Discussion of the Central Bank of Ireland paper on loan origination by investment funds

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Executive summary

The Central Bank of Ireland has issued a discussion paper on loan origination by investment funds, in which it suggests that developing alternative sources of financing to bank loans may be beneficial to the real economy but requires the careful consideration of the potential development of "shadow banking" risks.

In this response to the discussion paper, we argue that the development of alternative sources of financing is most relevant with regards to long-term private debt, in particular the financing of SMEs and infrastructure projects. The demand for such financing has been identified as instrumental to long-term growth in Europe, which justifies regulatory changes. We add that such instruments are also appealing for institutional investors as supplier of long-term credit, as they increase their allocation to "direct investments" in illiquid assets yielding predictable cash flows.

Nevertheless, it is a mis-conception to oppose bank and non-bank lending when discussing alternative sources of finance. Loan origination by shadow bank entities requires numerous economic functions that are best and often only provided by banks. In effect, recent research shows that banks have directly created and managed most shadow banking activities to date.

Banks are thus likely to play numerous roles in the decision to originate long-term loans taken by ring-fenced investment funds. The new funds would be more accurately described as off (bank) balance sheet origination vehicles in response to the demand for long-term funding of the real economy, under the constraints imposed by the implementation of Basel-3 to the regulated banking sector.

This conclusion is instrumental in our understanding of the potential contribution to systemic risk of investment funds allowed to originate private debt.

Systemic risk, the risk of observing cascading defaults across the financial system, is state-dependent and the regulation of specific types of investment vehicles should focus on their marginal contribution to systemic risk i.e. their propensity to create additional losses in bad states of the world.

We argue that, closed-ended debt funds dedicated to building genuinely long-term private debt portfolios for institutional investors would create minimal liquidity, maturity and credit transformation risks. With limited links to other financial institutions and no maturity and liquidity funding mismatches, an exogenous shock (e.g. a recession) affecting the asset value of private debt funds across the board could lead to losses for investors but would seldom create *additional* losses that propagate throughout the financial system in bad states of the world i.e. contribute to systemic risk.

Endogenous shocks to systematic risk factors are highlighted in the literature as more likely to create feedback loops and increase systemic risk. We focus on the role of collateral/underlying valuation and leverage.

Historically, the gradual lowering of underwriting criteria, in a context where investment products were opaque made asset valuations (two market participants agreeing on a price) impossible in bad states of the world, further propagating losses and blockages in the financial system. The quality of the collateral/underlying of an investment fund originating debt instruments is determined by the credit risk of its

borrowers. To avoid contributing to systemic risk, we argue that the credit risks of the underlying asset and of the fund themselves should be adequately and transparently benchmarked using well-recognised cash flow reporting standards.

Second, the widespread use of leverage in shadow banking can magnify losses and thus contributes directly to increasing systemic risk. However, we argue that a distinction should be made between fund-level borrowing that is either senior or junior to investors claims, as well as between short-term and long-term fund borrowing.

Indeed, while short-term borrowing may be useful for operational purposes, it may also be used to pay back investors and mask the deterioration of the fund's asset value. Conversely, long-term fund borrowing, matching the investment term agreed with investors for the fund may provide a useful first-loss junior tranche (provided by a bank-manager) or it may provide a senior tranche boosting the returns of the fund's investors, especially if the fund's assets are otherwise very safe, low-yielding instruments.

In the junior case, the net marginal contribution of such leverage to systemic risk would be positive but, in all likelihood, small i.e. a synchronised increase in underlying defaults would hit the providers of the junior tranche simultaneously, possibly in a bad state of the world, but this loss would be small relative to the size of the financial system.

In the case of senior fund leverage, its ability to contribute to systemic risk is a matter of asset risk. For example, debt funds with underlying assets that almost never default in any state of the world (e.g. infrastructure project finance debt backed by government revenue guarantees, as is the case in the UK or France) could be highly leveraged since their propensity to create new losses in bad states of the world would be almost zero. Conversely, leveraging debt funds with underlying assets that are highly correlated with bad states of the world (e.g. loans to SME) would constitute a net positive contribution to systemic risk.

In conclusion, we highlight the basic features of what a long-term private debt fund (LTPDF) would look like. Using the example of an infrastructure project finance debt fund, we suggest credit risk such benchmarking may be done using standardised cash flow reporting of debt service cover ratios, to achieve what we call "shadow banking in broad daylight."

We also conclude that regulated banks will play a pivotal role in the development of such non-bank sources of financing for the real economy.

In effect, properly regulated shadow banking debt funds are the opportunity to combine the benefits of a focus on collateral/underlying value, which requires benchmarking and transparency, with the significant value otherwise created by banks in the financial intermediation process, especially certification effects and the reduction of information asymmetries, leading to lower default rates, and the monitoring and re-contracting of borrowers' debt, leading to higher recovery rates.

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1 Introduction

This paper presents our response to the Central Bank of Ireland discussion paper on loan origination by investment funds (Central Bank of Ireland, 2013). In what follows, we first summarise our understanding of the argument made in the discussion paper in section 2.

We then discuss the merits of allowing loan origination by investment funds in section 3 and argue that such vehicles should be allowed to issue long-term loans only.

Section 4 discusses the role of banks in financial intermediation and argue that banks remain at the centre of this process even when credit origination is de-integrated and ring-fenced using a fund structure.

