures to transfer long-term loans from banks' books and leave room for new financing. This is being achieved under two alternative structures. Collective investment vehicles pool money from retail investors (mutual fund profile) or from qualified investors (alternative investment funds – "private equity" profile) and invest either in infrastructure loans, or in greenfield / brownfield projects. These structures tend to be shadow banks because they combine a certain degree of maturity and liquidity transformation with the possibility of early redemptions, making them vulnerable to bank runs. These intermediaries are not subject to bank regulation. The second set of solutions is based on non-bank financial entities, geared exclusively for the purchase of bank loans ("senior loans") related to infrastructure projects. These non-bank entities fund the pooling of loans through medium--term notes or covered bonds.

Also needed in the intermediation chain is an issuer of securities, an underwriter in charge of the placement of the securities, a servicer to take care of the revenue stream associated with the securities, a trustee – essentially a delegated monitor for the ultimate investors of the securities, and an entity to perform the role of enhancer, providing liquidity and/or credit guarantees to boost the quality of these issuances.

The funding of all the above activities and entities is conducted in wholesale funding markets by providers such as regulated and unregulated money market intermediaries, and direct money market investors (such as securities lenders). In addition to these cash investors, which fund shadow banks through short-term repo, CP, and ABCP instruments, shadow banks are also funded by fixed-income mutual funds, pension funds, and insurance companies, which invest in their longer-term MTNs and bonds[22].

One additional question about the broader perimeter of shadow banking. Should shadow banking, or at least the concept of a shadow banking network, be limited to the provision of financial products and services by shadow banks, or should it also embrace the mediums used by shadow banks to provide those products and services? While the core of shadow banking operates through

21 Adrian & Ashcraft & Cetorelli, 2013: 9

22 Adrian & Ashcraft & Cetorelli, 2013: 5.

these markets (securitisation, repo lending, risk derivatives), we lean towards a broader definition of shadow banking to "mean not only the provision of financial products and services by shadow banks, but also the financial markets used to provide those products and services"[23].

4. SHADOW BANKS – HOW BRING THEM TO LIGHT?

a) Financial Stability Board

In November 2010 the G20 requested that the Financial Stability Board (FSB) in collaboration with other international standard-setting bodies develop recommendations to strengthen the oversight and regulation of the shadow banking system. The first official definition put forward by the FSB in 2011 stated that "shadow banking system" was broadly described as "credit intermediation involving entities and activities outside the regular banking system"[24].

The first criticism made of this formulation signalled that this was too broad a definition because not all entities outside the regular banking system involved in credit intermediation were bank-like lenders, and not all pose systemic risks. So the FSB advised "authorities to narrow the focus for policy purposes to the subset of nonbank credit intermediation where there are (i) developments that increase systemic risk (in particular maturity/liquidity transformation, imperfect credit risk transfer and/or leverage), and/or (ii) indications of regulatory arbitrage that is undermining the benefits of financial regulation". This approach allows "authorities to concentrate their focus on "credit intermediation" so that, for example, "pure equity trading and foreign currency transactions would be excluded". So the proposed approach of FSB is to have a "wide – net" surveillance focusing in particular on "entities and activities outside the regular banking system". And within this macro landscape "focusing on credit intermediation that takes place in an environment where prudential regulatory standards and supervisory oversight are either not applied or are applied to a materially lesser or different degree than is the case for regular banks engaged in similar activities"[25].

23 Schwarcz, 2012: 622.

24 FSA, 2011a: 1

25 FSA, 2011a: 3.

The second line of criticism of the official definition pointed out that it "describes shadow banking activities as operating primarily outside banks[26]. But in practice many shadow banking activities, e.g. liquidity puts to securitization SIVs, collateral operations of dealer banks, repos, etc., operate within banks"[27]. For those who raised this argument, the substance of shadow banking does not rely on the institutional approach, but rather on the ultimate backstop for funding. Thus an alternative definition of shadow banking would be: "all financial activities, except traditional banking, which require a private or public backstop to operate". In response to this view, the FSB changed its definition slightly, describing shadow banking as "credit intermediation involving entities and activities (fully or partially) outside the regular banking system."[28]

