Funding in Resolution: the lender of last resort function in the new resolution framework

Santiago Fernández de Lis, José Carlos Pardo and Guillermo Martín

Since 2011 financial regulation has been making progress in providing the authorities with a series of instruments and competences to deal with banking crises in a preventive manner, protecting financial stability and minimising taxpayer exposure in the event of banking failures. In 2014, the resolution discussion was focused on how to recapitalise failed banks and avoiding public support through the use of the Total Loss Absorbing Capacity (TLAC). However, the connection of this framework with the liquidity provision of failed banks has been uncharted territory that the FSB is planning to tackle in 2015. The aim of this paper is to contribute to the discussion on how to ensure liquidity in a resolutions process.

There is a broad agreement that the central banks' role as lenders of last resort (LOLR) has been critical in the recent crisis and will probably be a necessary liquidity backstop in the future. The new regulatory landscape and, in particular, the resolution regime would help authorities in making the LOLR credible by minimising its shortcomings.

- First, the new resolution powers and the stress test supervisory exercises help to preserve the "no lending to insolvent firms" principle.
- Moreover, the use of the resolution fund to cover liquidity needs, especially under an idiosyncratic crisis, would minimise the amount required of LOLR.
- The use of private resolution means, along with penalty rates, may offset the future absence of the "constructive ambiguity" approach of central banks in relation to LOLR, which has been put in question in this crisis. The future approach to LOLR and its link with the resolution fund should be more transparent than in the past.
- Despite the expectation of lower and more transparent LOLR, it is likely that central banks will face in the future situations in which a bank in difficulties lies in a grey area between liquidity and solvency problems. In such cases, if the bank is finally resolved, the starting situation will be one in which the central bank has a substantial liquidity position vis-à-vis the troubled bank, and the questions of how to deal with this position and how to interact with the resolution fund need to be tackled.

In order for the LOLR and resolution fund to be effective and compatible, policy-makers should set a clear roadmap for how to use both tools. This should detail in which circumstances the resolution fund and / or the central bank may provide liquidity assistance in normal and stress times.

Finally, liquidity crisis preparedness and how to ensure liquidity and collateral provision in liquidity stress scenario and resolution are becoming more important. Central banks, but also supervisors, resolution authorities and banks, should periodically assess the collateral availability from LOLR perspective.

The new resolution regime: Liquidity issues are still unchartered territory

Since the beginning of the crisis, authorities have been searching for the optimal regulatory formula which would allow those systemically important banks not only to be viable but also, in the event of problems, to be efficiently resolved. To this end, in **2011 G20 leaders and the Financial Stability Board (FSB) drew up new key attributes for effective resolution regimes**.[1]

As the central premise of the new regulation framework, any banking rescue will have to be supported in the first instance by shareholders and private creditors through the instrument known as the bail-in tool, instead of bail-out (taxpayers' support). In order for this new philosophy to be credible, after several months of discussions, in November 2014 the FSB proposed the principles and characteristics of a new Total Loss-Absorbing Capacity requirement (TLAC).[2] In general terms, banks must, at all times, have enough liabilities to absorb losses in case of resolution.

The need of a minimum amount of loss-absorbing liabilities and the use of the bail-in tool are the cornerstones of the resolution process, but they are not the answer to all problems.[3] In fact, it is highly unlikely that an institution would cover all its funding needs after its recapitalisation, or at least during the business reorganisation plan that the resolution authority may impose to restore the long-term viability of the institution. If the bank in resolution is able to remain operational so that it can perform critical economic functions, the authorities should ensure that it has access to liquidity from the opening business day after entering into resolution

The FSB's key attributes (in particular section 6) identify different sources for funding in resolution as: privately-financed deposit insurance, resolution funds or public temporary funding subjected to strict conditions. However, the FSB principles do not tackle the conditions, interplay and the amount of resolution funding. In this sense, **solving liquidity issues in resolution is still uncharted territory, which the FSB is planning to tackle in 2015 and 2016. Opening the discussion on how to ensure liquidity in a resolution context is more than necessary in the current stage of the regulatory discussion.**

The blurred distinction between solvency shortfalls and liquidity squeezes

The boundary line between an insolvent and a sound bank is a fine one, as judgments on future solvency or liquidity profile are inherently probabilistic. Moreover, the capital and liquidity channels that could force an institution to enter into resolution are closely interconnected. But both have different features that should be considered when thinking about resolution. The most critical one is that liquidity concerns may appear suddenly and their effects spread more rapidly than capital shortfalls. In fact, some argue that the real fact that may provoke the failure of an institution is a significant liquidity squeeze.

Liquidity concerns may make a solvent bank insolvent. For example, if a bank suffers a surge of withdrawals, it may have to sell assets at discounted prices, which would impair its solvency position. This situation will tend to occur whenever there is an actual or perceived ex-ante solvency problem, but also when an ex-ante solvent bank is liable to become insolvent ex-post due to the fire sales necessary to meet withdrawals in what amounts to a self-fulfilling panic. A run on an ex-ante solvent banking system can, thus, undermine the liquidity access to capital markets and, therefore, accelerate the need for some kind of assistance as we describe in this note.

[1] See FSB (October 2011), "Key attributes of Effective Resolution Regimes for Financial Institutions"
[2] FSB (November 2014). Consultative document on "Adequacy of loss-absorbing capacity of global systemically important banks in resolution".
[3] The bail-in tool may only slightly improve the future liquidity and funding profile due to the moratorium and suspension the interest payments on all eligible instruments.