In section 5, we consider the risks created by the long-term closed-ended debt funds and argue that credit risk, liquidity and maturity transformation and thus systemic risk should be limited. We also discuss the sources of shadow banking risks and how they may be addressed.

Finally, section 6 outlines the rough format of a long-term private debt fund (LTPDF) that could be allowed to originate debt without creating the potential for a significant build-up of systemic risks.

2 Arguments made in the discussion paper

The discussion paper circulated by the Central Bank of Ireland asks whether the regulator should allow investment funds to originate credit instrument and is concerned with identifying the merits, the risks and the regulatory implications of allowing such activities.

From the perspective of the regulator, such merits may include addressing a perceived "funding gap" in the European and global economies due to the expected retrenchment of banks' lending activities, and may thus be described as providing a "public good" i.e. redressing a market failure that private sector participants cannot correct under the current state of financial regulation. New risks may include systemic or "shadow banking" risks and these may require new regulatory measures to be either avoided or contained.

Throughout the discussion paper, the argument is made that providing alternative sources of funding to the real economy through investment funds would indeed contribute to the public interest but that loan origination and participation are different activities. While the latter is already allowed for investment funds through the syndication market, the former involves credit risk analysis, pricing and monitoring. Investment funds may not have the ability to conduct these tasks and credit standards and risk pricing may thus be inadequate. Furthermore, the paper suggests that loan books created by investment funds may create concentration risks, be relatively illiquid and feature maturity and liquidity mismatches increasing the risk of runs, potentially magnified by fund-level leverage.

In conclusion, the paper suggests that a type of closed-ended fund with a cap on fund leverage and loan maturity, and one or several diversification constraints would be a desirable alternative credit channel for the real economy. Credit assessment and loan monitoring are also mentioned as essential tasks to be undertaken but no insights are provided to suggest how this may be done by a new type of debt funds.

3 Merits of loan origination by investment funds

3.1 The funding gap and the demand for credit

European policy makers have expressed concerns that bank de-leveraging and the introduction of new bank regulation may reduce the availability of long-term capital and have a negative impact on future growth and employment. Recent examples, include the European Commission's Green Paper on the long-term financing of the European economy (EU Commission, 2013)[1] and the debate around the revision of the Solvency-2 framework to accommodate long-term investment by institutional investors (Faull, 2012; EIOPA, 2013)[2].

The "funding gap" argument made in the discussion paper can be summarised thus: as opposed to capital markets in North America, banks provide the majority of its funding to the real economy in Europe and substantial evidence suggests that the impairment of the bank lending channel can have lasting adverse consequences on real economic activity. Having been through a severe crisis since 2008, European banks are expected to de-leverage for a substantial period and, as they implement Basel-3, they are now less likely to lend, especially to SMEs in the Eur25-100m range, and to finance long-term capital projects such as infrastructure.

The discussion paper makes the argument that alternative sources of credit would help support the European economy "at this juncture" (Central Bank of Ireland, 2013, p.6). But it also implicitly argues that the European economy is exposed to systemic banking sector risk[3], insofar as the potential contraction of the banking sector affects the real economy across the board.

Thus, developing alternative sources of credit may serve "the public interest" by rapidly providing new long-term financing to the economy, and by reducing its reliance on bank financing.

3.2 The failure to meet long-term credit demand

The academic literature has long documented the "adverse feedback loops" resulting from the sudden contraction of the credit sector, as suggested in the discussion paper. This is uncontroversial (see Luttrell et al., 2009, for a discussion). But the discussion paper does not specify whether creating alternative sources of finance matters more for long-term than for short-term financing.

We argue that the discussion of the funding gap proposed in the paper is only relevant when it comes to long-term lending.

Indeed, short-term financing of the real economy is likely to remain the preserve of banks. Of course, at a low point in the credit cycle, when banks are still shrinking their balance sheets, short-term funding may also be limited and alternative sources of credit could help support the real economy *ceteris paribus*. But if the regulator's expectation is that banks are unlikely to return to a healthy position within a reasonable timeframe (zombie banks) then the question of whether loan origination by investment funds addresses

1 - see Blanc-Brude and Ismail (2013c) for a response

2 - see Blanc-Brude and Ismail (2013b) for a response

3 - Commissioner Barnier is quoted as saying "I do no think that financial intermediation should be left entirely and solely in the hands of banks..." (Central Bank of Ireland, 2013, p.9)

a market failure is a second-order question. Fixing the banking sector is the first-order "public good" that the regulator should be focusing on.

If, on the contrary, banks are expected to return to normal within a few years, they will resume their supply of short-term credit to the real economy, competing with any alternative sources with the benefit of long-term client relationships and economies of scale. Other sources of short term funding also already exist within the shadow banking sector, such as money market funds, which are the focus of a separate regulatory initiative.

However, banks may not resume sufficient long-term lending (to SMEs or infrastructure projects) because of the ongoing implementation of prudential banking regulation.

Hence, alternative sources of funding are likely to play a positive role to the extent that there is a *long-term* funding gap. It follows that the type of instruments that investment funds may be allowed to originate should be long-term loans.