b) European Commission

The European Commission picked the FSB's definition and focused its regulatory work around five shadow banking-like entities and two financial intermediary activities. The former are (1 – Special purpose entities that perform liquidity and/or maturity transformation, 2 – MMFs and other types of investment funds or products with deposit-like characteristics, 3 – Investment funds, including Exchange Traded Funds (ETFs), that provide credit or are leveraged, 4 – finance companies and securities entities providing credit or credit guarantees or performing liquidity and/or maturity transformation, without being regulated like a bank, and 5 – Insurance and reinsurance undertakings which issue or guarantee credit products), while the intermediary activities are (a – Securitisation, b – Securities lending and repo)[29] . In its "Communication on shadow banking" in 2013 the European Commission provided a comprehensive overview of measures addressing existing and potential systemic risk in the area of shadow banking[30].

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26 The European Central Bank has also defined shadow banking as beyond the realm of banking regulation: "In broad terms, shadow banking refers to activities related to credit intermediation and liquidity and maturity transformation that take place outside the regulated banking system". ECB 2012: 4.

27 Claessens & Ratnovski, 2014: 3.

28 FSB 2012b: ii.

29 European Commission, 2012: 4.

30 European Commission, 2013: 6.

c) Proposed methodology

Our proposed methodology for the identification of shadow bank activities is based on the FSB approach adapted to a decision tree diagram that follows through the wide net of credit intermediation activities, to filter those that perform bank-like credit intermediation and thus pose systemic risk, from the rest that have little in common with indirect finance carried out by bank-like lending activity. The algorithm therefore goes like this: is the activity related to credit intermediation? Assuming the answer is positive, is it qualified as bank-like credit activity? And lastly, is it subject, directly or indirectly, to any sort of bank regulation?

What is shadow banking?
(FSB approach adapted by the Author)

Wide net potential SB intermediation activities
(credit intermediation involving entities and activities within the financial system)

↓

Narrow down

↓

Subset of bank-like credit intermediation with potential systemic risk

↓

(A)	(B)	(C)	(D)
Maturity/ transformation	Liquidity transformation	Imperfect credit risk transfer	Leverage

↓

Are prudential regulatory standards and supervisory oversight applied to a materially lesser or different degree than is the case for regular banks engaged in similar activities ?

↓ ↓

YES	NO
Pure shadow banking activity	**Shadow banking activity already within regulated banking activity**

SOURCE: Author

Our methodology draws from a functional approach to challenge all specific intermediation services that perform bank-like credit intermediation, regardless of where they are in or out the regular banking system, to assess either they are not within prudential regulation (pure shadow banking), or if they are already within the perimeter of prudential regulation. A rather useful proxy to identify pure shadow banking activities is to assess whether they require a private or public backstop to operate. As we argue later on, shadow banking needs a dealer of last resort to provide market liquidity to money market and capital dealers.

In 2013 the FSB emphasised the "focus on credit intermediation activities by non-bank financial entities that are close in nature to traditional banks (i.e. credit intermediation that involves maturity/liquidity transformation, leverage and/or credit risk transfer), while excluding non-bank financial entities that do not usually involve significant maturity/liquidity transformation and are not typically part of a credit intermediation chain (e.g. pension funds)"[31].

The FSB also complemented the definition of non-bank financial entities performing bank-like credit intermediation with five additional principles that refer to functions usually performed by shadow bank intermediaries. By referring to the framework of five economic functions (or activities), regulators should be able to identify the sources of shadow banking risks in non-bank financial entities in their jurisdictions from a financial stability perspective. These five economic functions are:

1. Management of collective investment vehicles[32] with features that make them susceptible to runs[33]
2. Loan provision that is dependent on short-term funding
3. Intermediation of market activities that is dependent on short-term funding or on secured funding of client assets
4. Facilitation of credit creation
5. Securitisation-based credit intermediation and funding of financial entities

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31 FSB, 2013: 3.

32 Collective investment vehicles (CIVs) include investment vehicles/funds/accounts established for pooling client assets for one or more than one investor.

