

# CEPR

## THE ROOTS OF SHADOW BANKING

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As Basel III has been largely defined, attention is moving to the shadow banking sector. This ill defined financial segment expands and contracts credit outside the regulatory perimeter, and was critical in the build up and demise of the credit boom. While much reduced since 2008, in the US its size still exceeded bank assets in 2011.

How does shadow banks compare with ordinary ones ?

Let us start with a simple definition of banking. What do banks do ? They acquire illiquid risky assets, and fund them with demandable debt. They earn risk premia (on average, not always !) on the risk transformations they perform, namely diversification, leverage, maturity and liquidity mismatch. To raise funding, since most investors prefer safe, short term and liquid assets.

Banks fund their assets by much cheaper funding than any other industry. They achieve this by offering liquidity on demand, a promise made credible by deposit insurance and access to central bank refinancing.<sup>1</sup> Investor confidence on the immediacy of access to money ensures that deposits are routinely rolled over, thus supporting long term lending.

As bank credit volume is constrained by capital ratios and deposit base, financial markets have thought of new ways to carry risky assets on inexpensive funding. Shadow banking requires creating a variant of demandable debt, credibly backed by a direct claim on liquidity.

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<sup>1</sup> Historically, this was different. Confidence was supported by high capital, reputation and limited competition. As credit demand and competition increased, central banks' emergency liquidity transformation and deposit insurance allowed steadily higher credit volume and bank leverage.

## **Shadow bank funding**

How can shadow banks mimic banks' unique credibility in promising liquidity on demand, without access to central bank liquidity nor to deposit insurance?

To some extent, shadow banks rely on bank credit lines. But their independent source of cheap funding is collateralized financial credit. Repo lenders (and derivative counterparties) hold a pledge to some financial collateral.

But how can this construction deliver investors credible liquidity upon demand? This is critical to understand the shadow banking cycle.

## **Jump the running queue: Superior bankruptcy rights**

Security pledging grants access to cheap funding thanks to the steady expansion in the EU and US of "safe harbor status". Also called bankruptcy privileges, this ensures lenders secured on financial collateral immediate access to their pledged securities.

It is essential at this stage to clarify how bankruptcy law operates. This is a statutory constraint imposed on private credit to remedy a private coordination failure, namely disorderly liquidation. In its absence, creditors will be tempted to "run" on a firm approaching default, seizing corporate assets and destroying value. In addition, borrowers may be tempted to extract value by last minute payments to favored lenders. The mainstay of bankruptcy law is a mandatory creditor "stay" which freezes all asset repossession, and coordinate liquidation under court supervision. So even well-secured lenders remain exposed to the risk of considerable delay in repayment, and short term lenders become exposed to medium term asset value risk. In addition, bankruptcy law prohibits eve-of-bankruptcy transfers and increased pledges, preference rules, cross default clauses and netting of claims.

Safe harbor status grants the privilege of being excluded from mandatory stay, and basically all other restrictions. Safe harbor lenders, which at present include repos and derivative margins, can immediately repossess and resell pledged collateral.

This gives repos and derivatives extraordinary super-priority over all other claims, including tax and wage claims, deposits, real secured credit and insurance claims. Critically, it ensures immediacy (liquidity) for their holders. Unfortunately, it does so by undermining orderly liquidation. In addition, it may contribute to much reduced discipline on risk taking.

## **A brief history of bankruptcy privileges**

Safe harbor status was granted as exceptions in the 1978 US Bankruptcy code, when it was limited to Treasury repos and margins on futures exchanges for qualifying intermediaries. Under industry pressure, as more derivatives move to the OTC market, they were broadened progressively to include margins on OTC swaps. But a really massive expansion took place in 2002-2005 in the US and EU, when any financial collateral pledged under repo or derivative contracts, whether OTC or listed, by any financial counterparty, came to enjoy the bankruptcy privileges (Perotti 2011).

