History as an antidote to misunderstandings about the lender of last resort

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1 Introduction

The role of the "lender of last resort" (LoLR) in the financial system, the framework that should govern its conduct, its institutional locus, and the means through which it should exercise its authority have received little attention by economists in comparison to the economic importance of LoLR interventions. Interventions to assist banks can have enormous positive or negative consequences for macroeconomic stability, for the fiscal costs of bailouts, and for the risk-taking incentives of financial institutions.

In recent years, as a result of an unprecedented pandemic of banking system instability around the world, empirical evidence has highlighted the destabilizing macroeconomic consequences of banking system collapses, the enormous potential fiscal costs of bank bailouts, and the costs of moral hazard producing excessive risk-taking by protected banks (Demirguc-Kunt and Detragiache, 2002; Demirguc-Kunt and Huizinga, 2004; Calomiris and Jaremski, 2016). Those facts, taken together, indicate that the stakes are high for properly formulating LoLR policy. Reluctance to intervene may produce banking system collapse, but willingness to bail out banks often produces severe fiscal burdens and incentivizes excessive risk-taking. Furthermore, even from the standpoint of macroeconomic stabilization, bailouts generally have not prevented medium-term credit contractions and severe declines in GDP, which often accompany banking system restructurings (Laeven and Valencia, 2013).

Is there a set of lessons about the LoLR that can guide policy to provide assistance in a way that best avoids the twin threats of short-term instability and long-term moral hazard? There is a rich historical record of successes and failures of LoLR policies that stretches back over two millennia. The first recorded LoLR intervention was by the Roman Emperor, Tiberius, who responded to runs on the Roman banks by offering heavily subsidized loans in 33 A.D. In modern times, the Caisse d'Escompte in France (1776) was an early proto-LoLR. Similarly, Alexander Hamilton used his power as Treasury Secretary to assist banks during a financial market crisis in 1792. In the 19th century, the institutional embodiment of LoLR policy within central banks became common, but not universal, and the extent and nature of LoLR powers varied greatly across countries. The late 19th and early 20th century saw a broadening of LoLR powers in some countries. The late 20th century saw the widespread adoption of generous deposit insurance and other means of protecting banks from failure, which supplanted the role of previous LoLR intervention protocols in many countries. This varied historical experience provides many opportunities to observe and learn from variation in LoLR policies. It also provides evidence about what political factors accounted for variation in LoLR policy.

In this essay, I will show that an historical understanding of the evolution of the LoLR is an essential ingredient for formulating effective LoLR policy. Specifically, there are three overarching lessons from the history of LoLR policy. First, excessively narrow visions of the purview and powers of the LoLR result in inadequate stabilization of the banking system. Second, blanket guarantees of banks (such as generous coverage via deposit insurance) undermine the balance between protection and discipline that is essential for avoiding extreme moral hazard. Third, striking the right balance between excessively constrained assistance and excessively general assistance is not just a technical issue. It is a great political

challenge to create great power that is used legitimately and (as is crucial in democracies) that also is perceived as being used legitimately.

That third overarching lesson has some disturbing implications for the likelihood of achieving desirable policy reform in many countries today. Excessive protection of banks over the past several decades has undermined the crucially important balance between protection and discipline in LoLR policy. Restoring that balance is not just a matter of expert economists' recognizing the need to empower LoLRs, redefining the means of protection they offer, and rolling back the extent of unconditional protection: achieving those outcomes will require galvanizing political support to reverse the last four decades of policy choices to increase deposit insurance coverage around the world. Those choices reflect deep political realities that make such a reversal very challenging.

In Section 2, I present five historical lessons for proper LoLR design, which illustrate the need for powerful but limited protection, and demonstrate that it is possible for properly designed LoLRs to provide effective systemic stabilization policies with minimal moral-hazard consequences. Section 3 concludes by considering the political challenges to restoring balance to LoLR policy.