33 Susceptibility to runs includes redemption risks by investors as well as rollover risk by counterparties.

If the activities under scrutiny do not perform any of these five economic functions, the risk for financial stability is tolerable even if they fit into any of the four main features of bank-like credit intermediation.

FSB advises specific metrics to capture shadow bank activities fitting into this matrix[34]. We provide below a few examples of these metrics.

Maturity transformation

For the analysis of maturity transformation, regulators should be able to assess the extent to which short-term liabilities are used to fund long-term assets for credit provision by financial entities and/or a credit intermediation chain. For this purpose they should obtain "weighted-average maturity" of assets and liabilities for the relevant financial entities where appropriate. Classifying the remaining maturity, or at least the original maturity, of assets and liabilities would also be desirable. Authorities should, where appropriate, strive to classify by five "maturity buckets". They are: (i) on demand; (ii) overnight to 1 month; (iii) 1 to 3 months; (iv) 3 months to 1 year; and (v) more than 1 year. Depending on the entities and/or activities, more granular buckets may be desirable. The risks of maturity transformation are amplified when the entity performs the management of collective investment vehicles with redemption features that make them susceptible to runs.

Liquidity transformation

Authorities should be able to assess the degree of liquidity transformation supporting credit provision within entities and/or a credit intermediation chain. Liquidity transformation is very difficult to measure but one possible method is to use information on secondary market depth of financial instruments, whether they are traded on exchanges or over the counter (OTC), and other liquidity indicators such as developments in margins/haircuts and bid-ask spreads both in stressed and normal times as proxies. Whether the instruments are accepted as collateral at central banks may also be considered in assessing their degree of liquidity. To assist in this exercise historical examples of worst-case liquidity may be obtained for various asset classes, such as those experienced during the height of the financial crisis.

Such examples may then be applied to current portfolio weights to estimate portfolio liquidity on an assumed historical worst-case basis.

34 FSB, 2011a: 10.

Credit risk transfer

Under this heading the FSB has two concerns. One, off-balance sheet exposures (e.g. guarantees, commitments, credit derivatives, and liquidity puts) provided by financial institutions and entities in specific intermediation activities such as when a banks sells an asset to another entity with a liquidity facility secured against the asset, and may be forced to buy it back for reputational reasons. The second area of concern is the appropriateness of credit risk mitigation techniques used by bank and non-bank financial institutions when attempting to transfer credit risk, they end up by acquiring other risks (such as counterparty credit risk, operational risk or liquidity risk). This occurs when a bank buys credit protection, but it subsequently becomes apparent that its counterparty may not be able to meet its obligations if a credit default event occurs – the bank has transferred the original credit risk but has replaced it by counterparty credit risk, or other forms of imperfect credit risk transfer.

Leverage

Activities that perform maturity and liquidity transformation couple with leverage pose a greater risk to financial stability. Lenders may instigate runs to the fund if they suddenly pull their financing or if they become concerned about the risk exposure of the entity. The information collected for computing the leverage ratio under the Basel III framework is useful for calculating leverage ratios.

5. EXAMPLES OF SHADOW BANKING STRUCTURES

a) Money market mutual funds

Money market mutual funds ("MMMFs") are open-ended mutual funds that invest in short-term securities such as Treasury bills, commercial paper (including ABCP), and repo. MMMFs were first created in 1971 in response to Regulation Q, which restricted the interest that commercial banks can pay on deposits. In the European Union, MMMFs fit into the "UCITS" or "undertakings for the collective investment in transferable securities" Directive 2014/91/EU, transposed in Portugal by the Decree-Law D nº 63-A/2013, May, 10th. The European legislation draws a clear line between "pure" money market funds that follow rather restricted requirements in terms of portfolio composition and management policies aimed at maximizing investor protection, and alternative money market mutual funds (Directive 2011/61/EU of

the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers), which are not harmonised in the sense that have more relaxed rules in terms of management policies. Money market funds have represented an alternative to bank deposits from investors' point of view, with yields that are typically more attractive than bank deposits.