Moreover, in the past, there were also several cases where the real solvency situation of an institution was not disclosed to the general public. In most cases the situation is mixed, with the institution's crisis being neither one of solvency nor of liquidity. Within these grey areas the main goal of the supervisor is to buy time in order to rebuild the confidence of the financial markets. Supervisors' way tends to resolve the situation in a quiet manner, due to the fear of depositor and market reactions.

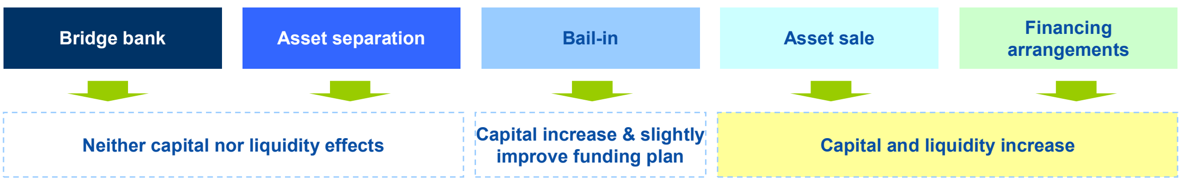
In this regard, whatever the reasons that might drive an institution to entering into a resolution procedure – whether capital, funding or both - policy-makers should analyse how to ensure liquidity and funding provision during the pre- and post-resolution period. Capital is certainly assured with the combination of the Total Loss-Absorbing Capacity (TLAC), the resolution fund and any kind of government stabilisation tools as a backstop.

The aim of this note is to open the discussion on how the new resolution tools, especially the resolution fund, would interact with the lender of last resort role (LOLR) of central banks, and therefore if the latter (i.e., LOLR) is still a viable and feasible tool to tackle future liquidity squeezes.

The new resolution tools would only partially cover liquidity needs

The new resolution regime establishes a series of tools ranging from assets sales to financial arrangements to deal with banks in trouble. From a liquidity and funding standpoint, the **new resolution tools** have different implications:

Figure 1
Resolution tools and their capital and liquidity effects



Source: BBVA Research

- The bridge bank and asset separation tools. **Both tools do not *per se* provide liquidity as they are only an accounting and organisational segregation of distressed assets**. In the long-term, the funding needs will be lower but they do not provide liquidity assistance from the beginning. In any case, the restructured bank would be freed from the bad-assets burden and it would probably be viable allowing central banks to provide liquidity in an LOLR context.
- The bail-in tool. It implies that banks' creditors will be written down or converted into equity in case of resolution and, thereby, will shoulder much of the burden to help recapitalise the failed bank instead of taxpayers. Despite solving capital shortfalls, **the bail-in does not generate liquidity *per se***. In fact, the bail-in in monetary terms is an accounting adjustment in the financial statement, shifting a certain amount of debt liabilities either to reserve accounts in case of write-down or to common stock and preferred share accounts in the case of conversion to equity.

  Nevertheless, one may argue that the bail-in tool may slightly improve the future liquidity and funding profile, due to the moratorium and suspension of interest payments on bail-able instruments. While it is true that the liquidity profile improves in the medium or long term, cancelling debt coupons is not going to help to any significant extent in dealing with sizable deposit withdrawals.

- The sale of assets tool. Resolution authorities may sell shares or other instruments representing ownership, and all or any of its assets, rights and liabilities of the entity in resolution. The sale of business is in theory a **feasible tool to provide liquidity inflows** when the bank enters into resolution. However the use of sale of assets to solve liquidity problems in resolution would exacerbate second-round effects via fire sales of assets at heavily discounted prices that increase recapitalisation needs.
- The use of private financing arrangements (deposit guarantee schemes and resolution funds). During the 2008-12 financial crisis, deposit guarantee schemes (DGS) had been used to provide liquidity support to institutions experiencing problems in parallel with government guarantees. In fact, the FSB principles on effective resolution regimes released in 2011 recognise the need to "*have in place privately-financed deposit insurance or resolution funds, or a funding mechanism with ex post recovery from the industry of the costs of providing temporary financing*."[4]

  Although the transposition of this principle differs slightly from one country to another, **there is a broad agreement on the need for private solutions to solve both capital and funding needs in resolution**. For example, in Europe, there are two independent schemes: i) the deposit guarantee scheme that is liable for the amount of losses that covered depositors would have suffered, and ii) the resolution fund that would be available to support institutions under resolution via loans, guarantees, compensation to fulfil 'no creditor worse off' (NCWO) condition, asset purchases or capital for bridge banks.[5]

  However, the relatively small size of the resolution fund in Europe for example (ex-ante funds "only" represent 1% of covered deposits, €55billion in the eurozone) and its use for multiple purposes, capital and liquidity, seriously limits its potential effectiveness to deal with a massive deposits and wholesale funding run. This is especially relevant in a context of a systemic crisis when many banks would simultaneously suffer a capital shortfall and a liquidity squeeze. For example, in October 2008 only HBOS and RBS received liquidity assistance from the Bank of England with an intraday peak of £61.5 billion according to the report presented to the court of the Bank of England in 2012.[6]

  Similarly, in the U.S., although the approach is different – the Orderly Liquidation Fund is not funded ex-ante and only provides liquidity, FDIC chairman M.J. Gruenberg has recently highlighted that "*there are a number of important limitation on its use*."[7] For example, the amount that can be borrowed is limited and it must be repaid from recoveries on the assets of the failed firm or levied on other firms.