2 LoLR policy lessons

Table 1 lists what I will show are five common misunderstandings about LoLR policy. The five common misunderstandings are not parts of a single confused philosophy (note that numbers 3 and 4 are mutually exclusive propositions), although pairs of items on the list are related – numbers 1 and 5 reflect similar thoughtlessness about the necessary political conditions that makes LoLRs feasible, and numbers 2 and 3 reflect common errors of understanding about the origins of crises that LoLRs should address. My discussion of each of them draws on a combination of logic and factual evidence about the operation of actual LoLRs over roughly the past two centuries.[1]

Table 1. Five common misunderstandings about LoLR policy

Number	Misunderstanding
1	LoLR design requires economic, not political thinking
2	Proper LoLR interventions provide liquidity without subsidizing default risk
3	Proper LoLR interventions can always be achieved through collateralized lending following Bagehot's rule of lending freely at a high rate against good collateral
4	Given the many unpredictable exigencies the LoLR must face, it is undesirable to require the LoLR to adhere to rules that constrain its actions
5	LoLR authority should be housed entirely in an independent central bank

2.1 The essential political underpinnings of the LoLR

Successful LoLR interventions require significant capacity to act. A LoLR must be able to intervene with great potential scale in the market, and its success in addressing crises depends on its being perceived by market participants as possessing sufficient power to do so. Adam Smith and many other 18th-century writers on money recognized that the use of legal tender status for issues of paper currency (which made the currency receivable in payment of taxes) gave paper money backing at a preannounced par (relative to specie) by the future tax revenues of the government. Without legal tender backing, the private banks of issue (like the Bank of England) which served as proto-LoLRs were constrained by leverage

1 This discussion draws heavily upon Calomiris, Flandreau and Laeven (2016). Facts not otherwise referenced below are generally reviewed in more detail in that article.

limits: they could only issue debt commensurate with their own common equity footings. With legal tender backing, a LoLR could issue much more debt during a crisis (with tax backing, leverage was only constrained by the debt capacity of the sovereign, which reflected expected future taxes).

Early banks of issue (like all private parties) typically were also constrained by usury laws. During a crisis, LoLRs could not lend viably unless they charged high rates of interest (albeit still less than other market participants insisted on charging for a loan). Without the ability to lend at high rates of interest, LoLRs could not intervene successfully.

The valuable privileges of legal tender backing (a sovereign guarantee of the debts of a private bank) and the ability to lend at rates in excess of preexisting usury ceilings could not be granted lightly. In democracies, such as the U.S., the U.K. and France around the turn of the 19th century, the granting of the legal tender privilege required popular support, and popular support depended on the legitimacy of the actions of the empowered LoLR. In the U.S., that support clearly was lacking, and no legal tender privilege was granted to any issuing bank. In the U.K., the Bank of England operated for almost a century and a half before being granted legal tender backing for its notes in 1833. In most of Europe, usury limits constrained the interest rates that banks (including the LoLR) could charge until the late 19th century.

In autocracies, the political constraints on LoLR powers are different: the creation of financial institutions that enjoy special privileges, such as legal tender authority, might empower opponents of the autocrat. Indeed, autocracies typically chose not to create banks of issue, much less to endow them with legal tender powers.

The need for legitimacy in democracies meant that the bestowing of legal tender authority and the relaxation of usury limits had to be accompanied by mandates that ensured the LoLR would use its unique power in pursuit of the public interest, not to use monopoly privileges simply to gain profits for its stockholders. Sometimes those mandates were codified in the charter of the LoLR; other times they evolved as institutional adaptations of the LoLR to earn legitimacy. For example, as an example of the former, in the case of the Bank of England, its charter reforms not only granted legal tender backing, they also required that the Bank intervene during crises and further required that windfall profits earned during crises be returned to the State. As an example of the latter, the Bank of England developed clear procedures that governed its lending (the use of a rating book, and the requirement that the Bank's board recognize that a crisis was underway as a condition for relaxing quantitative limits on the amount lent to particular parties). In continental Europe, too, during the middle of the 19th century, LoLRs were granted unique powers along with unique responsibilities and were constantly subject to political questioning of their legitimacy.