In a mutual fund there is no credit transformation intermediation, because it is mainly pooling of risk through diversification, and not much transformation of risk. By design, units of participation (or shares if the undertaking is on the corporate model) have exactly the same risk properties as the underlying pool of money market instruments or bonds and all units and shares rank the same preference in case of insolvency.

So, why should regulators care about MMMFs? Because they may pose systemic risks due to vulnerability to runs combined with the fact that they perform maturity and liquidity transformation. Being redeemable at any time, they can face large-scale redemption requests within a short time period and/or have to roll over positions if the vehicles come under stress or operate in stressed market environments as investors seek to redeem their shares to limit losses or engage in flights to quality. A run can prompt affected vehicles to engage in fire sales, which may spread the adverse effects of the run to other CIVs and the broader markets if the fire sales temporarily distort or dislocate market liquidity and/or pricing.

It is worth mentioning that a report published by the European Commission concluded that MMFs were not a cause of the financial crisis: "Activities of money market funds were not the underlying causes of financial instability during the financial crisis per se. Money market funds were, however, subject to the proximate causes of the crisis. For instance, the collapse of the market for asset-backed commercial paper led investors to withdraw from money markets due to perceptions over MMFs' exposures to asset backed commercial paper (ABCP)."[35] The report found that MMFs were nevertheless affected by the crisis and became part of a "feedback loop".

b) Non-banks in direct lending and private debt markets

The more stringent regulatory requirements of Basel III and the implementation of the Single Supervisory Mechanism in the newly created European Banking Union raise the need for banks to repair and deleverage their business

35 European Commission, 2012b: 64.

models. This is not an issue for the large corporates, which can access credit outside the banking system relatively easily by issuing bonds or other debt instruments in the public market. However the same is not true for small and medium-sized enterprises (SMEs), which often do not possess the critical size to do so. The securitisation market is not an option either, because it is still recovering from the sub-prime crisis and the uncertainty surrounding the regulatory framework. The rationale for SMEs applies also for infrastructure projects. While banks still play a major role in the lending portion of the project finance mix, there is an increasing role for debt infrastructure funds to fill in the funding gap[36] .These constraints create opportunities for the advent of several models of "direct lending" that take the form of three different structures[37]: "bilateral lending" or "private placement", "specialised loan funds" and "co-origination with a bank".

Bilateral lending or private placement

Bilateral lending has a long tradition in some markets such the 'private placement' market in the US. In Europe large insurance companies, such as Allianz and AXA, set up new dedicated debt teams to invest in corporate loans, commercial real estate. In the infrastructure space (particularly in public infrastructure) this bilateral lending started to look to brownfield projects (less risky because they are already in operational phase). However, pension funds are already looking into more risky greenfield projects[38] such as motorway projects and care homes for the elderly (to name only two).

Specialised loan funds

A collective investment vehicle pools a number of loans together and non--bank investors buy shares in the funds. By the use of pooling and diversification, this is economically similar to securitisation, although there are some differences. A loan fund is not tranched into slices of different seniority. In addition, many loan funds can have long reinvestment periods, and potentially

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36 For legal structures of collective investment vehicles in infrastructure finance: Gonzaga Rosa, 2015: 691-763.

37 FSB, 2013a: 40.

38 The M8 motorway's Shawhead Junction (Scotland) was planned to be financed (£350 million) by loans from the European Investment Bank, the German insurer Allianz and from a large UK pension fund, the GEC 1972. "Pension funds finance the high road...", available from: http://www.efinancialnews.com/story/2014-04-07/pension-funds-infrastructure-investment-scotland

are infinitely long-lived, while securitization vehicles have a finite life. Investors in loan funds are generally non-banks that cannot develop an in-house credit selection and assessment capacity and/or want to diversify exposures.

Leveraged finance through alternative investment funds is a riskier version of this model. Loans to firms with non-investment-grade credit ratings are generally referred to as leveraged lending, and include two broad loan purposes. The first is regular corporate lending, including the funding of capital expenditures and working capital. The second is event-driven financing, for example to fund the leveraged buyout of a publicly traded company by a private equity firm. Leveraged loans are typically structured as five- to seven-year floating--rate balloon loans with limited amortization, which makes their performance highly dependent on refinancing conditions and the state of equity markets[39].