Against this backdrop, it seems that the use of **resolution fund** would be the only new resolution tool which could be used to fund banks in resolution from the resolution weekend (when the resolution authority takes control of the institution), albeit with **limited firepower, especially under a systemic liquidity crisis**.

DIP-style funding alternatives are also options to be considered

Apart from the use of resolution fund, it is worth noting that other forms of existing private funding options for insolvency proceedings may be a valuable alternative in resolution. This is particularly the case of the **Debtor-In-Possession Financing** (DIP) under the Chapter 11 of the US Bankruptcy Code. In general terms, if the company that has filed for bankruptcy can demonstrate that financing could not be procured on any

[4] See FSB (October 2011), "Key attributes of Effective Resolution Regimes for Financial Institutions". Paragraph 6.3.
[5] Article 101 and 109 of the Directive 2014759/EC, so-called Bank Recovery and Resolution Directive (BRRD)
[6] I. Plenderleith (October 2012), "Review of the Bank of England's provision of emergency liquidity assistance in 2008-09"
[7] M.J. Gruenberg, FDIC Chairman (May 2015), "A progress report on the Resolution of Systemically important financial institutions"

other market basis, the court may authorize the failed company to receive a loan that has priority over pre-bankruptcy creditors.

There are, at least, **two challenges to implement DIP financing** within a bank resolution procedure. First, the resolution authority should be empowered to grant a DIP-style funding option. However, given new powers to change the hierarchy of claims by providing a privileged super-priority to certain liabilities without a court approval may pose legal issues (NCWO principle). Second, DIP financing volume in the past has been relatively small in relation to funding needs in the financial sector. In a corporate bankruptcy process the immediate cash as well as ongoing working capital needs during the reorganization process are very likely to be lower than in a bank liquidity squeeze, especially if the bank suffers a deposit-run. In 2009, the DIP lending peaked $62 billion driven by the unusually large GM, Lyondell and Chrysler DIP facilities. In 2014, the DIP financing volume was about $1.4 billion.[8] Would there be market appetite for larger DIP financing transactions? Although it seems that market appetite would be more likely under an idiosyncratic crisis than a systemic one, this is something that requires further analysis.

In any case, **the US and EU resolution regimes have not already recognized DIP financing** as a feasible funding alternative in resolution. However, despite the limited volume and the aforementioned legal challenges, it could be a feasible private funding option which could be taken into account in the regulatory discussion.

The liquidity response of central banks during the current crisis

The lender of last resort's role of central banks (LOLR) has been a key crisis management tool largely discussed since 1873, when W. Bagehot proposed that, in times of financial crisis, central banks (he focused on the Bank of England's duties) should freely lend to solvent depository institutions, only against good collateral and at interest rates that are high enough to dissuade those borrowers that are not genuinely in need.[9] This principle is widely known as "Bagehot's Dictum".

Far from being obsolete, the **recent crisis has brought the LOLR's role into the spotlight**. There was broad agreement that central bank liquidity support during the crisis was key in stabilising the global financial system.[10] The increase in demand for liquidity during the crisis not only in foreign but also in local currency could not be met by private sources and, therefore, central banks were the only funding providers able to limit the liquidity squeeze's side-effects on financial stability.

However, central banks' response to the crisis has been different from the past. In the decades prior to the crisis, the need for LOLR support was infrequent and usually on a small scale, confined to idiosyncratic crisis. "Constructive ambiguity" was a central tenet and the way to limit moral hazard, implying that central banks did not commit to a particular course of action ex-ante in case of liquidity crises in order not to create expectation of public support that could introduce incentives for risky strategies on the part of banks. But in the wake of the current crisis, when wholesale and interbank markets practically disappeared, the **constructive ambiguity of LOLR was seen as increasingly difficult to implement**. The liquidity squeeze entailed a run not only on deposits but also on markets. This new feature of the recent crisis compelled authorities to respond in a different way, sometimes dialectically as in the case of the famous speech by M. Draghi in July 2012.[11]

8 "Key Delopment and Trends in DIP Financing" (February 2015), Practical Law Finance, Thomson Reuters
9 W. Bagehot (1873), "Lombard street: a description of the money market", Chapter 7, paragraphs 57-58.
10 Bank for International Settlements paper nº79, "Re-Think the lender of last resort" (September 2014)
11 "the ECB is ready to do whatever it takes to preserve the euro." M. Draghi Speech at the Global Investment Conference in London. 26 July 2012.

The cornerstone of the authorities' response was that **central banks provided liquidity through many different schemes**, against a wide range of collateral, to a wide range of counterparties and for a long term as shown in Table 1. This implied a widening of traditional or standard channels of liquidity provision, and also the use of Emergency Liquidity Assistance (ELA) to deal with cases for which these channels were insufficient. And central banks reassured markets by committing to generous liquidity support, contrary to the "constructive ambiguity" tradition.