In short, the evolution from specially chartered private banks of issue to specially privileged LoLRs was not simply a matter of recognizing the usefulness of a LoLR, but also recognizing the necessary powers for it to have its desired impact, and finding politically feasible ways to ensure its legitimacy, on which popular support depended. Although the U.K. and much of continental Europe reached similar institutional arrangements for the LoLR during the middle of the 19th century, those institutional similarities reflected deeper similarities in the political environments.

In other countries, different political equilibria constrained the development of LoLRs. In the U.S., rather than create a U.K.-style LoLR, the Jacksonian movement abolished the Second Bank of the United States, which had never enjoyed noteworthy privileges other than its ability to branch across state lines. It was not until 1913 that the Federal Reserve System was established, and when that occurred its lending powers were much more limited than those of the Bank of England. In Australia, a LoLR was not established until 1959 owing to

political conflict over its charter.[2] In mid-to-late 19th century, autocracies such as Russia and Mexico, no institutional LoLR authority was granted; crises were managed by the autocrats' Finance Ministers.

2.2 Effective LoLRs subsidize banks' default risks during crises

A common misunderstanding of the role of the LoLR is to see its role merely as ensuring that a sufficient volume of cash is present in the market. Advocates of this approach, unsurprisingly, see no reason for LoLRs to provide more favorable lending terms during a crisis than those provided by other banks. According to this view, the LoLR does not even need to lend to other banks; it can simply ensure adequate liquidity by purchasing securities in the open market at prevailing market prices.

This misunderstanding illustrates a deeper problem in many macroeconomic models: the absence of a microeconomic modeling of the structure of banks, the nature of their "funding liquidity risk," the reason that banking crises occur, and the way that LoLRs can help end them. Absent that modeling, it is no surprise that macroeconomists often fail to see a need for subsidized lending to banks by the LoLR. In fact, the LoLR's role is not only to influence market rates of interest by providing cash to the financial system, but to prevent the systemic collapse of bank credit by subsidizing the credit risk of banks during crises. By subsidizing credit risk I mean providing loans to banks at rates of interest that are lower than those that the banks provide to one another.

A useful model of the structure of banks begins by recognizing that banks fund themselves with money market instruments, and that the holders of those instruments are risk-intolerant (early models of risk intolerance of bank debt are provide by Gorton and Pennacchi, 1990, and Calomiris and Kahn, 1991). Risk intolerance of bank debt holders implies that debt maturity is short-term (often demandable) and that debt holders might refuse to roll over debts if default risk rose, even by a small amount. It is worth emphasizing that banks that are subject to the discipline of risk-intolerant creditors typically face substantial withdrawals long before they are close to insolvency. That should not be considered an "error" by market participants, nor a matter of "panic" in some emotional sense. Risk intolerance can be seen as a rational choice, and risk-intolerant market participants do not need to believe that their banks are insolvent to withdraw funds from them; a small increase in insolvency risk is sufficient to incite withdrawals.

The funding liquidity risk that banks face as the result of their reliance on risk-intolerant sources of funding is at the heart of the systemic risks that result from shocks to the value and/or the riskiness of banks' loan portfolios. If a shock to bank loan values or risk raises banks' default risks significantly, banks suffer withdrawals, and the primary means of dealing with those withdrawals is to reduce their leverage and their asset risk – both of which are accomplished by reducing the supply of lending. A recession or other common shock to many banks will, therefore, tend to produce a major contraction of credit, which can depress the value of risky assets, worsen loan defaults and risks of default further, and worsen the recession.