Specialised loan funding is conducted through private equity funds (they leverage their expertise of identifying target companies for acquisition purposes, and extend it to debt financing) and there is a growing trend for these structures to be quoted on stock exchanges. Traditionally these structures operate as closed-end funds but the pressure of being public forces them to respect a certain profile of dividend distribution, namely when they target retail investors. Professional investors prefer tax efficient structures that have hardly any dividend distribution. Therefore the business model of these private equity funds includes maturity and liquidity transformation and they tend to use leverage.

On the other side of the spectrum, pure private equity funds have maturity match (long-term funding for long-term lending) and very little liquidity transformation, as well as setups that are not leveraged (which have longer--term liabilities than banks and are best fitted to deal with both maturity and liquidity transformation risks). So these structures are close to direct lending and pose little risk of shadow banking. Large bank debt on these vehicles may be an issue for banks exposed to them, although these risks are already factored in by new Basel III capital and liquidity requirements for banks.

Co-origination with a bank

The third model ('co-origination with a bank') is a partnership where a non-bank insurance company and a bank enter into an agreement whereby

39 Adrian & Ashcraft & Cetorelli, 2013: 19.

the bank deploys its expertise and resources to screen the borrowers, originates the loans and distributes them to the non-bank, which provides the funding.

6. WHY CARE ABOUT NON-BANK DIRECT LENDING ?

Collective investment vehicles set up by pension funds that channel their contributions to lending with low leverage and long-dated liabilities, and direct lending performed on a bilateral basis or in co-origination with banks, are less likely to present shadow banking risks.

Similarly, loan funds that follow a private equity model under mutual funds framework, with long lock-in periods that greatly reduce the maturity and liquidity transformation risks, also pose little shadow banking risk for financial stability.

So why care about non-bank direct lending[40] ?

a) Some specific structures can entail higher risks. For instance, some funds reportedly do not impose lock-in periods and instead rely on a cash buffer to meet redemptions, which may not be sufficient in stress situations. Other impose minimum lock-in periods of 5 years, which is much less than typical life of their infrastructure loans[41] .
b) Some quoted private equity/debt funds organised as close-ended funds with promises to distribute a constant flow of dividends have put in place borrowing facilities representing a sizeable share of their assets in order to boost returns in a context of declining yields.
c) In a context of high appetite from credit and intense search for yield from asset managers, there is a higher risk that some non-banks underinvest in credit risk assessment capacities.
d) When supervision still remains segmented by type of financial institution, direct lending raises questions of whether insurance/securities regulators can or should regulate and/or supervise insurers, pension funds and asset managers in terms of their lending activities (e.g. credit risk, liquidity risk) in order to avoid unintended regulatory arbitrage.

40 FSB, 2013a : 43.

41 Infrastructure Debt Fund – Mutual Fund, regulated by Securities and Exchange Board of India.

7. WHY IS COLLATERAL-BASED CREDIT INTRINSICALLY DIFFERENT FROM LOAN-BASED CREDIT? INTEGRATION OF MONEY MARKETS AND CAPITAL MARKETS

Both regulated banks and shadow banks are subject to bank runs because they perform maturity and liquidity transformation, and in both systems long-term and illiquid assets are funded with short-term and liquid liabilities. However, the analogy does not go much further because they resolve insolvency and liquidity risks in different ways. To the extent that shadow banking is a collateral-based credit system without an explicit backstop, both its assets and liabilities are contingent on the volatility of both money market and capital markets and the levels of haircuts on collateralised short term funding.

The table below depicts in a rather simplified manner the dynamics of shadow banking in the run-up to the crisis, including (implicitly) the role of the central bank as both the dealer and lender of last resort and the liquidity put on the financial system arising from shadow banks, money and risk dealers.