Table 1
Measures taken to address liquidity problems in the banking system since 2008

	AU	CA	EU	JP	CH	GB	US
Insufficient access to reserves							
Broadening counterparties						✓	✓
Broadening eligible collateral	✓	✓			✓	✓	✓
Change in standard lending facility						✓	✓
Shortage of term funding							
Exceptional long-term open markets operations	✓	✓	✓	✓	✓	✓	✓
Shortage in foreign currency							
Central bank swap lines			✓	✓	✓	✓	✓

Source: BBVA Research based on BIS - Committee on the Global Financial System

In this crisis we have also witnessed massive capital injections by the treasuries in many countries, raising the issue of how to transform liquidity positions of the central bank into capital injections from other public agencies. It is clear that capital injection is beyond the mandate and the role of the central bank, but how to move from one situation to another was a source of complications. It is true that the new resolution regulation has been designed to avoid this type of public support, but this does not imply that we cannot learn from the experience of this crisis.

The LOLR role of central banks and the new regulatory regime: two complementary tools

Despite their central role during the crisis, the LOLR is **perhaps one of the most controversial** of the central banks' tasks. On a massive scale, it has no minor second-round effects in terms of moral hazard and stigma, exposing central banks to large financial risks, and blurs the boundary with fiscal policy. There is a vast academic and central bank literature on this topic. The general thinking on the **policy options to mitigate the LOLR's side-effects** is the following

- Moral hazard issues could be solved by charging a penalty over the rate prevailing in regular market conditions.
- Stigma concerns are a serious impediment to the use of LOLR support use since it is understood as an indicator of weakness.
- Strengthening collateral, governance and accountability practices would also help to mitigate excessive risk-taking and fiscal inter-linkages in central banks.

Therefore, the right question is not whether LOLR is necessary or should be avoided, but how to implement it in the new regulatory framework in the wake of the financial crisis (higher capital and liquidity requirements, periodic stress test exercises, enhanced disclosure, bail-in instead of bail-out, etc.).[12] The **new regulatory landscape would help authorities in making the LOLR credible, clarifying the distinction between liquidity and solvency problems, and preserving the** "**no lending to insolvent firms**" principle.

High levels of liquid assets (due to the new Liquidity Covered Ratio – LCR) minimize and delay the need for LOLR assistance. Liquid asset buffers provide sufficient time for banks to weather periods of illiquidity without government support or for the authorities to open an orderly resolution procedure.[13]

Moreover, **the new resolution regime and the stress test supervisory exercise could shed some light on how to preserve the "no lending to insolvent firms" principle**. On the one hand, a stress test would help authorities to identify unsound banks ex-ante by anticipating, among others, the activation of the liquidity contingency plan and the recovery plan. On the other hand, the resolution regime would provide authorities with a series of powers and tools to identify those banks which should enter into resolution rather than into an insolvency procedure, to the benefit of the public interest. Once a bank has gone into resolution, the central bank, in coordination with other private financial arrangements, may grant access to its liquidity assistance as the bank will be solvent after the restructuring process. It is worth highlighting that previous bank's management body would have been replaced, shareholders and creditors would have shouldered the recapitalization burden, and the bank would have recovered its financial solidity. As P. Tucker highlighted "*Post-resolution provision of liquidity assistance by the central bank can, therefore, be a more powerful signal that solvency and basic viability are being restored*."[14]

In a nutshell, **the new regulation regime and LOLR are complementary tools**. In the next section, we analyse the interplay among the LOLR's role, the new resolution tools, and the systemic footprint's role in order to receive the central bank's liquidity assistance.

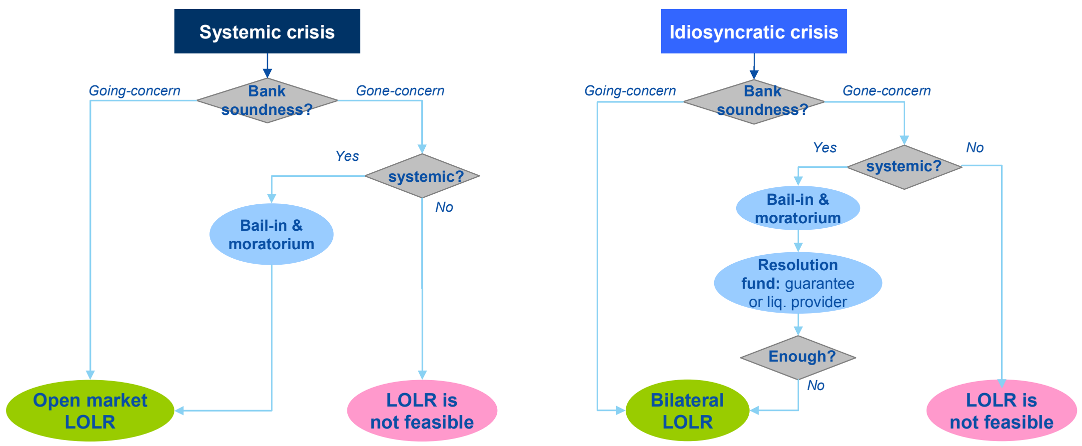
The interplay between the LOLR and the use of resolution funds: a pragmatic approach

As we mentioned above, the use of the LOLR tool should be provided to solvent banks in order to preserve financial stability. This goal is closely aligned with the resolution regime's aim which seeks to resolve and restructure failed banks while minimising financial instability. The interactions between both regimes have focused on when each tool, the resolution fund and the LOLR, should be used.

As shown in Figure 2, we propose a pragmatic approach based on the source of the liquidity squeeze and the soundness and systemic footprint of each bank.