The point of LoLR interventions is to reduce liquidity risk by discounting bills or by lending to banks during a crisis at rates of interest that are lower than those at which they would discount bills or lend to each other. By doing so, banks are able to avoid sharp contractions of credit that result from vicious cycles of liquidation. Most importantly, market participants are aware that the LoLR will provide protection to the system, which puts a floor on the prices of risky assets, and limits the deleveraging that banks must undertake.[3] By offering a credit

2 In Canada, it was not until 1935 that a central bank was established, although that delay did not reflect political opposition so much as the absence of need: previously privately chartered banks had found ways to cooperate to fill the void of the absence of a central bank.

3 This role of the LoLR can also be seen outside of banking, too. For example, the Fed's intervention in support of the commercial paper market in 1970 reflected a similar response to a similar threat (see Calomiris, 1994).

risk subsidy to banks during crises the LoLR avoids the self-fulfilling "bad equilibrium" of continuing liquidation of bank balance sheets.

I emphasize, however, that historical LoLRs did not try to prevent some deleveraging by banks in response to a negative shock. It was understood that in the wake of a significant fundamental shock (such as a recession), banks had to reduce their asset risk by contracting lending somewhat in order to restore low default risk, as market discipline demanded. The point of LoLR interventions was not to subvert market discipline, but to permit an orderly adjustment to the new equilibrium, while avoiding an unnecessary plunge into a bad equilibrium.

2.3 The limits of collateralized lending

Walter Bagehot, the journalist and economist, has had an enormous influence on economic thinking about LoLR politic through his classic work, *Lombard Street*.[4] In that work, Bagehot claimed that the LoLR should follow a policy rule, and that in doing so, it would help to shape market expectations in a favorable way. His suggested policy rule was for the LoLR to lend freely during crises at a "high" rate of interest (meaning at a rate higher than the rates prevailing during normal times) against "good" collateral.

There is much to applaud in Bagehot's thinking. He understood the importance of market expectations and the helpfulness, therefore, of following a well-defined rule. He also understood the moral-hazard problem that any LoLR faces from subsidizing credit risk – namely, that it will encourage borrowers to take excessive risks during normal times, if there is no adverse consequence to them during crises from doing so. By advocating a high rate of interest, and by requiring the pledging of good collateral, Bagehot's Rule limits the expected profit from undertaking excessive risk during normal times, and protects the LoLR (and its guarantor, the State) from having to bear large losses during crises.

Despite the appeal of Bagehot's Rule, this approach to LoLR assistance is inherently limited, and is not effective in dealing with very severe systemic shocks to the banking system. To see why, consider what happens to bank insolvency risk when a very large, sudden macroeconomic shock produces large loan losses and increased loan risk (such as occurred during the Great Depression, primarily in response to a large contraction of the money supply from mid-1929 to early 1933).

As policy makers at the Fed and the Hoover Administration learned during the Depression, collateralized lending to banks from either the Fed or the Reconstruction Finance Corporation (RFC) was inadequate for discouraging depositor withdrawals. In fact, there was some evidence that collateralized lending actually increased depositors' incentives to withdraw (Calomiris et al., 2013). Observers pointed to the fact that when banks with substantially elevated default risk borrowed from the Fed or the RFC against good collateral, this effectively subordinated bank depositors, because the Fed and the RFC now had senior claims on these banks' best assets. For that reason, collateralized lending could actually worsen a run on a bank.

The Roosevelt Administration came up with a solution to this problem in March 1933. The RFC would make preferred stock investments in banks in lieu of collateralized loans. Doing so meant that issuers of preferred stock (on which banks paid below market dividend returns to the RFC) were strengthened by the subsidized lending, and because the preferred stock issues were junior to deposits, receiving preferred stock strengthened the position of depositors instead of subordinating them. Several studies of the effects of preferred stock assistance show that it was effective in helping recipient banks to stem withdrawal pressures from deposit market discipline and thus limited bank failures and the contraction in bank loan supply (Mason 2001a, 2001b; Calomiris et al., 2013).