This coordinated legislative push took place under minimal public scrutiny. It led to an immediate, extraordinary expansion of shadow banking credit and derivative contracting. For instance, the CDS market exploded between 2004 and 2007, from 7 to over 60 *trillion dollar*.

This construction had consequences both on credit incentives and on ex post consequences of distress.

Repo lenders and derivative counterparties enjoy not just immediacy in default, but can also reset margins daily. By construction, this produces a unique safe claim. Just as insured depositors, these claimants can afford to neglect credit risk, and perform no monitoring role.

This guaranteed ease of escape fed the final burst in maturity and liquidity mismatch in the 2004-2007 subprime boom, as loans were issued rapidly to be packaged in MBS and pledged to repo lenders. There is abundant evidence that credit standards in this stage fell rapidly.

The ex post consequences became visible upon the fall of Lehmann, which had expanded rapidly its ABS holdings under repo funding. Upon its default, a massive amount of ABS securities was taken and resold within hours, producing a shock wave of fire sales. While safe harbor claimants broke even,<sup>2</sup> their sales spread losses to all others, forcing public intervention. It became clear that safe harbor not only undermines unsecured claims (even deposit insurance or tax claims), but may create external effects on markets.

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<sup>2</sup> The rest of the creditors had to wait years to get less than twenty cents on the dollar.

## Benefits and costs of safe harbor

Security pledging can be a force for good if incentives are appropriate. It activates the liquidity value of assets from long term holders who do not need it. Such extraction of unused liquidity value may be seen as enhancing “financial productivity”, and it certainly increase asset liquidity. Its expansion clearly boosted securitization. It enables overstretched borrowers to further increase leverage (certainly if other lenders fail to fully appreciate its effects). Yet this can be an illusory gain, flattering market depth in normal times, at the cost of greater illiquidity at times of distress.

Duffie and Skeel (2012) discuss in an excellent summary the merit of safe harbor. In their words, *“safe harbors could potentially raise social costs through five channels: (1) lowering the incentives of counterparties to monitor the firm; (2) increasing the ability of, or incentive for, the firm to become too big to fail; (3) inefficient substitution away from more traditional forms of financing; (4) increasing the market impact of collateral fire sales; and (5) lowering the incentives of a distressed firm to file for bankruptcy in a timely manner.”*

Duffie and Skeel cite as sizeable benefit: *“a reduction of the incentives of repo and derivatives counterparties to “run” as soon as the debtor’s financial condition is suspect.* “ This is true, but only because their margins are adjusted daily. Ultimately, a larger fraction of superpriority claims makes others run earlier and faster, as their claims are de facto diluted.

Duffie and Skeel also cite the enhanced reliability of derivative transactions. Indeed, safe harbor does facilitate hedging transactions, though it equally favors speculative ones.

The historical argument used by the industry in the US Congress debate on bankruptcy reforms was that safe harbor ensures immediate freeing up of pledged securities upon an individual large scale failure. It was meant to prevent distress in cases such as LTCM, when one player with large holdings had run into liquidity problems (although emergency Fed lending had promptly resolved the problem). Such an episode was termed naively "systemic risk". With hindsight, it was equivalent to declare any financial institution as systemic, and thus deserving absolute priority. Most clearly, none consider the possibility of a risk shifting externality.

A jump in market haircuts, and ultimately a refusal to roll over security loans or repos, is the classic shadow bank run. As a security borrower cannot raise as much funding from its own illiquid assets, it is forced to deleverage fast or goes bust. In both cases this triggers fire sales. Once repo lenders seize collateral, they have all reasons to wish to sell fast. First, they are not natural holders. Second, they do not suffer from a fire sale as long as the price drop is less than their haircut. Third, they are aware that others are repossessing similar collateral at the same time, so they have an incentive to front sell.