"Liquidity put" of shadow banking: the need for a backstop

"Shadow Bank" (Capital Funding Bank)		"Global Money Dealer"		"Asset manager"	
Assets	**Liabilities**	**Assets**	**Liabilities**	**Assets**	**Liabilities**
RMBS	MM funding	MM funding	"deposits"	"deposits"	Capital
CDS		"Funding liquidity put"			CDS
IRS					IRS
FXS					FXS
"Liquidity Put"					

Derivative Dealer	
Asset	**Liabilities**
CDS	CDS
IRS	IRS
FXS	FXS
"Market liquidity put"	

SOURCE: Mehrling, Pozsar, Sweeney & Neilson, 2013: 3.

The table focuses on the transactional features of the shadow banking chain, not its institutional nature. The shadow banking network performs the securitisation process (transforming loans into securities), whereby the medium and low-risk tranches were sold and the high risk tranche (risky securities) kept to use as collateral to secure specific money market funding. The risk portion of these securities was stripped out through several credit enhancements (credit default swaps, interest rate swaps and foreign exchange swaps). Why did they need credit enhancement schemes? Because secured money market funding involves a "haircut" on the value of the risky asset that is being offered as security, and this haircut creates a funding gap that needs to be filled by some other source. Various credit enhancement mechanisms were developed to turn high-haircut assets into low-haircut assets, with the ultimate objective being to obtain maximal access to available money market funding.

The Global Money Dealer can be the money dealer arm of a global bank, or a repo dealer, or a money market mutual fund sponsored by a bank. On the demand side (vis-à-vis asset managers), MMFs offer a short-term cash management tool that provides a high degree of liquidity, diversification and stability of value combined with a market-based yield. MMFs are mainly used by corporations seeking to invest their excess cash for a short time frame, for example until a major expenditure, such as the payroll, is due. On the offer side, Money Market Funds (MMFs) are an important source of short-term financing for financial institutions, corporates and governments. They therefore represent a crucial link bringing together demand and supply for short--term money.

The asset manager can be a pension fund or a non-financial corporate treasurer, or even a synthetic Exchange-Traded Fund. The only capital in the system, and the only deposit holding as well, are both on the balance sheet of the asset manager, which is as it should be, since the asset manager is the only agent facing any risk. In this simplified version he chooses to invest his capital in money market deposits and look for further yield by getting long exposure to derivatives.

The liquidity puts on both dealers represent the backstop needed both for funding (money dealers) and for derivative dealers. Money dealers are in a sense like banks for the maturity transformation, because they fund overnight markets (overnight repos) and lend in the 3-month market against collateral issued by shadow banks. Therefore they need a backstop to roll over their balance sheet on the overnight market. This is the known lender of last

resort backstop. The new part brought about by the crisis is the risk dealer system that creates pricing of different kind of risks (credit, duration, exchange rate). The crisis showed that these dealers need a market liquidity backstop to assure the saleability of underlying risky assets in the context of fire sales. If no one sets a floor for these prices they can drop rapidly close to zero and harm market liquidity.

The entry door for this system is the asset manager who fuels demand for demand-like deposits to the money dealer who in turn drives the demand to shadow banking entities. Asset managers represent large institutional investors for whom the deposit insurance scheme provided by the public sector safety net is irrelevant due to the scale of their investments. And as the crisis revealed, asset managers contributed as a source of inexpensive funding for the shadow banking system. Modern shadow banks satisfied this demand for deposit-like products by processing synthetic risk-free assets (in theory comparable to risk-free treasury bills) through a complex chain of securitisation credit enhancement techniques (credit transformation via tranching of ABS with different ratings and derivatives), and eliminating (in reality transferring) the duration risk of long-term loans via interest rate swaps ("IRS") and the default and price risk via credit default swaps ("CDS"). By buying this guarantee of the market value of their assets, if no one else would give cash for them, the guarantor would. This could work in theory if there was a permanent market for the underlying securities of risk instruments. Indeed, at one point, the market simply vanished, leaving the guarantor with no benchmark for the value of these assets. The anatomy of the crisis showed the need of a backstop for the dealer system that offers market liquidity by offering to buy whatever the market is selling[42].