[12] G20 Leaders Statement: The Pittsburgh Summit (September 2009)
[13] M. Carson, B. Duygan-Bump, W. Nelson (February 2015), Staff working papers in the Finance and Economics Discussion Series, "Why Do We Need Both Liquidity Regulations and a Lender of Last Resort?"
[14] Tucker P.(September 2014)" The lender of last resort and modern central banking: principles and reconstruction"

Figure 2
How to apply the LORL and resolution fund simultaneously under a liquidity squeeze context



Source: BBVA Research

Case 1. Systemic liquidity crisis

First we analyse the interactions between the **LOLR and the new resolution regime in a systemic liquidity crisis**. In this context, customers do not usually switch their deposits to different banks, but decide to hold cash (or government notes) as they have lost confidence in the capacity of the banking system to provide liquidity. Thus**, LOLR need to step in with broad money supply via open market operations** (e.g. US discount window operations).Otherwise, the initial liquidity shrinkage might lead sound banks to insolvency as they are forced into the fire-sale of assets and closing out contracts, probably going into an instability death-spiral. Providing liquidity via open market operations rather than bilaterally may increase transparency, reduce stigma effects and limit deposit-run panics. Moreover, the quality of the pledged collateral is generally not the main concern in a systemic stress scenario.

Under this scenario, central banks should ensure against lending to fundamentally insolvent firms. Although the institutional architecture after the crisis is more complex, **the role of supervisors and resolution authorities is critical.**[15] Two elements hold the key: first, when they identify sound and unsound institutions; and second, when they identify systemic banks among the unsound ones. The second is easier to be done ex-ante reducing decision times.

In conclusion, systemic failed banks, which would be recapitalised via the bail-in tool and subjected to a tougher restructuring plan, would be considered viable. So they would be able to receive liquidity support from the central bank. Conversely, failed banks which are not systemic would not enter a resolution process, but liquidated without liquidity assistance from the central bank.

Case 2. Idiosyncratic liquidity crisis

A second scenario is an idiosyncratic crisis. **Liquidity squeezes are located in a particular bank** due to a "one-shot" event (e.g., open civil lawsuit, cyber-attack or anti-money laundering fine), which damages the reputation of the institution and probably triggers a ratings downgrade vicious loop. At the end of the day, markets are only closed to this institution, regardless of its solvency profile. Far from being perfect, markets

[15] Before the crisis, central Banks often carried out several functions: liquidity providers, bank supervisors and resolution authorities. In the post-crisis world, these functions tend to be carried out by different authorities, which clarifies functions and responsibilities, but complicates coordination.

sometimes act very irrationally and disproportionately. In this context, the analysis of the viability is easier as liquidity concerns are only focused on one institution.

- If the competent authority considers that the bank is solvent and viable, the central bank could **provide liquidity assistance via bilateral agreements**. In order to strike the optimal balance between enhancing transparency and minimising stigma side-effects, central banks may provide full disclosure with a considerable lag-period.

  These **bilateral agreements also seek to prevent contagion**. On the one hand, other banks that had provided liquidity to the ailed bank could find themselves in trouble because of losses on the defaulted obligations. On the other hand, other banks could be seen as having similar business model or geographical presence as the defaulting bank and worried creditors could stop funding them. However, it is worth noting that some jurisdictions, such as the US, have moved in the direction of restricting the provision of LOLR to individual financial institutions in future.[16]

  Let's assume that the failed bank has depleted all its high-quality liquid assets. Thus, bilateral agreements would pave the way to pledge low-quality assets as collateral.

- Conversely if the competent authority considers that the bank is not solvent, then **"Bagehot's Dictum" and the new resolution regimes come into the picture**. Authorities should analyse and decide whether the failure and absence of public assistance (capital and liquidity) could be against the public interest. Two different scenarios may occur:

  - Non-systemic banks suffering a capital short-fall and/or a liquidity squeeze would never receive public assistance and should be liquidated.

  - On the contrary, the failure of systemic banks would drive them into resolution procedures. Capital shortfalls would be faced through the bail-in tool, which recapitalises the institution and improves the medium and long term funding forecast (as we describe previously). **Funding and liquidity to ensure the continuity of banks' critical functions should first be provided via private means**. It is highly unlikely that any bank, immediately after the resolution "week-end", could access capital markets to obtain "fresh" money. In this sense, the private resolution fund could be used to guarantee any loan, preferably short-term ones, of the bank under resolution. Despite the significant financing capacity of the resolution fund, it is not limitless. Therefore, if it is not enough, the central bank and the LOLR tool would step in. It should be emphasised that the "lender of last resort" principle is preserved as the possibility of using private solutions has been exhausted.