3.3 The supply of long-term credit

The discussion paper focuses on the demand for credit of new or existing borrowers in the real economy. However, there is also a credit supply side to this debate: institutional investors are increasingly seeking new types of credit instruments allowing them to:

1. Buy long-duration instruments with predictable cash flows in order to build and manage liability-matching or -hedging portfolios, and
2. Invest in unlisted instruments to diversify away from market volatility.

In the future, institutional investors can be expected to allocate a significant proportion of their portfolios to "direct" investments with a focus on cash flow generation at given horizons, with the objective of holding such assets to maturity and with limited focus on capital gains or terminal value. A basket of such instruments is a portfolio of unlisted (private) debt.

Thus, one of the merits of allowing investment funds to originate debt is to allow the creation of such instruments. Moreover, the type of borrowers identified as lacking access to bank funding i.e. SMEs for size and infrastructure for maturity, can be expected to provide access to the illiquidity premia and long-term cash flows that institutional investors require to implement the strategies suggested above.

However, to be attractive and useful to institutional investors, such *private debt funds* need to provide access to well-identified risk factors, while paying cash flows at well-defined horizons. Hence, the benchmarking of the credit risk of debt funds will play a key role in the ability of investors to provide the supply of long-term finance needed to address the funding gap highlighted in the discussion paper.

We return to this point in section 5.

4 Banks, debt funds and financial intermediation

4.1 The shadow banking role of regulated banks

As suggested in the discussion paper, investment funds originating new debt instruments fall within the Financial Stability Board definition of "shadow banking"4 and are thus more prone to lead to systemic risks:

- A sudden loss of confidence in the quality of the fund's borrowers could trigger a run (assuming redemptions are possible)5,
- Even with genuine long-term investors such a fund may have to rely on some level of short-term funding6, hence creating funding maturity mismatches, and
- While excessive maturity and liquidity transformation are more unlikely with long-term investors involved in a fund providing long-term debt, excessive credit risk transformation is possible.7

However, this characterisation begs the question of how such funds would operate as shadow banking entities. Indeed, recent research shows that shadow banking is better characterised as an extension of regulated banks activities. Banks play a number of functions in the context of both their regulated and un-regulated activities: they typically act as the originator, servicer, trustee and underwriter of new debt, while the credit assessment function is shared between them and credit rating agencies.

Cetorelli and Peristiani (2012) show that regulated banks have played a dominant role in the emergence and growth of shadow banking activities and that, once their roles are acknowledged, most of the current financial intermediation process is effectively driven by regulated banks. They argue that shadow banking requires all the functions necessary to financial intermediation i.e. the same roles played by banks in the regulated models of intermediation.

In particular, the authors show that if origination *per se* has been moved to SPVs in the asset-backed securitisation business, banks retained their role as underwriter, trustee and servicer. They also argue that if banks have faced some competition from finance companies in the originating and servicing segments, they retain a significant and growing share of these activities. Overall, Cetorelli and Peristiani (2012) show empirically that large bank holding companies and investment banks have been major contributors to all phases of the development of shadow banking.

While the wholesale funding and securitisation processes make it possible to de-integrate single activities and have them provided by several entities, it is difficult to imagine new private debt funds operating without any involvement from the banking sector.

Thus, **it is a mis-conception to oppose bank and non-bank lending**. Instead, they should be treated as complements because financing provided by non-bank entities typically requires the direct involvement of banks in one capacity or another.

4 - "Shadow banking comprises activities involving some element of maturity and liquidity transformation, credit extension, and risk transfer, conducted partly or wholly outside the "traditional" banking system." (Lane, 2013)

5 - Function 1 in the FSB classification of non-bank economic functions (see Central Bank of Ireland, 2013, :12)

6 - Function 2, *ibid.*

7 - Function 5, *ibid.*

Of course bank and non-bank lending can still be opposed from a regulatory perspective: the former is subject to capital requirements, the latter is not.

Thus, if banks must remain heavily involved in driving the different functions allowing the origination of new credit, it should be acknowledged that allowing the creation of private debt funds in order to address a funding gap for SMEs or infrastructure is **essentially a way to allow the origination of long-term loans off banks' balance sheets**.

This is, in principle, fine. As Lane (2013) argues, room on banks' balance sheet is expensive and other investors may well want to take the risks associated these new loans, but the role of banks will continue to be central to the intermediation and indeed origination process.

4.2 The economic value created by banks

The discussion paper argues that allowing investment funds to participate in new loans through the syndication market is unproblematic, but that the question of allowing new origination by investment funds is a different one.

The academic literature has long documented how banks create value by taking (or not) the *decision to originate* new credits. These mechanisms are essential to discuss what value and what risks private debt funds allowed to originate debt might create and also how they may be expected to operate as shadow banking entities.

As issuers of corporate loans, banks are, famously, "delegated monitors": Diamond (1984) and Fama (1985) argue that financial intermediaries have a cost advantage in monitoring defaultable debt because they benefit from diversification and scale economies at the loan portfolio level. They also provide re-contracting services, e.g. Gertner and Scharfstein (1991) and Bolton and Scharfstein (1996) discuss the benefits of debt restructuring and of 'working out' credit issues for borrowers. International loan syndicates also provide political risk protection as discussed by Chowdhry (1991), Jensen and Meckling (1976) and Shanks (1998).

Banks also provide a "certification" service by signalling the future credit quality of borrowers to the equity market. Such certification effects are documented in a recent paper by Bushman and Wittenberg-Moerman (2012) who study the relationship between arranger reputation and loan performance. The authors document a consistent relationship between bank reputation and the quality of borrowers' credit and financials in the short and long run.