8. CONCLUSION: WHAT IS LEFT FOR REGULATORS?

It is a paradox that regulators felt surprised with shadow banking, simply because they encouraged it as the only way to preserve banks as viable entities in the financial system[43]. At a certain point in time banking regulators viewed the Glass-Steagall Act and other banking laws as an obstacle to the future

42 Mehrling, Pozsar, Sweeney & Neilson, 2012: 3.

43 "Shadow banking, in turn, cannot be understood without examining how law helped create that system and fuelled its growth". Gerding, 2011: 2. Gerding explores the legal dimensions of shadow banking and explains how legal change – particularly regulatory arbitrage, deregulation, and legal subsidies – contributed to the rise of shadow banking.

viability of the banking system. The origin of shadow banking can be traced back to the 19th century in the US, with the development of commercial paper and the beginning of the death of loan-based credit. In its wake came the death of deposits in the early 1980s with the development of capital markets, and banking regulators broadened the powers of banks to enable them to remain competitive, allowing them to enter the capital markets, where they ultimately became the dominant players[44].

After the crisis, regulators are again concerned, with the financial stability of the banking system and shadow banking on the agenda.

What are the main policy options to bring banking out of the shadows from a regulatory point of view?

Shadow banking as the result of regulatory arbitrage

One set of policy options considers shadow banking as merely the result of regulatory arbitrage[45] and, as a consequence, the imposition of stringent rules on banks by extending prudential regulation to non-bank institutions will solve the problem[46]. This is partly correct and is the path followed by Basel III to force regulated banks to internalise the full cost of explicit and implicit support provided to shadow bank activities. Much regulatory reform is focused on better aligning the costs and incentives for banks to provide the backstop support for these activities, with the intent of inducing more socially efficient levels of shadow banking activities[47]. The same inspiration drives the creation of incentives to make the non-bank-based system of financial intermediation less leveraged, by imposing bank-like capital and liquidity requirements. The purpose is to induce dealers and money market funds to internalise the social costs of excessive leverage and risk taking. The so-called "indirect approach

44 "The financial sector progresses in new ways and directions, in particular, through a convergence between the banking and the securities transactions and financial innovation with the emergence and proliferation of products and operations, see, for example, the trend for the securitization". Saraiva,2013: 18.

45 "Regulation typically forces private actors to do something which they would otherwise not do: (...) a riskless profit, regulatory arbitrage is generally a change in structure of activity which does not change the risk profile of that activity, but increases the net cash flows to the sponsor by reducing the costs of regulation". Adrian, Ashcraft & Cetorelli, 2013: 11.

46 Admati, DeMarzo, Hellwig & Pfleiderer offer an economic argument for this reasoning when they claim against common sense that "bank equity is not expensive, regulators should use equity requirements as a powerful, effective, and flexible tool with which to maintain the health and stability of the financial system". Admati, DeMarzo, Hellwig & Pfleiderer, 2011: iii.

47 Adrian & Ashcraft, 2012a: 54.

through banking regulation" to extend bank-like regulation to other financial intermediaries such as MMFs fits into this framework of regulating the whole financial system, either though direct and remote connections with commercial banks or applying the same rules to other entities. This perspective tends to emphasise "shadow" versus "traditional" banking, based on the distinction between regulated vs. non-regulated (evasion), direct government backstop vs. indirect (unauthorised).

Shadow banking as a global and inevitable outcome of financial innovation
Notwithstanding the virtues of this view, others believe that "the rise of the collateral-based credit system is just part of the broader financial globalization that is such a prominent feature of the last thirty years"[48]. This school of thought portrays shadow banks as the inevitable outcome of financial globalisation through dollar funding[49], and a financial revolution where demand and supply of credit is determined through price changes (price of funding fixed in money markets and price of risk set up in capital markets) rather than through banks' balance sheets. They also have in their favour the "specialisation of shadow banking system that facilitates a more efficient reconciliation of financing needs and the provision of funds"[50]. For these believers the key question is how to regulate financial markets imagining a world of only shadow banking. This view has the virtue of shifting the research from the classical approach of addressing regulation through the boundaries of balance sheets of banks or extending the perimeter of prudential regulation to non-bank entities, to focusing on system interlinkages (money and capital markets), tail liquidity backstops, and both funding liquidity (money) and market liquidity (capital). This has been inspirational in drawing attention to the need for a dealer of last resort as a backstop, not for shadow banks, but for the dealer system supporting them. The goal of last resort should not be to set the market price of underlying assets of risk instruments, but only to set a price floor, to assure market liquidity for these securities. This discussion contaminates the