4 See Walter Bagehot (1873).

Even preferred stock, however, is of limited use as a means of assisting banks. Preferred stock is still a promise to pay dividends and principal, and thus issuers of preferred stock can suffer moral-hazard incentives from "debt overhang" (Jensen and Meckling, 1976; Myers, 1977). RFC preferred stock assistance to deeply insolvent banks, therefore, would likely not have stemmed depositor funs. Given that the Roosevelt Administration confined RFC assistance to preferred stock (rather than common equity purchases or debt guarantees), it was forced to accept the closure of many banks that were not sufficiently strong to be candidates for RFC preferred stock assistance.

More recently, in the case of TARP assistance in the U.S. during the crisis of 2008-2009, the limits of preferred stock assistance became visible again, but this time, the government decided to extend protection beyond preferred stock purchases. Preferred stock was used as the first, but not the last, form of assistance for large financial institutions. When preferred stock assistance was deemed inadequate because of debt overhang, the weakest of the large institutions – Citigroup, Bank of America and AIG – were given access to additional forms of assistance, as needed, and in the event, Citigroup and AIG issued substantial amounts of common equity to taxpayers (for a review, see Calomiris and Khan, 2015).

An alternative to purchasing equity to bail out severely troubled banks is for LoLRs to offer guarantees of their debts. This approach was first employed in France in the 1880s as a cooperative agreement between Banque de France and the other French banks, who together undertook debt guarantees of troubled financial institutions. The Bank of England copied this approach in managing the Barings Crisis of 1890. The London clearing banks asked the Bank of England to bail out Barings. It responded by requiring the clearing banks to put together a guarantee fund to stand behind Barings' obligations and the Bank of England then agreed to participate in the guarantee, effectively providing a backstop to the clearing banks.

Although the participation of the central bank was extremely helpful in these sorts of cases, it was not always essential. In Canada, twice in the first decade of the 20th century (long before the establishment of the Bank of Canada), the Canadian banks organized takeovers of troubled banks (under the leadership of the oldest Canadian bank, the Bank of Montreal) whereby the banks agreed as a group to honor the acquired banks' debts, maintain their branches, and share any losses from the acquisition. Like the Barings Crisis, the privately engineered bailouts reflected the belief that negative externalities from allowing a bank to fail could create even larger losses for the other banks. It is important to emphasize that, for the most part, the deposits of failing Canadian banks were not honored by other banks through takeovers. Only in the few cases where banks perceived a true systemic risk from the failure did they step in to acquire the troubled institution. This approach ensured that depositors faced significant risk of loss, and therefore, significant incentive to discipline banks ex ante.

One of the main appeals of employing cooperative debt guarantees was that it prevented the spread of trouble by avoiding the failure of an important financial institution. A failure can have systemic consequences either through potential counterparty losses, or because the failing institution plays an important role in the financial system (for example, Barings was a major intermediary in the bills market, and its failure threatened to suddenly remove a crucial market maker from the system). By nipping the problem in the bud at the source of trouble, potential systemic consequences were avoided. The sharing of liability for any losses in the bailed-out firm meant that banks with significant counterparty exposure to the troubled institution were also effectively assisted, but the consequence of that assistance did not itself lead to systemic risk because no bank bore a significant loss as the result of its participation.

2.3.1 Bagehot principles and their undoing

Even when historical (pre-1980s) LoLR interventions employed methods other than collateralized lending – such as preferred stock investments, limited guarantees or outright acquisitions – bailouts almost always conformed to Bagehot Principles: The LoLR should address only systemic problems (not individual bank failures), and it should do so with the least possible moral hazard, and with the least risk of loss to the LoLR. Contrary to these Principles, since the 1970s, government policy has increasingly substituted deposit insurance and other unconditional protections for individual banks in the place of a well-designed LoLR, which has undermined the discipline that is retained when protection only applies to systemic risks (Acharya and Thakor, 2016).