The discussion paper opposes the role of banks and capital markets in financing the economy (Central Bank of Ireland, 2013, p:7), but existing research suggests that banks also provide valuable services in the area of bond underwriting, including certification, information revelation, credit risk assessment and pricing.

Puri (1996) first argued on theoretical grounds that there exists a trade-off between banks conflict of interests when it comes to refining existing bank loans by underwriting bonds and the fact that banks have better information about their borrowers which amounts to providing a "certification" service to corporate bond issuers. The monitoring of the borrower by a bank is expected to lead to higher prices (lower yield) on corporate debt than investment house underwriting. Ang and Richardson (1994); Kroszner

and Rajan (1994); Puri (1994) show that bank underwriting tends to have a better long-term performance (lower default rates) than investment house underwriting, suggesting that the certification effect of bank underwriting is greater than any conflict of interests that may arise from incentives to misrepresent the borrower's credit risk to the market.

The gradual relaxation of the Glass-Stegall Act contributed to a debate about the non-bank activities of banks which echoes in part the current discussion of the non-bank sources of funding highlighted in the discussion paper. Gande et al. (1997) examine the pricing and characteristics of bank and investment house underwritings in the U.S. They show that bank underwriting consists much more often (33%) of small issues (below USD75m) compared to investment house underwriting (8%). They also find that banks tend to underwrite *smaller* issues over time. The same authors also show that when banks have a significant lending position vis-a-vis the borrower, the yield spread on public issues for lower quality credit (below investment grade) is reduced compared to investment house underwritings.8 These findings support the certification hypothesis.

Further evidence of the positive effects of banks on corporate debt underwriting is provided by Gande et al. (1999), who show that underwriter spreads and *ex ante* yields decrease significantly as the presence of commercial banks in the underwriting sector increases, in particular in relation to lower rated and smaller issues.

More recently, Fernando et al. (2012) use the collapse of Lehman Brothers to test whether investment banking relationships have value for their clients. The bankruptcy of the underwriter can be associated with significant drops in market capitalisation for some of its clients, affecting both those clients that had mandated numerous issues or recent and small issues. The authors note that the rest of Lehman's clients were not directly affected by its collapse, suggesting that the clients most dependent on the underwriter are also the ones benefitting form the greatest certification effect, in this case a negative one.

Likewise, Andres et al. (2012) use the high-yield bond market to test the value of delegated monitoring. They find that those banks acting as bond trustees in the lower-grade bond segment can reduce at-issue bond yields and that those issues are associated with lower defaults and downgrades.9

Empirical evidence suggests strongly that banks tend to underwrite smaller and riskier issues than investment houses do, and that their access to borrower information through relationships allows for a more accurate pricing of credit risk (lower spreads) and better long-term performance, in part thanks to workouts and restructurings. In other words, as underwriters, banks are shown to have reduced a market failure springing from the information asymmetry between lenders and borrowers in credit markets.

Hence, it is difficult to imagine private debt funds providing long-term financing to SMEs and infrastructure projects achieving better certification effects and reduction of information asymmetries than banks can, unless banks themselves are heavily involved in the decision to originate taken by these funds.

Again, the potential role played by private debt funds should be recognised for what it is: allowing the origination of bank loans, off the regulated banking sector's balance sheet i.e. without the benefit of any

8 - Bank underwritings that are not issued for the purpose or refinancing existing bank loans have even lower spreads, while those that are exhibit similar spreads than investment house underwritings.

9 - the authors provide a number of robustness checks including controlling for self-selection

of the formal guarantees that regulated entities benefit from (deposit insurance and last resort access to liquidity through the central bank) but also without the capital charges that make long-term loans unpalatable to the same regulated lenders.

Hence, private debt funds with the power to originate are unlikely to exist and function on a significant scale - one that is commensurate with providing "public goods" - without the involvement of banks. This conclusion is important to understand the potential risks created by such structures, which we discuss next.

5 The risks of long-term closed-ended debt funds

We have established above that there is merit in allowing long-term private debt funds for investment purposes, because the regulated banking sector is unlikely to be able to afford long-term lending, even after impaired bank balance sheets have been restored, and because of the increasing *supply* of long-term credit can be found amongst institutional investors attracted by "direct investments" in unlisted, cash-flow yielding instruments.

We have also argued that originating such loans via ring-fenced investment funds would still require all the financial and economic functions played by banks in the intermediation process, both in the regulated and unregulated segments of the credit market.

Next, we turn to some of the key risks that are raised in the discussion paper.

5.1 Sources of systemic risk

Systemic risk is the possibility of cascading defaults or bankruptcies due to linkages between financial entities, eventually endangering the very existence of the financial system in question. As argued by Duan and Zhang (2013), any large negative external shock can trigger cascading defaults, but shocks to systematic risk factors, as opposed to entities' idiosyncratic features, are more likely to drive series of defaults and thus to increase systemic risk. Haldane and May (2012) also suggest that while exogenous factors may trigger systemic collapse (e.g. recessions or wars), recent examples of financial crises were driven by factors endogenous to the financial system.