### **What constrains shadow bank funding ?**

While central banks are not in charge of shadow banks, they naturally do come under pressure to stop fire sales and create outside liquidity. In combination with their “demandable” debt, safe and thus inattentive lenders, and the triggering of fire sales, this completes the banking analogy. However, in the absence of mandatory capital ratios or minimum haircuts, the amount of shadow banking funding can be scaled up at will, as long as real money investors agree. The implicit capital ratio is as low as security lenders choose to tolerate, and thus highly procyclical. Shadow banks expanded rapidly thanks to securitization, which created a massive amount of pledgeable securities to buy and hold under repo funding. Limiting securitization may thus appear to constrain their growth.

Yet shadow banks can also rely on the liquidity of assets they do not own. Pledgeable assets are routinely “mined” by borrowing liquid securities from long term asset managers, such as insurers, pension and mutual funds, custodians and collateral reinvestment programs.<sup>3</sup> In exchange, beneficial owners receive fees, booked as yield enhancement. The borrowed securities are then pledged to repo lenders or posted as margins on derivative transactions. Experienced asset managers protect themselves via collateral swaps, where the security borrower pledges collateral of lower liquidity. The liquidity risk transformation chain may have more links.

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<sup>3</sup> According to Poszar and Singh (2011): “At the end of 2010.. about \$5.8 trillion in off-balance sheet items of banks related to the mining and re-use of source collateral... down from about \$10 trillion at year end-2007”. While there is evidence of a recent expansion of collateral swaps in banks, there is little data on shadow banks.

Does security borrowing give rise to external effects ? In case of default of the security borrower, real money investors lose their original holdings. Are they likely to sell rapidly the (less liquid) collateral they repossessed?

A first reason is their wish or need to re-establish their original portfolio profile. More critically, they may need to sell within days to be able to claim any shortfall in bankruptcy court.<sup>4</sup>

In conclusion, security borrowing also leads in distress to an acceleration of sales for assets originally committed to a long holding period. In addition, by splitting up liquidity transformation, it lengthens credit chains and expands the number of connections among intermediaries, contributing to systemic risk (Gai, Haldane and Kapadia, 2011).

### **What should happen to the safe harbor privileges?**

It is now evident that shadow banks need the safe harbor privileges to replicate banking. No financial innovation to secure escape from distress can match the proprietary rights granted by the safe harbor status, which ensure immediate access to sellable assets.

Many attentive observers find such an unconditional assignment of superpriority to repo and derivative claimants excessive.<sup>5</sup>

The main proposals to reform the safe harbor status aim at firmly restricting eligibility. Tuckman (2010) suggested only cleared derivatives should enjoy the status. Duffie and Skeel argue it may be limited to appropriately liquid collateral (thus not ABS !) and only transparent uses (derivatives listed on proper clearing exchanges). Implementing these proposals is widely appreciated as necessary to defuse the Damocles' sword of dangling fire sales. A Repo Resolution Authority has been proposed (Acharya and Oncu, 2012) to reduce the immediate release of collateral, while avoiding the effect of a complete mandatory stay.

A critical issue is the treatment of collateral posted for central bank refinancing. For central banks to operate as ultimate liquidity providers, their claims should not be too undermined by adjustments to safe harbor status. A specific privilege for eligible collateral is thus justified for central banks, least they lose their ability to restore temporary liquidity to frozen markets. In addition, securities repossessed by central banks are by definition not likely to create fire sales.

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<sup>4</sup> There may be in some case an alternative route to validate a certain valuation, but this would be costlier (and open to unintended risk bearing on an asset not originally chosen for purchase) than selling.

<sup>5</sup> Creation of new proprietary rights are exceedingly rare. Limited liability is the last main case.

## **A first step: a public registry**

A macroprudential policy preventing accumulation of contingent liquidity risk requires measurement and tools. Perotti (2011) suggests that claims be publicly registered (just as secured real credit is !) as a precondition for safe harbor status. This will ensure proper disclosure, essential to macro prudential regulators, and avoids unauthorized or misunderstood (re)hypothecation. The need of a central repository seems by now well accepted among senior policymakers.