Historical LoLRs employed some form of screening (either of collateral quality or of borrowers) to minimize the immediate costs of providing assistance and to address the incentive problems for the future created by assisting banks today. For the same reasons, the LoLR took the most senior position possible while addressing systemic risk. The specific mechanism chosen (collateralized lending, preferred stock, or debt guarantees) reflected the nature and size of the shock buffeting the banking system.

After the 1970s, a new set of policies were implemented in most countries, which combined various LoLR interventions with new, generous blanket support for banks in the form of deposit insurance and government bailouts of banks. Another change, which differentiates markedly the previous era from the current one, is the switch from crisis lending at high rates to the modern approach which favors the lowering of interest rates. Likely related to these differences, banking crises used to be violent and brief. Crises now are more mild but longer lived. The vulnerability of the financial system lingers, and losses often compound over years.

This new approach to crisis management has been propelled by changes in the political economy of banking that favor virtually unlimited protection of banks, particularly of large banks (the so-called “too-big-to-fail” doctrine). This change in policy likely reflects the popularity in democracies of preventing credit crunches and insulating average citizens from losses on their deposits. Nevertheless, the social costs of this new approach have proved to be large.

By 1980, only 20 countries had adopted explicit deposit guarantees, and by the end of 2003, the number had grown to 87 (Demirguc-Kunt, Kane and Laeven, 2008, p. 3). In addition, beginning in the 1980s, ad hoc government bailouts of banks became common – including Continental Illinois in the United States, and Credit Lyonnais in France.

Alongside those changes, there has been a remarkable increase in the frequency and severity of banking crises since the 1970s. Since 1970, excluding communist or former-communist countries, according to Laeven and Valencia (2013), there have been over a hundred major banking crises, with an average severity (measured as the ratio of failed banks’ negative net worth relative to GDP) of roughly 16 per cent. That is an astoundingly high figure. The comparable measure of severity of U.S. bank failures during the Great Depression is roughly 2 per cent of GDP. When one examines the period 1874-1913, using the same criteria to identify a major banking crisis, there were only 10 cases of severe banking crises, five of which were panics in the United States (with severity averaging 0 per cent, the highest of which was the Panic of 1893, with a severity level of 0.1 per cent). The other five cases (Brazil in 1875, Argentina in 1890, Italy in 1893, Australia in 1893, and Norway in 1900) had severity averaging no greater than 5 per cent of GDP. In other words, the last several decades of banking crisis represent a global pandemic of bank failures that is unprecedented in frequency and severity. The new role of government in bailing out failed banks unconditionally has meant that the unprecedented losses from bank failures have become a major burden on taxpayers.

The large empirical literature on banking crises and their costs has shown that the pandemic of severe banking crises is closely related to, and largely caused by, the rapid expansion of government protection of banks.[5] Government protection of banks removes market discipline (the threat of withdrawal by depositors and other debt holders, as default risk rises), which permits incompetent bankers to operate banks (adverse selection), and encourages all bankers to take on more risk than they otherwise would (moral hazard). Both of these influences contribute to the increased frequency and severity of banking crises.

The expansion of deposit insurance protection has reflected political pressure, both internal and external. Demirguc-Kunt, Kane and Laeven (2008) study the adoption and design of deposit insurance in 170 countries, incorporating economic and political influences as explanatory variables. They find that both external and internal political influences were important for deposit insurance adoption decisions after controlling for economic factors.

Clearly, the last several decades have seen a decline in the importance of central banks' LoLR assistance as the primary instruments for managing shocks to banking systems. As the world has increasingly insured banks' debts and shored up failed banks through ad hoc rescues (via subsidized mergers, equity injections, nationalization, or bank debt re-denomination), LoLR assistance through central banks often has been displaced as the primary vehicle for crisis management. When they are involved, central banks often play an assisting role, although they sometimes can serve as vehicles for carrying huge amounts of assets. The new approach to crisis interventions, which often takes the form of virtually unlimited protection, has also meant that, for most countries, managing crises no longer means the application of Bagehot's Principles.

