

Alternatives to the public sector lender-of-last-resort

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Abstract

After the 2008 financial crash governments and central banks had to rescue banks which had become insolvent or illiquid, and whose failure threatened the Western financial system. The bill for this taxpayer funded bailout came to over USD 20 trillion globally, including assistance from US, EU, UK and Japanese governments and the IMF, and had an impact on medium term economic growth prospects. It also triggered public indignation as the taxpayer perceived that rescues of this kind solidified an unfair institutional system in which profits are privatised but losses are socialised.

The events of 2007-2009 and the recent eurozone sovereign credit crisis have re-ignited the debate on the principle of the taxpayer-funded central bank lender of last resort (LOLR) and the issues around moral hazard. In this article we re-visit the shortcomings of the current public sector LoLR arrangement and investigate whether a viable alternative exists to support banks that are experiencing funding stresses. We focus on alternatives to the public sector central bank being the backstop liquidity provider of last resort for a bank experiencing funding (as opposed to capital loss) stress, and recommend a viable solution that would minimise taxpayer exposure at the time of the next crash.

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1 Introduction

The 2008 bank crash and subsequent eurozone sovereign credit crisis have re-ignited the debate on the principle of the taxpayer-funded central bank (CB) and the issues around moral hazard. In this article we investigate whether an alternative exists to the current public sector lender-of-last-resort (LoLR) arrangement, and recommend a viable solution that would minimise taxpayer exposure at the time of the next crisis.

2 The LoLR and moral hazard

A private bank facing a run on its deposits presents significant systemic risk to the banking system, due to the knock-on effects on other banks. To avoid this, in the current system the CB intervenes to supply LoLR funding assistance, provide assurance to deposit holders and stop contagion risk spreading to the wider banking system. This is realised by offering an unlimited secured credit facility to the financial institution facing the liquidity stress, which by this stage will have no remaining alternative sources of funding.

The LoLR is provided to demonstrate support such that deposit holders do not withdraw their funds from the bank facing stress. However the very existence of an LoLR backstop also has a perverse effect in that it encourages bank senior management to consider operating an asset origination process that eschews conservative risk principles, in the understanding that the LoLR backstop is there should their strategy prove a failure.

Due to this side effect it is difficult to refute the charge that the current arrangement supports a moral hazard principle which indirectly contributes to boom and bust cycles, because it incentivises excessive risk-taking. This is paradoxical given that the LoLR concept originates from a desire to introduce stability into the banking system; the US Federal Reserve, for example, was set up in 1913 in response to a series of bank crashes during the Great Panic of 1907.

3 Literature Review

Minsky [7] was amongst the first to describe the structural instability incorporated in the LoLR system, arising from the fact that CBs do not possess effective tools to control expansion in the banking industry. The principle issue is that CB's have no control over the amount of leverage banks employ. The only mechanism they have at their disposal is that of monetary policy and adjusting interest rates, and raising the cost of reserves that banks are required to deposit with them.

In a simplified model the profit of a bank can be expressed as:

$$P = [RA - CL - CO] * L \quad (1)$$

where

RA = Return on banks assets

CL = Cost of banks liabilities

CO = Operational Cost

L = Leverage

From (1) we see that the CB can only influence CL via the price of the reserves that each bank is required to hold as liabilities on its balance sheet. The maximum size of the portfolio a bank can hold is not under CB control, because in the US and EU no regulator has introduced leverage limits for bank balance sheets.

The Basel III rules will impose a 3% leverage limit, which when introduced will mean no bank can be levered at more than 33.3 times its core Tier 1 capital level. Minsky noted however, that such a limit will be difficult to implement in practice:

“To control the disruptive influence that emanates from banking, it is necessary to set limits upon permissible leverage ratios and to constrain the growth of bank equity to a rate that is compatible with non-inflationary economic growth. This principle should guide policy, but in an economy in which new financial usages and institutions appear in response to profit opportunities, it is a principle that is much easier to state than to translate into practice.” [7]

Goodhart [3] and Keheler [5] proposed a system whereby a supranational institution, such as the IMF, acts as an international LoLR (I-LoLR). This is an interesting approach because institutions such as the IMF do not operate as CBs and do not set interest rates. The advantage with such an arrangement is that the I-LoLR would not indirectly generate currency imbalances, as occurs when interest rates are kept too low over an extended period of time, an “occupational hazard” that arises when a CB operates as an LoLR. This creates inflationary risks and asset-price bubbles, as observed when the US Federal Reserve kept rates too low during 2002-2004 in the aftermath of the dotcom bubble. CB interventions inject extra liquidity into the monetary system via reserves and interest rate adjustments, which are higher than the acceptable level of non-inflationary economic growth. An I-LoLR intervention would not, in theory at least, create this side effect. Therefore an institution such as the IMF acting as an I-LoLR would be less disruptive to the markets over the medium term compared to classical CB intervention.