Acharya et al. (2010) usefully define the contribution of a financial entity to systemic risk as the propensity to be undercapitalised when the entire financial system is undercapitalised. In other words, the propensity to create *additional* losses in bad states of the world, in which everybody else also faces high losses. Indeed, systemic risk is state-dependent and the regulation of specific types of investment vehicles in this regard should focus on their potential *marginal contribution* to systemic risk.

Haldane and May (2012) review the recent literature extensively and highlight three factors of failure propagation from one financial entity to another: direct losses from asset cross-ownership, fall in asset values and increasing liquidity funding constraints.

From this perspective, long-term debt origination by investment funds is not an obvious source of systematic risk. First, their degree of interconnectedness with the rest of the financial system may be limited; in particular, they are not intended to own the debt of other long-term private debt funds. Hence, the failure

of an individual fund should not directly affect the asset value of other such funds and only represent a loss for its own investors.

A systematic exogenous shock to the asset value of numerous private debt funds e.g. a widespread credit downgrade of SMEs following a deep continent-wide recession, whether or not it is magnified by fund leverage, would constitute a loss for investors and may even lead to a sell-off of the bonds issued by private debt funds in the secondary market. But if such funds are truly long-term vehicles without short-term redemption options (as is the case with a private equity fund or numerous hedge funds), it cannot lead to a run. Likewise, it is unlikely that even a single institution (e.g. a pension fund) should have a large enough exposure to such private debt funds that it would fail following this drop in debt funds' asset values.

Likewise, long-term debt funds investing long-term money are less likely to fail because of liquidity funding constraints, especially once they have drawn down their commitments and are simply managing a long-term loan book.

It should be noted that private debt funds are exposed to the short-term funding risks of their borrowers. For example an infrastructure debt fund may have made a long-term senior loan to a toll road project that is now in default due to lower than expected traffic in a period of economic contraction, and needs access to a restructuring facility (mainly so that the debt service of the senior loan can resume or emerge from default). If short-term funding cannot be obtained because banks are liquidity-constrained exactly at that moment, the impossibility to restructure the toll road loan leads to the collapse of the project and a distress sale of the loan, resulting in much larger losses for the private debt fund than if the usual "workout" had been possible (see Blanc-Brude and Ismail, 2013a; Moody's, 2013, for a discussion of the role of workouts in project finance).

But this relationship does not constitute a new transmission mechanism of shocks to systematic risk factors: whoever was going to make this loan to the toll road project would also have realised the same loss i.e. *ceteris paribus* this loss does not ricochet to create a new loss somewhere else in the financial system simply because the loan was originated by a private debt fund.

Of course, new *systematic* risks are introduced if maturity and liquidity mismatches are allowed i.e. making private debt funds more liquid for investors (allowing redemptions) or making them open-ended. The possibility of shocks to these additional systematic risk factors then increases the propensity of such funds to contribute to *systemic* risk.

Focusing on illiquid, closed-ended private debt funds for now, what are their *endogenous* sources of systemic risk contribution? We focus on two endogenous factors that are instrumental in creating high unexpected losses correlated with bad states of the world: collateral value and leverage.

5.1.1 Collateral value

One major contribution to systemic risk from debt issuing vehicles within the shadow banking sector is the possibility of a gradual erosion of the credit quality of their borrowers, unbeknownst to the fund's investors.

Luttrell et al. (2009) describe how the increasing opacity (and complexity) of structured products obscured the changing nature of credit risk within the shadow banking sector until 2007. A number of papers have highlighted how the evolution of the shadow banking sector mimicked Minsky's financial instability model (Minsky, 1992) until the "Minsky moment" when expectation of rising valuations are reversed and a lack of confidence on the value of underlying assets leads to cascading redemptions and defaults (see for example Cerutti et al., 2012).

In this context, Lane (2013) highlights the increasing difficulty to value collateral as a pivotal mechanism triggering the loss of confidence in the repo trade and the securitised loan sector in 2009.

The quality of the collateral/underlying of an investment debt fund originating debt instruments is determined by the credit risk of its borrowers.

The discussion paper touches on the issue of the fund manager's ability to originate debt i.e. to assess and manage credit risk, as well as the ability to monitor loan books. This should be a serious concern if managers are believed to only have a limited capacity to assess credit risk and monitor borrowers, since this may lead to a sudden lack of trust in the quality of the underlying in private debt funds.

While a closed-ended, illiquid type of private debt fund would not face a run or short-term funding problem if investors lost faith in its past lending decision and current ability to manage the fund's loan book, the reversal of expectations regarding such funds asset values would certainly *contribute* to systemic risk since it is more likely to happen in bad states of the world.

At the extreme, if underwriting criteria had decreased significantly and across the board (as in the subprime mortgage market in the US until 2007), a number of private debt funds would fail and create large losses for investors, just as these find themselves in a high-loss state of the world, hence further contributing to the risk of systemic failure.

As argued above, banks have significant comparative advantages to understand credit risk at the origination stage and monitor creditors post-origination on a cost effective basis. While individual managers, either very specialised (e.g. Meridiam Infrastructure) or very large (e.g. BlackRock), may have internal capabilities to originate and also manage a portfolio of loans, it seems unlikely that similar skills may develop outside of the banking sector, on a large scale and in the not-too-distant future.

Instead, banks can be expected to remain involved as a service provider (deal sourcing, structuration, underwriting, trustee, etc) to debt funds and as well as a potential co-investor/co-lender, providing additional incentives for adequate credit risk monitoring.