2.4 LoLR-rules improve effectiveness and accountability

Rules are crucial for creating legitimacy. In a world of political bargains (that is, in our world), limits on what LoLRs can do and mandates about what they must do are essential to the political process that grants sustainable powers that make LoLRs effective. Rules are also helpful for ensuring predictability, which allows market expectations to reinforce the actions of the LoLR.

The fact that crises are unpredictable, and that the specific actions a LoLR should undertake cannot be known in advance does not undermine the case for adherence to rules. In fact, the unpredictability of the world makes the predictability of the LoLR all the more important, both from the standpoint of legitimacy and the reinforcing effects of market expectations. But it is necessary to define "rules" in a way that permits flexibility in policy reactions. For example, as I have already noted, collateralized lending is too constrained a vision of LoLR actions. Nevertheless, it is possible to use Bagehot's Principles (rather than Bagehot's Rule) as a credible framework to guide LoLR.

To ensure that the LoLR should address only systemic problems (not individual bank failures), blanket guarantees of banks against failure should be eliminated. Assistance should be limited to systemic events, in which some procedure is required by which the LoLR determines and states that intervention is required to prevent grave systemic consequences. Having done so, the LoLR should choose from a menu of existing pre-approved mechanisms (collateralized lending, preferred stock investments, guarantees, common stock investments) the one that best suits the current circumstances, and should explain why its choice accomplishes systemic stabilization with the least possible moral hazard, and with least risk of loss to LoLR. The procedure employed to make and publicly defend these determinations should be speedy, should draw on prior experience, should make use of tools that have been shown appropriate for achieving the desired objectives, and should be consistent with the governing principles that guide fiscal interventions in each country.

5 For a review of this literature, see Calomiris and Jaremski (2016).

2.5 Central banks cannot do it alone

Because effective LoLR requires legitimacy, central banks alone cannot set LoLR policy. To the extent that LoLR assistance entails only a small subsidization of risk – through collateralized lending against sufficiently good collateral – this can be delegated to "independent" central banks without too much concern about fiscal exposures. But if the subsidies inherent in assistance are sufficiently large, they should be provided through the process normally required for any significant fiscal policy. Doing otherwise undermines the legitimacy of the central bank as a non-political, non-fiscal authority.

Canada's staging of LoLR assistance is one model that seeks to achieve this sort of allocation of responsibility. Rather than categorically prohibit many kinds of lending by the LoLR (as in the case of the U.S.), in Canada, LoLR assistance can occur in three ways: pre-authorized, low-risk forms of lending that are subject to the central bank's discretion (to deal with modest shocks), riskier lending by the central bank that must be approved by the fiscal authorities (to deal with moderately severe shocks), and still-riskier forms of assistance that must be provided by the government rather than by the central bank (to deal with the most severe shocks). By creating procedures and specifying mechanisms in advance, Canada both informs the market of what it is prepared to do and how it is prepared to do it, and also preserves the legitimacy and independence of its central bank.

3 Conclusion

This essay has summarized what I regard as a fairly uncontroversial set of propositions, including theoretical propositions about the structure of banks and the importance of market discipline, historical facts about the operation of LoLRs that are generally understood by financial historians, and recent empirical findings about the moral-hazard consequences of excessive protection about which there is little disagreement. From an economic perspective, I believe it is clear that the desirable policy path forward would entail a return to Bagehot's Principles guiding a flexible and diverse menu of LoLR tools, alongside a substantial rolling back of unconditional protection of banks against failure.

As the history of LoLRs demonstrates, however, economic arguments count for little when they are opposed to the wishes of dominant political coalitions that have reached policy bargains contrary to those economic arguments. At the same time, an economic approach to LoLR policy that entails frequent crises and heavy costs to taxpayers may create the basis for a new political bargain, assuming that the public is able to connect poor LoLR policy design with those economic costs.