However this would be the only positive impact of an I-LoLR compared to an orthodox LoLR. Other issues such as controlling the leverage factor of the banking industry would not be resolved under an I-LoLR. Neither would this solve the moral hazard issues which are closely related to the LoLR phenomenon, as the implicit understanding of a “higher power” coming to the rescue when markets become distressed (due to excessive risk taking) would remain in place.

In practice an I-LoLR would be extremely difficult to implement, and would ultimately still be funded by taxpayers (as is the IMF and World Bank). Technically one would need to change the charter of the IMF as the fund is not a CB that possesses the authority to create extra fiat money. One could argue that the IMF is entitled to issue Special Drawing Rights (SDR), but the SDR is not yet accepted by the financial markets as a monetary tool. Moghadam [8] discusses the possibility of strengthening the role and use of SDR's in order to cope with liquidity crises, and concludes that in the long term this would increase stability the international monetary system. This is certainly worth investigating further, but again does not address the moral hazard problem.

It is difficult to see how the I-LoLR is a viable alternative to the CB LoLR. SDRs are not liquid in secondary markets and are not accepted as a reserve currency. For the SDR to be viewed on an equal footing as other global reserve currencies, it would need to be accepted in the international payment and settlement system and used in day-to-day commercial transactions. These conditions are not in place and would take some time to create. The practical difficulties in having a single I-LoLR for the world's banks makes the solution a distant prospect.

From a governance point of view the IMF is not appropriate as the framework or model for an I-LoLR because during a systemic crisis the decision process needs to be timely and dynamic. The current structure of the IMF is tailored to support other sovereign nations and is known to be bureaucratic and cumbersome. A more suitable candidate for the I-LoLR is the Bank of International Settlements (BIS), although in this case the operational management of this system would be difficult to translate in practice as every supranational institution is the sum of different member states with their own agenda and national interests. We notice for example the divergence in views and policies between the Bundesbank and German government on the one hand and the European Central Bank and other EU states on the other. Therefore we must consider an alternative beyond the I-LoLR.

4 Alternative to the public sector LoLR

The first alternative that presents itself is that of a private scheme in which banks jointly set up a pool of reserves that can be used to provide liquidity cover to member banks experiencing a firm-specific liquidity shock. All member banks would donate an amount to a jointly-managed reserve. The fee per bank is a percentage of its outstanding short-term wholesale liabilities. At any time that a member bank suffers a funding crisis, it draws down on the reserve pool the amount of funds required to meet its short-term obligations. These funds would be lent at a punitive rate, for example, overnight Libor plus 200 bps.

An early advocate of a private LoLR scheme was Bagehot. [1] He argued that there was no particular difference between a CB (in this case the Bank of England)

and any other bank. All banks have to keep their reserves at the disposal of any other bank in case of a bank run. The pooled facility would be lent at a penalty rate set as high as possible, to prevent it from being used unnecessarily. Importantly, the scheme would only be provided to solvent banks; in other words, it would not be available to banks whose capital levels made them no longer a going concern.

Private LoLR schemes are not new. At the end of the 19th and beginning of the 20th century they were standard practice in the US as there was no central bank in existence at the time. In an attempt to control the panic of 1907 and stabilise the banking system, J.P. Morgan led an initiative amongst six large banks in New York to create a joint pool of reserves. With the support of the New York Clearing House (NYCH), this reserve was used to inject liquidity into the banking system. In this way the six banks acted as a preliminary LoLR.

As Bagehot favoured, in this system a punitive interest rate was applied whenever a bank had to borrow loan certificates. This was set at an initial high rate, and as an incentive to repay funding early the rate would be set progressively higher at each stage that the borrower requested repayment postponement. Tallman and Moen provide an in-depth analysis of this mechanism and describe how it could be made to work today.[10]

In the academic research on this subject we perceive a consensus that both schemes (a private or combined private-public scheme) exhibit limitations, because a series of conditions needs to be put in place in order for either of them function properly. For a private scheme these conditions are well described in a working paper from the Bank of Finland. [4] This illustrates via a quantitative model that the efficacy of a private LoLR scheme will depend on whether the participants can join on a voluntary basis and whether they would be able to repay the liquidity facility with a penalty rate. Failure or success would be determined by the way the rates are set for offering liquidity and the incentive for depositing money in the reserve pool of the scheme.