Furthermore, private debt funds are unlikely to resemble the anonymous SPVs which were used to issue asset-backed commercial paper until 2008. Using their name, banks can provide the "certification" that signals credit quality.

Finally, the transparent benchmarking of credit risk in private debt funds would help the ongoing valuation of underlying credits and of private debt funds themselves. We return to this in section 6.1.2.

5.1.2 Leverage

Leverage magnifies both gains and losses. Insofar at it may lead to *larger* losses, it is a direct contributor to systemic risk, especially if it is applied systematically across the financial sector.

For this reason, the discussion paper dismisses the possibility of allowing the leveraging of private debt funds as a matter of investment strategy (Central Bank of Ireland, 2013, p.26), but asks whether it should be considered for other purposes.

It should be noted that a certain amount of leverage of private debt portfolios may be necessary to make them sufficiently attractive to final investors i.e. to be in a position to tap the supply of long-term credit mentioned above. As long as this is explicitly recognised, and the credit risk of the underlying well documented, investors can decide what risks they want to take.

Moreover, fund leverage can take several forms. It may consist of a senior bank loan extended at the beginning of the fund's life and matching the maturity of the fund, effectively making investors' claims junior in the cash flow payment structure of the fund but presumably increasing their returns.

It may also take the form of a similar bank loan but in a junior position, as a way to protect senior lenders from first losses and also to remunerate the deal sourcing and structuring services of a bank, one of the most likely candidates as fund manager.

Finally, fund leverage could mean short-term fund-level borrowing to support operations or bridge-financing new loans but also to service investors' claims, turning the fund from a "hedge unit" in Minsky's terms to a "speculative" one (Minsky, 1992).

The suggestion made in the discussion paper to cap fund leverage at 30% is too *ad hoc* to be convincing. Of course, controlling for asset risk, private debt funds using leverage are more likely to default on their obligations to investors. But low asset risk allows the use of substantial leverage as infrastructure project finance demonstrates (see Blanc-Brude and Ismail, 2013d, for a literature review and discussion).

Hence, certain types of private debt funds could borrow at the initial investment stage with an equivalent maturity because they invest in very safe assets (e.g. the long-term debt of public-private partnership contracts for infrastructure projects[10]). As long as their asset value is not correlated or only weakly correlated with bad states of the world, such leverage does not contribute to systemic risk.

Since they do not exhibit liquidity funding mismatches or engage in maturity transformation, leveraging long-term investment funds of new private debt does not contribute to systemic risk in this sense either.

Instead, it is the correlation of the credit risk of underlying loans with bad states of the world which should guide the opportunity to leverage private debt funds. In all likelihood, SME lending creates credit risks that are correlated with the business cycle, and which is itself correlated with tail events in the financial sector. This type of private debt fund could benefit from a having junior debt, as a protection (insurance) against the business cycle.

10 - In France, this debt is often guaranteed by the state after infrastructure projects have been built under a process known as "Loi Dailly".

On the contrary, a portfolio of long-term loans to infrastructure projects benefiting from public sector revenue guarantees has a credit risk profile which warrants a degree of senior leverage, especially if unlevered yields are relatively low compared to other available investments with similar maturities.

5.2 The issue of credit risk diversification

As well as risks of maturity and liquidity transformation mismatches that may lead to runs, excessive leverage, information asymmetries and credit risk mis-pricing, which are direct contribution to systemic risk, the discussion paper identifies the concentration of loan portfolios originated by private debt funds as an issue of concern.

With concentration, investors do not benefit fully from diversification and may thus face higher losses in bad states of the world. Hence, *concentration may contribute to systemic risk insofar as investors may face higher losses,* but it does not create any new transmission mechanism for these losses.

Unlike leverage, which can increase the impact of mechanisms that are otherwise sources of loss transmission (cascading defaults), concentration only increases the size of potential losses *but not their propagation*. What matters from a regulatory perspective is that risks be well-understood and identified by investors, who remain responsible for the risk they take.

Moreover, in the case of loan origination there exists a trade-off between diversification and the quality of credit information available to lenders which may justify concentration *at the point of origination*.

Traditionally, the finance literature has argued that a loan portfolio should be diversified by expanding its borrower base. However, because of the importance of long-term client relationships and their role monitoring and gathering information about borrowers, lenders are likely to be under-diversified (Diamond, 1984).

Indeed, two effects are at play in the determination of the investment profile of loan portfolios: information and diversification. Diversification across new sectors or countries for example may improve diversification benefits but it may also come at a cost in terms of lower credit quality if lenders are less familiar with new types of borrowers.

A series of recent research papers on loan book diversification suggests that lenders benefit from being specialised and observe that those banks that expand into new industrial sectors do not improve the efficiency of their loan portfolio. Using detailed bank data from Italy, Germany, Ireland and Jamaica (Langrin and Roach, Langrin and Roach; Acharya et al., 2002; Hayden et al., 2007; Dionne and David, 2005), these papers show that diversifying across industrial sectors is at best of limited interest and may significantly damage the efficiency of bank loan books.

These results suggest that the trade-off between familiarity and ambiguity identified by Boyle et al. (2012) maybe on the side of familiarity when it comes to loan portfolios.[11] Credit quality is the result of lender specialisation, but also tends to generate loan portfolio concentration.