References

Acharya, Viral, and Anjan J. Thakor (2016), "The Dark Side of Liquidity Creation: Leverage and Systemic Risk", *Journal of Financial Intermediation*, Forthcoming.

Bagehot, Walter (1873), *Lombard Street: A Description of the Money Market*, Henry S. King & Co: London.

Calomiris, Charles W. (1994), "Is the Discount Window Necessary? A Penn-Central Perspective", *Federal Reserve Bank of St. Louis Review*, Vol. 76, No. 3, pp. 31-55.

Calomiris, Charles W., Marc Flandreau and Luc Laeven (2016), "Political Foundations of the Lender of Last Resort: A Global Historical Narrative", *Journal of Financial Intermediation*, Forthcoming.

Calomiris, Charles W., and Matthew Jaremski (2016), "Deposit Insurance: Theories and Facts", *Annual Review of Financial Economics*, Forthcoming.

Calomiris, Charles W., and Charles M. Kahn (1991), "The Role of Demandable Debt in Structuring Optimal Banking Arrangements", *American Economic Review*, Vol. 81, No. 3, pp. 497-513.

Calomiris, Charles W., and Urooj Khan (2015), "An Assessment of TARP Assistance to Financial Institutions", *Journal of Economic Perspectives*, Vol. 29, No. 2, pp. 53-80.

Calomiris, Charles W., Joseph R. Mason, Marc Weidenmier, and Katherine Bobroff (2013), "The Effects of Reconstruction Finance Corporation Assistance on Michigan Banks' Survival in the 1930s", *Explorations in Economic History*, Vol. 50, No. 4, pp. 526-547.

Demirgüc-Kunt, Asli, and Enrica Detragiache (2002) "Does Deposit Insurance Increase Banking System Stability? An Empirical Investigation", *Journal of Monetary Economics*, Vol. 49, No. 7, pp. 1373-1406.

Demirgüç-Kunt, Asli, and Harry Huizinga, (2004), "Market Discipline and Deposit Insurance", *Journal of Monetary Economics,* Vol. 51, No. 2, pp. 375-99.

Demirgüc-Kunt, Asli, Edward J. Kane, and Luc Laeven (2008), "Adoption and Design of Deposit Insurance", In *Deposit Insurance Around the World: Issues of Design and Implementation*, Ed. by Demirgüc-Kunt, A., E. J. Kane, and L. Laeven, MIT Press: Cambridge, MA.

Gorton, Gary, and George Pennacchi (1990) "Financial Intermediaries and Liquidity Creation", *Journal of Finance*, Vol. 45, No. 1, pp. 49-71.

Jensen, Michael C., and William H. Meckling (1976), "The Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure", *Journal of Financial Economics*, Vol. 3, No. 4, pp. 305-360.

Laeven, Luc, and Fabian Valencia (2013), "Systemic Banking Crises Database*", IMF Economic Review*, Vol. 61, No. 2, pp. 225-270.

Mason, Joseph R. (2001a), "Do Lender of Last Resort Policies Matter? The Effects of Reconstruction Finance Corporation Assistance to Banks during the Great Depression", *Journal of Financial Services Research*, Vol. 20, No. 1, pp. 77-95.

Mason, Joseph R. (2001b), "Reconstruction Finance Corporation Assistance to Financial Intermediaries and Commercial and Industrial Enterprises in the United States, 1932-1937", In *Resolution of Financial Distress: An International Perspective on the Design of Bankruptcy Laws*, Ed. by Claessens, S., S. Djankov, and A. Mody, World Bank Publications: Washington, D.C.

Myers, Stewart C. (1977), "Determinants of Corporate Borrowing", *Journal of Financial Economics*, Vol. 5, No. 2, pp. 147-175.