A scheme which charges a (too) low rate on the liquidity facility will be attractive to less liquid/solvent banks. As a result highly liquid/solvent banks would not be incentivised to participate in such a scheme. These banks in turn would be motivated to enter a scheme which pays a high rate on the deposits that create the pool of reserves (although we argue that there is a case for the reserve balances to attract zero interest. The cost of joining the scheme is the cost of undertaking banking business). Therefore as the Bank of Finland suggests a voluntary scheme would only attract both types of banks if a policy is in place for an appropriate single rate charged for both deposits and the liquidity facility. This rate should be at the same level as that charged for bank loans. Furthermore it is important that the scheme does not aim at profit realisation but a maximisation of membership to the scheme.

The Bank of Finland study shows that private schemes with a limited probability of repaying the liquidity facility will be unsuccessful as the scheme would be of interest only to low liquid and less solvent banks. Highly liquid and

solvent banks would prefer not to participate in such schemes. This is also in line with comments from Bagehot.

In this we see an argument that a purely private voluntary LOLR scheme would not work as the conditions set to work in practice are too stringent. The condition of being able to repay the liquidity facility is to us not realistic. Insolvency is unfortunately an inherent feature of the free market economic system. If this has to be excluded, or there is an ex ante guarantee of repaying every loan, this would create a risk-free environment. Automatically this would also be paradoxical with needing a LoLR scheme in general as in a world where there is an ex ante guarantee to repay a loan there would be no bank runs, and hence no liquidity crises.

5 Combined public-private LoLR system

Given that a purely private scheme has material limitations, should we consider a combined private-public (PP) LoLR scheme? Before answering this question it is necessary to have a closer look at the functioning of the money market and the issues around the principle of banking and shadow banking.

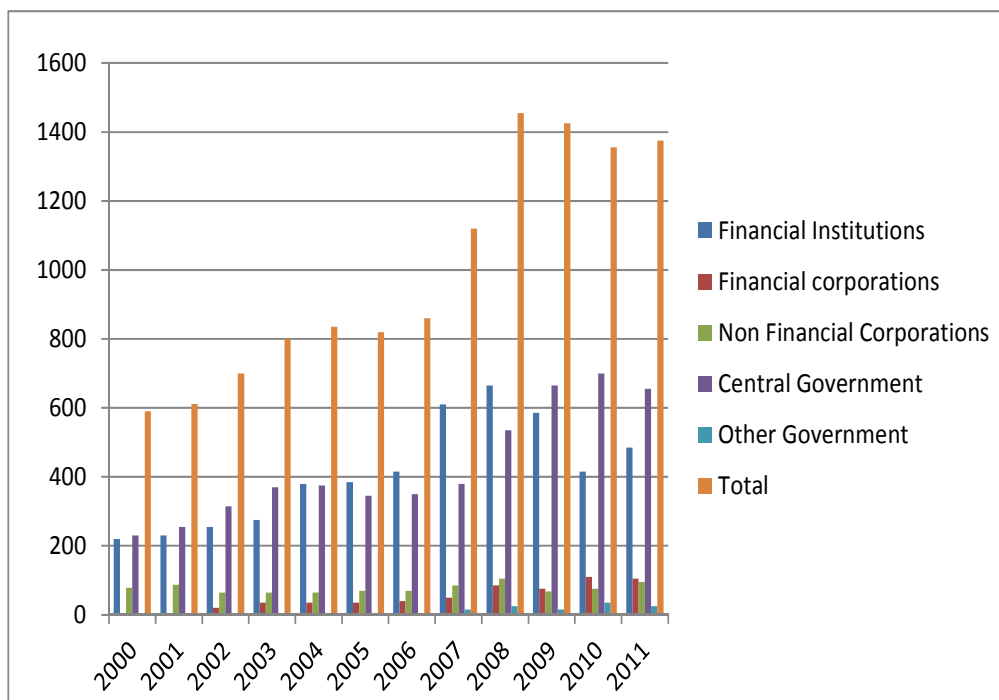
The money market is a distinct market within the capital markets, trading debt instruments of up to two years maturity. It is considered to be the most liquid market and have relatively low credit risk. Therefore it is a pivotal meeting point for banks, CBs, governments, companies and investors to clear their short term funding, working capital and investment requirements. The diversity of instruments in this market has grown over the years and as described by Choudhry the most widely accepted cash products are time deposits, certificates of deposit, commercial paper (CP), asset-backed CP, government paper, e.g. T-bills, bills of exchange and banker's acceptance notes. [2]

Volumes traded in the money market have grown exponentially over time. Figure 1 illustrates this trend for EUR short term securities in the EUR and similar trends have been observed in the USD money market.