Investors who wish to claim superpriority in distress seek a scarce resource. They should be paying for the privilege, and for any risk externality it creates. In normal times, a low charge should be levied on registered claims. Charges should be adjusted countercyclically, lowered in difficult times, and raised when aggregate liquidity risk builds up, to brake an otherwise uncontrollable expansion.

Other approaches involve limiting the stock of safe harbor claims directly (Stein, 2012). This approach may be achieved by a cap and trade model, which a registry receiving fees could support.

Earlier experiences in controlling externalities with this approach have resulted in over issuance, so the cap may need to be adjusted with some frequency. Adjusting maximum amounts discontinuously, however, may create trigger points.

## Conclusions

Since the crisis, shadow banks have either converted to banks, gained a state guarantee, have defaulted or massively deflated (though measurement of security lending against illiquid collateral is still very imprecise). Its risks are increasingly appreciated by market participants, contributing to massive pressure for secured funding for all intermediaries.<sup>6</sup>

Safe harbor has been long an obscure detail even for senior policymakers academics, and its expansion took place under minimal public scrutiny.<sup>7</sup> Public awareness is low as few repossessions have taken place, as only one major shadow bank was allowed to go bust. However, their effect has become increasingly visible. Traditional unsecured lenders have taken notice, and now request more collateral, squeezing bank funding capacity and limiting future flexibility. Recent episodes include the sudden Dexia bank collapse or the expropriation of MF Global client assets. Safe harbor volume is the outcome of private contracting choices, and enables shadow banks to hold risky illiquid assets and earn full risk premia by funding at the overnight repo rate. In what is essentially a synthetic bank, repo and collateral swap haircuts act as market-defined capital ratios. As it grants the ability to create quasi money, it basically enables unregulated banking, subject to shadow bank runs.

Liquidity transformation across states and entities has procyclical effects. It enhances credit and asset liquidity in normal or boom times, at the cost of accelerating fire sales in distress. So its global effect is to redistribute liquidity from bad states (when arguably it really matters) to good states. Any reform to the shadow banking funding model should take into account its favorable effects on asset liquidity and credit in normal times. Yet the scale of the contingent liquidity risk in the shadow banking sector is not at present controllable (nor it is well measured!). There is an academic consensus that a balance has to be struck (Acharya et al, 2011; Brunnermeier et al, 2011; Gorton and Metrick, 2010; Shin, 2010).

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<sup>6</sup> In some cases the re-use of the collateral is not well understood or appreciated by the beneficial owners. MF Global pledged assets held in custody for clients to fund their own activity. Owners recognized the exposure only once their assets were repossessed by third parties. Because the safe harbor status grants a proprietary right to the repo lenders, the original owners were legally expropriated.

<sup>7</sup> It is not widely remarked that safe harbor status has been further extended by two EU directives (on collateral and finality) since the crisis started.



Appropriate tools are also necessary to align capital and risk incentives in banks and shadow banks (Haldane 2010). Security lending may also undermine Basel III liquidity (LCR) rules.<sup>8</sup>

At a time when all lenders seek security, questioning the logic of safe harbor provisions may seem unwise. Yet at the system level, it is simply impossible to promise security and liquidity to all. Uncertainty on the stock of pledged assets may create a self reinforcing effect, feeding a frenzy among lenders to all seek ever-higher priority. This is already taking place, and is ultimately unsustainable at the individual and aggregate level. Control over either the volume of potential fire sales or the money supply becomes lost to private choices.

Finally, it is questionable whether the highest level of protection should be grant to collateralized lenders, and to shadow bank funding, over all other investors. For all these reasons, regulators and public society needs to make an informed decision.

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<sup>8</sup> A simple rolling 30-days collateral swap enables banks to (temporarily) transform illiquid assets into LCR-compliant holdings. As a result, resilience to runs is ensured only for a month, but completely vanishes afterwards (since in distress the swap counterpart will close out). LCR implementation rules need to contain such window dressing.

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