48 Mehrling, Pozsar, Sweeney & Neilson, 2012: 12.

49 The shadow banking system is a global US dollar funded market. In the crisis the FED played the role of lender of last resort through emergency currency-swap lines to five central banks, the European Central Bank, the Bank of Canada, the Bank of England, the Swiss National Bank, and the Bank of Japan. These temporary, bilateral arrangements were converted into standing facilities, allowing lenders access to global currencies when needed. Bloomberg, 2013.

50 Deutsche Bundesbank, 2014: 23.

debate about what modern central banking should be beyond the traditional boundaries of price stability.

Shadow banking requires more regulated standard transactions

The third option favours a "focus on particular kinds of transactions, rather than just the nature of the firm engaging in the transactions"[51]. To date, over--the counter derivatives reform is the prime example of a post-crisis effort at market-wide regulation, and the same applied with FSB proposals to reform security transactions and haircut requirements on collateralised borrowing arrangements[52].

Last, but surely not least, shadow banking raised new challenges for the organisation of Financial Sector Supervision. Adrian & Shin (2009) showed that "only a regulatory system that has the system-wide perspective can meet the challenges ahead"[53]. They flagged the need for a systemic regulator, with a different set of skills from the existing roles of monitoring individual institutions for their impact on system stability and investor and consumer protection. A conduct of business regulator is ill equipped to cope with a systemic crisis where the problem is not one of enforcing rules. This macroprudential systemic regulator must have a twofold role. First, it should gather, analyse, and report systemic information, which will require reporting from a broader range of financial institutions, such as hedge funds and the shadow banking system. Second, it should operate capital rules with a systemic focus. Furthermore, given the central bank's intimate connections with the financial market through its monetary policy role, it is likely to have the best market intelligence in performing the role of macroprudential regulator.

This vision was assimilated by the G20 when they established the Financial Stability Board (FSB) (replacing the Financial Stability Forum (FSF)), and informed the cooperation between the FSB and the IMF for macroeconomic and financial forewarning risks. However, once again, theory may not

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51 Tarullo, 2013: 15.

52 "These collateralized borrowing arrangements consist largely of securities financing transactions (SFTs), a term that generally refers to repo and reverse repo, securities lending and borrowing, and securities margin lending. Lenders are willing to extend credit on a secured basis because these transactions are usually short-term, over-collateralized, backed by reasonably liquid securities, subject to daily mark-to-market and re-margining requirements, and exempt from the automatic stay in insolvency proceedings". Tarullo, 2013: 9.

53 Adrian & Shin, 2009: 14.

stand up to a reality check. The controversy in the US between the "Financial Stability Oversight Council"[54] and the Securities Exchange Commission about the regulation of MMMFs is not an eloquent argument in favour of coordination among regulators, and particularly between financial stability concerns and investor and consumer protection. In November 2012, the Council, under Section 120 of the Dodd-Frank Act, issued a proposed recommendation that the SEC implement structural reforms to mitigate the vulnerability of MMFs to runs[55]. Dodd-Frank Act Section 120 authorised the FSOC to "recommend" actions to the SEC and seek public comment, although recommendations are not binding or legally enforceable, but the SEC must act or tell the FSOC why it is not acting. Only two years later, on July 23, 2014, did the SEC approve the final amendments.

54 As established under the Dodd-Frank Wall Street Reform and Consumer Protection Act, the Council provides comprehensive monitoring of the stability of US financial system. The Council is charged with identifying risks to the financial stability, promoting market discipline and responding to emerging risks to the stability of the United States' financial system.

55 FSOC, 2014: 6.

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