Money markets play a crucial role in the asset & liability management operation (ALM) of banks. Banks borrow money at the short end of the yield curve via the money market instruments available and lend this out at longer dated maturities. This is common banking practice and is known as maturity transformation. In a simplified model banks attract short term (e.g. 3 months) deposits from their clients and lend this out again for (say) a 10-year mortgage.

This is only possible due to the high trust in credit quality of banks and quasi-certainty in the redemption of paper that is traded in the money market. Furthermore part of this liquidity transformation risk is considerably reduced due to the explicit government guarantee that is given to the retail deposit market. This ensures that investors do not have to withdraw their deposits in times of market distress. Therefore it is considered to be the most liquid financial market. From the moment this trust disappears the functioning of money markets and banks ceases

and turns into a liquidity crisis, because not every part of the money market is covered by an explicit government guarantee.



Source: European Central Bank

Figure 1: Outstanding volume of EUR-denominated short term paper in eurozone between 2000-2011 (EUR bln)

The origin of bank runs and liquidity crises can be found in the money markets. In the last decade liquidity risk arose exponentially due to the expansion of a shadow banking system. There is an academic consensus that the shadow banking system was one of the causes of the 2008 bank crash; for example see McCulley. [6] The “shadow banks” in the main are conduits set up outside the balance sheet of regular banks, but applying the same maturity transformation process. The only major difference is that these shadow banks are not licensed or registered. They do not raise deposits as a short term source of funding and as a result they do not benefit from any type of deposit insurance or government guarantee. The short term funding they have access to is granted via other instruments in the money market.

Despite the absence of a government guarantee though, indirectly they do have recourse to a funding lifeline in times of market distress via a liquidity backstop facility arranged with a licensed bank. It is this backstop that enables

them to place their liabilities with money market investors. The backstop facility provider does benefit from a deposit insurance guarantee. In this way shadow banks benefit indirectly from an explicit government guarantee which (unintentionally) keeps a moral hazard in place.

We need to look at the prospects of a combined PP LoLR scheme in this light. If public support is crucial for a proper functioning of maturity transformation, it will be important to restrict the government guarantee to a group that is licensed and strictly regulated. In this respect excluding a shadow banking system by closing the back-door to benefit indirectly from a LoLR facility is a priority.

Ricks argues that a combined PP LoLR scheme could work under the following conditions. [9] First, only licensed institutions would be allowed to issue a money market liability or I-owe-you (IOU). Those institutions that do not have a banking license would not be allowed to issue money market instruments. (This would impact conduits and vehicles that included the now-defunct Special Investment Vehicle or SIV). Then, as is momentarily the case in the current system, these licensed institutions would need to comply with strict risk management rules. Contrary to the current system, one would make the quality of the asset portfolio which is used as collateral part of the process of becoming licensed. Under these conditions the government would provide an explicit guarantee for IOUs issued by the institutions that are part of this PP scheme. This would make the IOUs default-free. As a final condition the licensed members of this PP scheme would have to pay a running fee to the supervisory body in return for this government guarantee. The rate of this fee would be risk-adjusted, meaning that the higher the risk profile of the licensed issuer, the higher the fee.

Although the mechanism described has some potential, there are a number of issues that would make it difficult to implement in practice. Excluding non-licensed members from issuing IOUs would have a considerable impact on the financial industry; for example, hedge funds and the money market mutual fund industry rely heavily on money market instruments such as the repo market. The potential impact on these sectors would have to be addressed.

That said, this would not necessarily be negative. Excluding the hedge fund community from this sector of the market could potentially hasten the prospect of deleveraging in the financial industry in general. There are advantages in such a development, viz., it would reduce the systemic risk in the interbank market and reduce volatility. However it would also result in widening spreads in some markets, such as the repo market. Furthermore the money market fund industry would also be considerably reduced in size, and as Ricks notes, "it is very unlikely that this business model would generate sufficient returns to be viable."