Central bank and resolution fund dependence. A dynamic approach over a resolution process

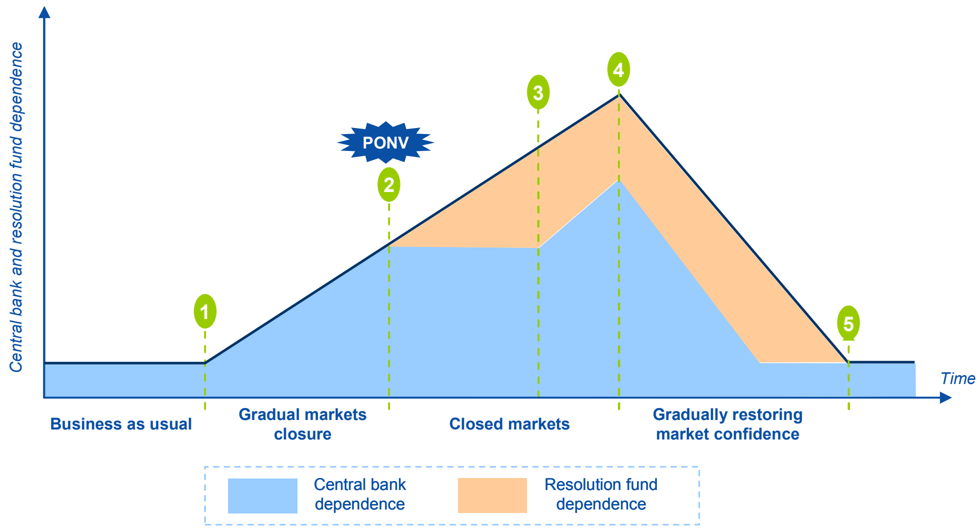
In the previous section, we analyze the interplay between the LOLR and the resolution process from two different and static perspectives: idiosyncratic and systemic crisis. It is worth noting that in most of the situations, prior to entering into resolution, the **bank in trouble would gradually lose access to capital markets, and would increase its dependence on the central bank**.

Figure 3 shows the case of an institution which gradually loses its access to capital markets and needs the central bank's funding support. As we mention before, the new resolution regime provides a new funding tool, a private one, to complement the role of central banks' LOLR. At the end of the day, the resolution fund

[16] The recent amendment to Federal Reserve Act 13.3, enacted in 2010, prohibits the Fed from providing LOLR to individual institutions.

meets one of the key purposes of the resolution regime, which is minimising the tax-payer cost in case of resolution.

Figure 3
Illustrative example about the central bank and resolution fund dependence of an institution that enters into resolution



Source: BBVA Research

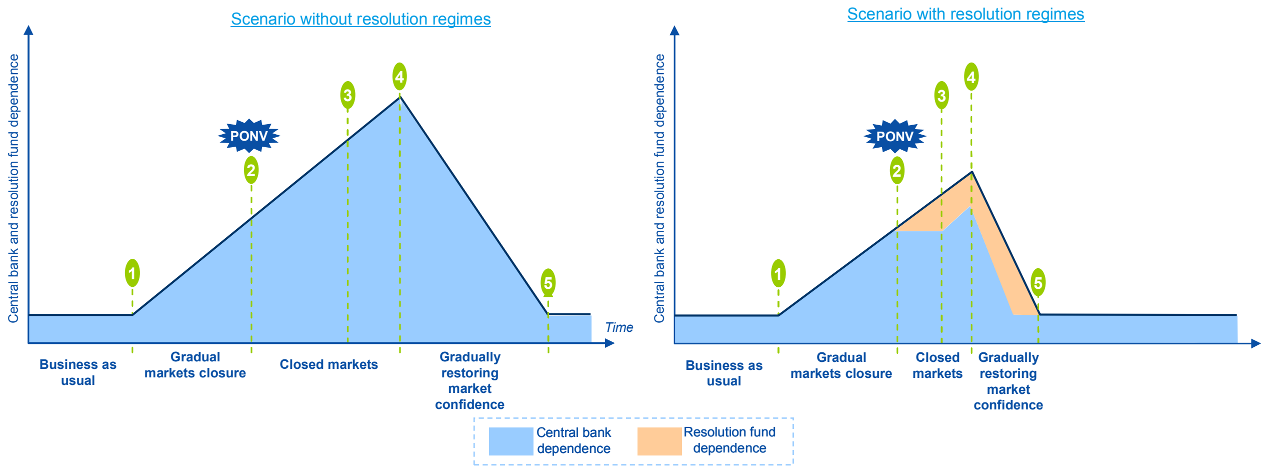
Below we describe the main characteristics of the example showed in Figure 3:

0. Under a business as usual scenario, the central bank dependence of an institution is not relevant.
1. When the institution begins to lose access to wholesale funding markets and interbank lending (whatever the reasons might be), the institution begins to increase its dependence on the central bank through open market operations in order to cover its funding needs. In most situations the central bank's decision on these initial LOLR operations are taken in a situation of uncertainty as to whether the underlying problem is either liquidity or solvency, so it is likely that some LOLR positions are built up during this period. This situation could take months, weeks or maybe only days. Liquidity dynamics are unpredictable and very market sensitive.
2. At the moment that the institution reaches the point of non-viability (whatever the reasons might be either capital, funding or both) and enters into resolution, the resolution fund may substitute central bank direct funding facilities and may start participating in the process. Ideally, the resolution fund's support should be done through collateralised guarantees.
3. As we have argued before, the resolution fund has limited firepower, especially in case of a systemic liquidity crisis or in a failure of large institutions. In this scenario, a credible backstop is needed. The straightforward one should be the central bank acting as a LOLR.
4. Once an institution enters resolution, authorities impose a tough restructuring plan in order to restore the bank's long-term viability.[17] After a considerable period of time (unlikely to be less than 3-6 months) the institution may start to recover market confidence. Insofar as the market allows it, the institution would gradually recover to a state of 'business as usual'.