11 - We would like to thanks Frederic Ducoulombier for bringing this point to our attention.

Nevertheless, as long as credit risk is adequately documented and benchmarked, an investment fund with even a single borrower should offer an adequate remuneration of the investors' risk. We see no reason to impose a limit on the number of borrowers a debt fund may be exposed to, as the discussion paper suggests.

Of course diversification remains desirable but with transparent information about the fund's loan book and its expected performance, it can be left to investors choices. Simply put, investors can diversify across several concentrated private debt funds.

Diversification at the debt fund level may also be limited by other considerations e.g. the very large size of loans in certain sectors like infrastructure may limit the number of potential borrowers in a given debt fund (the "lot size" problem). Thus, imposing an *ad hoc* diversification constraint by number of borrowers may hamper the development of the kind of long-term debt funds that the real economy and final investors need most.

The same is true of a geographic diversification constraint.

Instead, adequate benchmarking methodologies combined with standardised and transparent data reporting requirements from borrowers would allow investors to know what risks they are taking when investing in even very concentrated loan portfolios.

We return to this point below in section 6.1.2.

6 Conclusion: shadow banking in broad daylight

As argued in the discussion paper, investors can be expected to take risks knowingly when investing in debt fund structures. As shadow banking entities, investments in such funds do not benefit from any formal public sector guarantees and investor may make a loss.

Avoiding the creation of investment vehicles that have net positive contribution to systemic risk can be achieved by allowing only those private debt funds matching the liquidity, maturity and credit risk profile of investors, thus minimising the corresponding transformation risks that can create runs following a sharp change of expectations.

Above all, transparency about the nature of credit risk in debt funds should play a key role to avoid a divergence of incentives between originator and investors. Such transparency requires the standardisation of cash flow reporting and the development of adapted benchmarking methodologies, which we discuss below.

6.1 Towards long-term private debt funds

The discussion paper asks a very broad question (Can investment funds be allowed to originate debt?) and an infinity of investment products related to debt-originating funds can be imagined, involving different levels of maturity, liquidity and credit risk transformation. There is no simple answer to this question.

In what follows, we suggest a way to allow investment funds to originate debt, thus addressing the long-term funding needs of the real economy, while avoiding a net positive contribution to the systemic risk of the financial sector, in particular the risks of runs, of the market's inability to value collateral or underlying, and of misaligned incentives leading to a gradual debasing of underwriting criteria.

6.1.1 Avoiding maturity transformation risk

Based on our argument above, we propose to only allow a certain type of investment fund to originate new loans: these funds would primarily respond to the need to channel the funds of *genuine long-term investors* (i.e. investors willing to received a delayed payoff (see Blanc-Brude, 2013, for a discussion of the nature of long-term investment) into similarly long-term instruments offering access to a stream of cash flows with well-understood characteristics.

Allowing such funds would not only provide investors with the long-term, unlisted, cash flow yielding instruments that they require, but also addresses the public policy concerns that have prompted the recent debate around the revision of prudential frameworks to accommodate long-term investment and not starve the real economy of long-term capital.

As argued above, the short-term funding needs of the real economy can be provided by banks as well as Money Market Funds, which are the object of a separate regulatory initiative within the European Union.

By design, these long-term private debt funds *would not create any maturity transformation risk* since the funds allocated to such investments by final investors would be understood to be illiquid assets with a given term, while investment funds would offer an equivalent investment term without any opportunity for redemption, except in well-defined cases (e.g. inability to invest the funds, certain performance or governance issues, etc.). Of course, investors could always sell their share of such debt funds in the OTC market, but this would not affect the fund's liquidity. Like most private equity funds, such private debt funds would be *immune from runs*.

6.1.2 Credit risk benchmarking and collateral valuation

The difficulties related to *collateral valuation* can be addressed thanks to adequate and transparent credit risk benchmarking, backed up by the standardisation of the cash flow reporting of borrowers.

This may require substantial efforts on the part of the industry to impose norms for the reporting of borrower cash flows, as well as their centralisation in an independent database for the purpose of benchmarking the credit risk of private debt instruments at the underlying level (idiosyncratic risk) as well as the aggregate level (systematic risk).

An early example of such reporting already exists in the project financing sector, in which lenders insist on the clear definition of a base case debt service and debt service cover ratio (DSCR, the ratio of the firm's free cash flow to its debt service in a given period) at financial close, and monitor borrowers' DSCR on a regular basis until maturity.

Using the example of infrastructure project finance loans, we propose in a recent paper to use the DSCR, to measure and benchmark credit risk in infrastructure project finance (Blanc-Brude and Ismail, 2013a).

We argue that knowledge of the first two moments of distribution of the DSCR in project finance are sufficient to measure and predict the credit risk of individual loans. We show that the distribution of the DSCR captures asset value and volatility and allows measuring *distance to default* in project finance. The distribution of the DSCR also provides an unambiguous default point and can thus be used to build a mapping of the expected default frequencies (EDFs) of project finance loans.

Once characterised, the distribution of the DSCR allows the computation of an expected value, a conditional probability of default and a conditional probability of emergence from default. We also show that these variables are sufficient to compute loss given default (LGD) and the expression of a loss density function of project finance loans.

Thus, the knowledge of the distribution of the DSCR in project finance allows the calculation of a conditional value-at-risk (cVaR) measure for an infrastructure debt portfolio.