It is of importance to price the running fee, which the member institutions need to pay in return for a guarantee, correctly. Otherwise this can have distortionary effects. If the premium is priced too low it will support a moral hazard. If the premium is priced too high it will impact economic growth negatively. This insurance fee will be a dynamic function of the credit quality of the underlying portfolio of the member institutions. In this respect it will be

important for the regulatory body, which would organize the PP-LoLR scheme, to know exactly what assets each member bank holds in its portfolio. This was not the case during the 2008 bank crash.

Ultimately however the combined PP-LoLR is not a genuine alternative to the public-sector backstop. This is because, as Ricks notes, “The government commits up front to honour all money-claims; these instruments become sovereign obligations.”

Assuming that money market instruments are automatically default-free, because the government has guaranteed their redemption, is not a solution to systemic instability, moral hazard and the risk exposure of the tax-payer. It also does not rule out future bank runs. The current eurozone crisis illustrates this. Sovereign risk of certain eurozone member states has reached a point where depositors are already withdrawing funds from banks in these jurisdictions. So in this respect a sovereign guarantee is relative.

6 Conclusion and recommendation

We have discussed three alternative solutions to the current taxpayer-funded LoLR approach; namely, supranational, exclusively private and shared public-private schemes. Each possesses its own shortcomings and limitations. The public-private scheme comes closest in realising the desired objective of removing the exposure of the taxpayer to bank failure, while preserving the financial markets from excessive systemic risk. Although the presence of a moral hazard subsidy does not disappear entirely, there are ways to mitigate the impact of this risk.

It is difficult to conclude that any bank backstop facility can be entirely free of government involvement and, ultimately, taxpayer funded bailout. This is because, as the events of 2008 showed us, when the failing bank is very large, any private sector fund is unlikely to be of sufficient size to be adequate. The crucial point however it that the involvement of such a fund in the early stages of a crisis would help to stabilise the market and reduce negative sentiment, allowing other banks valuable breathing space and time to repair their balance sheets. Therefore if the object is to minimise the impact of a crash event, then the compulsory private insurance facility, overseen by the regulatory authority, is the recommended solution. If such a facility had existed in the UK or Belgium in 2007, the worst aspects of the crisis may not have occurred in those two countries in 2008.

If the objective is to minimise the exposure of the taxpayer, as opposed to eliminate it completely (something we suggest is not feasible because of the size of the banking system, with certain bank balance sheets exceeding the size of their home country GDP), then we recommend that the LoLR function for the CB be removed, and a private sector mechanism be instituted that would operate as follows:

- The regulatory authority issues banking licenses, as currently;
- Banks are required by law to organize themselves into a private liquidity guarantee system, which only licensed banks may join;
- Each bank is required to deposit a portion of its average monthly short-term wholesale liabilities in the pool. Typically this portion will equal the bank's short-term stressed outflow funding requirement, for instance its 7-day requirement;
- Specified terms and conditions on when a bank can draw on the reserve pool liquidity line:
 - If a bank is unable to draw on interbank lines, which may be full or withdrawn;
 - At any time that the bank's liquidity metrics (its short-term liquidity ratio and/or the Basel III-required Liquidity Coverage Ratio) fall below specified minimums;
 - At any time that the deposit base drops below a certain ratio.

The pool funds would be invested in AAA-rated T-bills.

The stigma attached to drawing on a liquidity guarantee scheme – a bank would be seen to be in stress – would itself risk creating a bank run whenever it was used. Hence we argue that it should be possible for the mechanism to be operated without publicity. If the object is to provide funding support to a bank to enable it to survive as a going concern until it is back in healthy liquidity condition, then insisting that the market be made aware when a bank uses the facility is counterproductive. Therefore the CB overseeing the scheme should be entitled by law to keep its use secret, at least for a short period. This will have shareholder disclosure implications, which may require legislation to allow banks to be exempt from stock exchange reporting requirements in specified circumstances.

A more drastic approach would be to remove part of the government guarantee. If the state provided only partial backing of retail deposits, it would enhance the incentive among banks to be more disciplined in their approach to both funding strategy and asset origination, and simultaneously increase the monitoring of banks by banks themselves. If the government has provided no explicit and possibly no implicit guarantee, then the type of monitoring required would be to confirm in detail what kind of liabilities banks hold on their books. The reporting to the regulatory authority would have to be sufficiently granular for the market to be aware of banks' funding conditions.

The immediate issue is how to reduce taxpayer liability at the time of the next banking crash. The viable solution is for a compulsory private sector guarantee scheme. Crucially, the cost of implementing this, being based on the level of usage of short-term interbank liabilities, would strongly incentivise banks to adopt more sustainable funding models. This would be to the long-term benefit of the financial system as a whole.

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