[17] See, for example, the EBA's draft guidelines on 'Business reorganisation plan under a resolution process' (EBA/CP/2015/05)

As Figure 4 shows, the new resolution regimes not only reduce the need of central bank liquidity support by using the resolution fund, but also shorten the time that markets are closed. Restoring market confidence as soon as possible is also one of the priorities of the resolution authority, especially after the resolution week-end. The recapitalization via bail-in and the implementation of a business reorganization plan ensures its long-term viability. In this context, the efforts done by the EBA in Europe developing common guidelines on how to implement and monitor the business reorganization plan after resolution is a good regulatory step in the right direction. If the market considers that the business reorganization plan is credible and realistic, then the markets closure will end earlier and the liquidity needs will be lower.

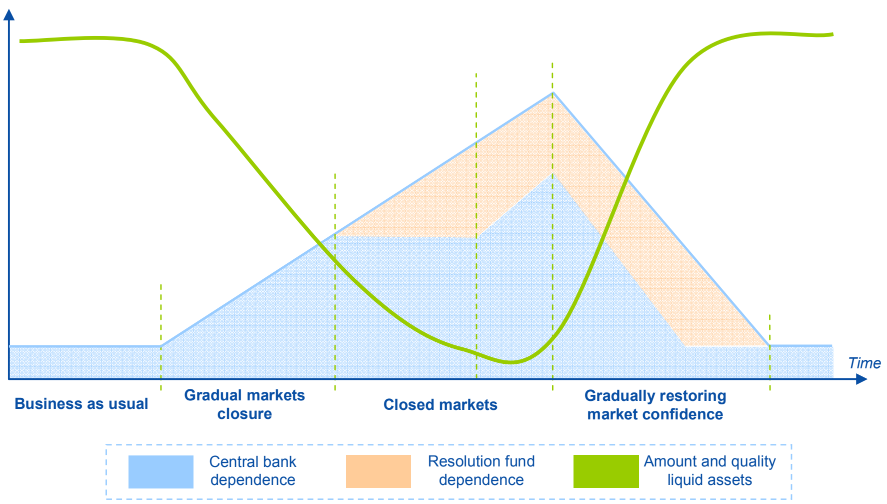
Figure 4
Liquidity needs after and before of the implementation the new resolution regimes



Source: BBVA Research

Finally, it is worth mentioning that this dynamics of **central bank and resolution fund dependence have direct implications on the amount and quality of the liquid assets** that the institution may have. As the liquidity situation worsens and central bank support increases, the quality and quantity of the liquid assets decrease as Figure 5 shows.

Figure 5
Illustrative example about the central bank and resolution fund dependence of an institution that enters into resolution



Source: BBVA Research

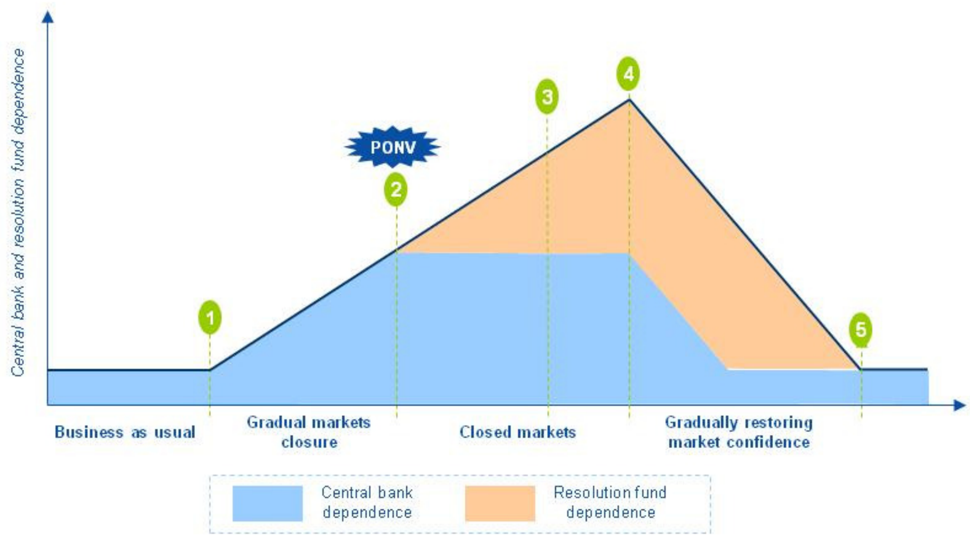
"Out of the box" alternative to be considered in a systemic crisis

As explained above, when a bank gets in trouble its access to liquidity from capital markets is significantly reduced, whereas its dependence on the central bank's funding support moves in the opposite direction. The new resolution framework is mainly aimed at minimising tax-payer costs in case of a banks' failure, and ensuring that the private sector (mainly shareholders and creditors) shoulder most (if not all) of the costs.

Against this principle, the main drawback in a systemic crisis of the pattern described above is that if the resolution fund is not able to cover all the liquidity needs, then the central bank is forced to provide further emergency liquidity assistance. If these funds are substantial, there is a risk that t**axpayers may ultimately bear part of the resolution costs**, contravening the spirit of the new resolution regime. Although the funding provided by the central bank would be collateralised, the quality of the collateral used by the institution is likely to be lower.

An "out-of-the-box" alternative which may be worth considering is the possibility that the **central bank can provide liquidity directly to the resolution fund**, and then the failed institutions would receive liquidity assistance from the resolution fund. By this means, the latter, supported by the whole sector, would be able to collateralise higher-quality assets and, what is more important, collateral and resolution costs would be shared by the whole industry and not by the public sector. Figure 6 shows how the institution dependence on different forms of external funding would change in comparison to Figure 3.