Contrary to the methods of rating agencies, which focus on issue-specific credit risk, a statistical approach using a robust estimation of the distribution of the DSCR, allows the estimation of both systematic and idiosyncratic credit risks.

Beyond project finance, similar reporting and aggregation of borrower information to develop the ongoing monitoring of private debt credit quality can be envisaged in other sectors, such as SMEs for example.

6.1.3 Credit quality and incentive alignment

Misaligned incentives between investors and originators is a key mechanism by which shadow banking entities can contribute to systemic risk: if investment vehicles are opaque enough, originators may use lower quality collateral/underlying and hide this fact by increasing leverage.

The independent and transparent benchmarking of credit risk described above also creates *incentives to maintain underwriting standards* at levels pre-agreed between investors and managers.

Further incentive alignment may be obtained if the manager remains exposed to the credit risk of the fund, either by owning a proportion of its units or shares.

In the case of debt-originating funds with formal links to a bank, the later could make a subordinated loan with a matching term to the debt fund at the beginning of its life, thereby taking the first loss. This last possibility also allows for the explicit remuneration of the bank's services such as certification but also re-contracting (workouts) of the debt of underlying borrowers.

In effect, properly regulated shadow banking debt funds are the opportunity to combine the benefits of a focus on collateral/underlying value, which requires benchmarking and transparency, with the significant value created by banks in the financial intermediation process, especially certification and the reduction of information asymmetries.

6.2 An example LTPDF

To conclude, a type of long-term private debt funds (LTPDF) that creates an alternative source of long-term financing for the real economy, without significantly contributing to systemic risk, could have the following characteristics:

- The LTPDF is an SPV in which investors commit to invest a number of units. The fund's strategy consists of making new loans to a group of borrowers which are, in all likelihood, selected with the help of an existing bank and its client relationships, e.g. "the newBank debt fund"
- The maturity of the fund/its loan portfolio are explicit *ex ante* e.g. "the 20-year newBank debt fund". Investors cannot exit the fund except under very specific conditions including the failure to build a loan book by a certain date or internal governance issues
- The fund proposes access to a portfolio with an explicit and public target level of portfolio-level credit risk and yield, stating explicitly whether this target level is to be reached using leverage or not e.g. "the 20-year A- zero-leverage newBank debt fund"
- Unlike a private equity fund, a closed-ended long-term private debt fund does not have to exit its investments towards the end of its life. Hence, such a fund would only have two phases: a build-up phase during which the commitments made by investors are gradually drawn and used to originate loans to selected borrowers; and a servicing period during which investors receive the interests payments promised initially by level of seniority. *Ad hoc* short-term borrowing may be allowed during the first phase but during not the second one.
- Long-term borrowing is allowed to boost returns as a function of the aggregate underlying asset risk e.g. "the 20-year A-(AA) leveraged newBank debt fund" would use leverage and a AA-rated loan portfolio to create the equivalent of an A- rating. Determining the allowed level of leverage requires a calibration exercise by the regulator.
- Thus an infrastructure debt fund could extend long-term loans to a portfolio of infrastructure projects. For example, assuming the existence of several infrastructure projects yielding inflation-linked debt in Europe (e.g. the N33 road linking Assen and Zuitbroek in the Netherlands), investors could be attracted to "the 20-year inflation-linked BBB+ leveraged newBank infrastructure debt fund."[12]

This last example would probably represent an appealing investment prospect for certain European pension funds, while the exposure created by leveraged infrastructure debt funds would remain marginal in size relative to the European banking sector. A portfolio of loans to such infrastructure projects, receiving government-guaranteed[13] and index-linked income would also remain unaffected by swings in the business cycle, short-term funding issues or drop in asset values in other parts of the financial sector.[14]

6.3 Future research

Numerous aspects of such debt funds remain to be explored. For example, a fund that would build a portfolio of 20-year loans and let this debt mature would eventually be wound down. Nevertheless, it may loose a few borrowers to defaults during this period (even if the bank-manager is expected to restructure defaulting borrowers) and it may or may not be allowed to rebuild its portfolio before the end of its life.

12 - We show in a recent paper that infrastructure project loans at different moment in the project lifecycle i.e. at different levels of project leverage, give access to different levels of remunerated risk and can combined to create a range of aggregate credit risk exposures (Blanc-Brude and Ismail, 2013d).

13 - Such projects typically have to meet certain performance criteria to receive the full contracted income stream from their public sector clients but this potential revenue variability typically cannot impact the servicing of the project's senior debt.

14 - Such a fund would be mostly exposed to a combination of political and sovereign risks i.e. when the Portuguese government could not afford to guarantee the income of its privately invested toll road program, it changed the regulatory framework to transform "shadow toll" roads in to "real toll" roads, making the project lenders exposed to much more uncertain expected cash flows.

A debt fund which only originates new loans will also be impacted by the systematic credit risk migration of its portfolio. In some cases such as infrastructure debt, this migration is dynamic and significant (from BBB to A over a the first decade (see Moody's, 2013)). Alternatively, a debt fund could originate new loans in combination with the acquisition of existing loans from a bank, combining different levels of term-to-maturity to achieve its target aggregate credit risk. Such a fund would need to dynamically manage its exposure as its younger loans mature and its older loans are retired.

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