Figure 6
Illustrative example of the central bank and resolution fund dependence of an institution that enters resolution



Source: BBVA Research

There are a **couple of important caveats** that should be overcome before making this measure a possible course of action. First, the resolution fund is not considered to be a fully licensed bank, and therefore it cannot have access to a central bank's discount window. Second, the collateralised capacity of the resolution fund is limited. In fact, it does not have more collateralised assets that the ones obtained through the ex-ante contributions. Should it be necessary to broaden the collateral capacity of the resolution fund, other sources may be worth analysing such as any kind of collateralised guarantee between banks and the resolution fund.

Working on enhancing the liquidity crisis preparedness. Policy implications

As we mention above, the central bank's role as LOLR will still be a central crisis management tool in the coming future. According to the pure theory of LOLR, liquidity should be available in unlimited quantities, but only against good-quality collateral. However, the **use of LOLR against only a narrow class of very high-quality collateral is not credible**. Three facts hold the key:

- Under a liquidity squeeze, banks have normally exhausted all options for raising funds in the market. In this sense, given the financial instability risks and spillovers, it is highly unlikely that a central bank would refuse to lend to a solvent or recapitalised bank against a wider range of assets, even though they are not standard collateral.
- The range of securities that can reliably be traded and posted as collateral in a systemic crisis may turn out to be much smaller than expected. In this context, rating downgrades, valuation and haircuts play a central role.
- The empirical evidence of the recent crisis has shown that central banks allowed the use of a wide range of collateral in standard lending operations. In fact, several central banks responded by broadening the range of collateral accepted in central bank operations.

In this vein, not only authorities but also the **financial sector should work on enhancing their liquidity crisis preparedness** and how to ensure liquidity and collateral provision in a liquidity stress scenario. Difficult events must be met with a forceful response, prepared well in advance. This preparation may come in several different forms, most of them aimed at enhancing flexibility of central bank operations and rapid responses:

- **Central banks should periodically reassess what constitutes a suitable inventory of assets** for use as collateral and evaluation of the collateral supply and improve the risk management capacity. High-quality and liquid assets supply might be insufficient during stress periods and this must be anticipated by the central bank in order to overcome this issue in a timely manner.
- **Supervisors, resolution authorities and central banks should be prepared** in advance for a quick response in a crisis situation through different alternatives:
    - Apart from broadening the eligibility criteria in terms of quality, new types of assets might need to be accepted as collateral. Global shocks may suddenly change the markets' scenario while not allowing time for the authorities to react. If new types of assets are going to become eligible, this must be analysed and planned for well in advance.
    - Periodical stress test exercises and liquidity squeeze simulations are also a valuable tool to adjust and assess the coordination, protocols and decision-making procedures.
- **Banks may incorporate a comprehensive collateral analysis**, including emergency liquidity assistance, into the resolution plan: By this means supervisors can assess the management of liquidity risk and impose additional liquidity requirements if necessary, especially during stress periods when extraordinary measures are likely to be implemented.
- Finally, **ensuring that banks hold enough collateral to be pledged** at central bank under a severe liquidity squeeze scenario may be a very controversial topic. The Liquidity Covered Ration (LCR) seeks to ensure that banks have an adequate stock of unencumbered high-quality liquid assets that

can be converted easily and immediately into cash in private markets in order to meet their liquidity needs for a 30 calendar day liquidity stress scenario.[18]

However, the LCR in its current design does not recognize as liquid assets all the central bank's eligible collateral. That is to say, all LCR liquid assets are eligible collateral for central banks operations, (the exception that proves the rule is the equity participation) but not all a central bank's eligible assets may count towards LCR. Although some asset classes are more likely to remain liquid irrespective of circumstances, it is not possible to know ex-ante which specific assets might be subject to shocks ex-post and which would be accepted as collateral under emergency liquidity assistance. Therefore, it may be worth considering a case-by-case analysis in each bank rather than designing a new ratio.

Previous proposals raise many technical questions, but probably **the most controversial one is the availability of collateral**. There is a broad agreement that the requirement for collateral in the regulatory agenda has been on the rise. The Committee on the Global Financial System concluded in 2013 that "*the use of collateral in financial transactions has risen in many jurisdictions in the aftermath of the financial crisis, and is likely to increase further.*"[19] This is driven by both market forces and regulatory changes, and has triggered concerns about real or perceived collateral scarcity and excessive asset encumbrance. In particular, the introduction of minimum haircuts on derivatives transactions and the requirement of high-quality assets in the LCR context are implying an increasing demand for collateralised assets, hence questioning their availability.

Authorities have already identified and, in some cases, put in place **several policy initiatives to face the higher demand of collateral-eligible assets**. Chief among them are: implementing standardised public disclosures on asset encumbrance, including asset encumbrance as a criteria in the pricing of deposit guarantee schemes and introducing prudential limits on asset encumbrance. In this regard, any policy proposal in this field should be carefully analysed, taking into consideration the impact of the whole regulatory agenda and current discussions.

[18] Basel Committee on Banking Supervision (January 2013) "Basel 3: The liquidity covered ratio and liquidity risk monitoring Tools"
[19] Committee on Global Financial System (CGFS) Papers (May 2013), paper nº43 " Asset encumbrance, financial reform and the demand for collateral assets"

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