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Fundamentals of Bank Supervision and the Lender of Last Resort in the Post-2008 Era: A Critical Appraisal and Forward Looking Recommendations

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The generalised pumping of central bank liquidity to the western financial systems in the post-2008 period has generated serious debate and controversy. For instance, should the central bank offer liquidity assistance to solvent financial undertakings facing serious liquidity difficulties even when such institutions are not factional reserve (deposit-taking) banks? On the other hand, bank regulation and supervision have undergone extensive changes since 2008 in terms of regulatory architecture, supervisory priorities, and style of supervision. The new paramount objective of bank supervision is the preservation of financial stability. At the same time, most contemporary micro- and macroprudential supervisors tend to be central banks, the very institution that provides Lender of Last Resort (LoLR) liquidity assistance. This development has altered the breadth and content of the central banking contract with governments and society and, arguably, supports a more relaxed approach to LoLR liquidity assistance. The changed nature of supervisory objectives and central bank responsibility for systemic stability mitigates in favour of granting access to LoLR liquidity (under tightly defined conditions) to a wider range of regulated financial institutions and providers of financial infrastructure services that face insurmountable liquidity shocks in order to avert firesales (of performing assets). This should especially be the case if failure of such institutions to refinance their short-term debt would severely affect the stability of the financial system. Finally, restricting LoLR liquidity to entities within the regulatory net is fair and sound policy.

FUNDAMENTALS OF BANK SUPERVISION AND THE LENDER OF LAST RESORT IN THE POST-2008 ERA: A CRITICAL APPRAISAL AND FORWARD LOOKING RECOMMENDATIONS

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ABSTRACT

The generalised pumping of central bank liquidity to the western financial systems in the post-2008 period has generated serious debate and controversy. For instance, should the central bank offer liquidity assistance to solvent financial undertakings facing serious liquidity difficulties even when such institutions are not factional reserve (deposit-taking) banks? On the other hand, bank regulation and supervision have undergone extensive changes since 2008 in terms of regulatory architecture, supervisory priorities, and style of supervision. The new paramount objective of bank supervision is the preservation of financial stability. At the same time, most contemporary micro- and macroprudential supervisors tend to be central banks, the very institution that provides Lender of Last Resort (LoLR) liquidity assistance. This development has altered the breadth and content of the central banking contract with governments and society and, arguably, supports a more relaxed approach to LoLR liquidity assistance. The changed nature of supervisory objectives and central bank responsibility for systemic stability mitigates in favour of granting access to LoLR liquidity (under tightly defined conditions) to a wider range of regulated financial institutions and providers of financial infrastructure services that face insurmountable liquidity shocks in order to avert firesales (of performing assets). This should especially be the case if failure of such institutions to refinance their short-term debt would severely affect the stability of the financial system. Finally, restricting LoLR liquidity to entities within the regulatory net is fair and sound policy.

EMILIOS AVGOULEAS*

I. INTRODUCTION

A. THE NEW REGULATORY LANDSCAPE

Traditionally the focus of prudential regulation has been on the protection of individual institutions' stability from a depositors' run[1] and of depositors and deposit guarantee schemes from incurring losses in the event of bank failures. The same rationale: avoidance of loss - extended to protection of taxpayers from a public bailout and from the kind of moral hazard that arises when public bank rescues are likely – is valid today. However, in recent years, and especially since the Global Financial Crisis (GFC) the focus of bank regulation has substantially broadened its focus to include: (a) eliminating the too-big-to-fail institution, by, at the very least, making successful recovery possible, and failing that, facilitating orderly resolution, (b) substantially increasing capital cushions, and introducing liquidity requirements, (c) enhancing the resilience of the financial system to withstand system-wide shocks.

Bank failures are rarely individual and self-contained events. They produce externalities that threaten the stability of the financial system. The first externality they produce is contagion due to loss of confidence and panic that can be triggered by severe information asymmetries between banks and their creditors (including

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[1] Argument based on the classic Douglas W. Diamond and Philip H. Dybvig, 'Bank Runs, Deposit Insurance, and Liquidity' (1983) 91 *Journal of Political Economy* 401-419.

depositors).[2] Secondly, due to interconnectedness, failure of one institution can create a chain of defaults wreaking devastation on the financial system.[3] Thirdly, a systemic disruption has a substantial adverse impact on users of financial services in the entire financial system, even if they have no connection with the failing institution. Therefore, the main objectives of bank regulation today are best understood to be:

(a) Preservation of the stability of financial institutions (especially banks) by buttressing bank financial position and limiting risk-taking;

(b) enabling orderly recovery of financial institutions in trouble and if that fails facilitating orderly resolution;

(c) protection of depositors and of consumers of banking services;

(d) preservation of market confidence;

(e) protection against systemic shocks;

(f) preservation of provision of infrastructure services including payment services.

There is also an implicit objective: fostering economic prosperity by means of protection of systemic stability and safeguarding of financial intermediation/access to finance for interested borrowers.

Bank regulation cannot (and should not seek to) create a zero failure environment but an environment where institutional failure can be managed so that it

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[2] See Charles Goodhart, 'Financial Regulation, Credit Risk, and Financial Stability' 192 *National Institute Economic Review*, April 2005, 118, p. 122.

[3] For a more modern version see Emilios Avgouleas, "Bank Regulation" in R. Cranston, Avgouleas et al. *Principles of Banking Law* (Oxford University Press, 2016, forthcoming), ch. 2. For earlier analysis that is still valid see George Benston and George Kaufman, 'The Appropriate Role of Bank Regulation' (1996) 106 *The Economic Journal* 688; David Llewellyn, *The Economic Rationale for Financial Regulation*, FSA, Occasional Paper Series No. 1 April 1999; Charles Goodhart, Philipp Hartmann, David T. Llewellyn, Liliana Rojas-Suarez and Steven Weisbrod, *Financial Regulation, Why, How, and Where Now?* (London: Routledge, 1998).

does not endanger the stability of the financial system and create market dislocation.[4] The risk of individual institution failure and systemic collapse is mostly addressed through prudential regulation in the guise of capital and liquidity requirements, structural regulations and activity/size restrictions, as well as resolution regimes.

At this point an obvious question arises. Why is there any need for external regulation and supervision since in the event of bank failure bank shareholders will be wiped out regardless of any bailout? On this assumption shouldn't banks be able to police themselves and/or, in the presence of a statutory framework, to self-supervise themselves with the regulated "voluntarily" subscribing to the objectives of statutory regulation? The most convincing answer to this question is that public interest concerns (e.g., institutional safety and financial stability) and private goals/incentives (profitability, compensation) in the banking sector differ sufficiently, due to the existence of intrinsic information asymmetries and inherent reliance on high levels of leverage,[5] to make self-regulation impossible. For example, why is it that in good times, when excessive debt accumulation in society, so-called debt overhang, is not yet a concern, banks do not voluntarily build up adequate buffer stocks of excess capital, so that when bad times come they can absorb the losses without having to either shrink assets or raise new capital under duress? The most plausible answer is that if short-term debt is a cheaper form of finance than equity, banks will tend to take on more debt than a social planner would like them to: while they capture the benefits of cheap debt, which means that financial institutions (the banks and other credit transmission channels) do not fully internalize their costs. Therefore, reliance on

[4] Group of Thirty, 'Financial Reform: A Framework for Financial Stability', 15 January 2009, p. 20, available at www.group30.org/pubs/reformreport.pdf.

[5] E. Avgouleas, Jay Cullen, "'Excessive Leverage and Bankers' Pay: Governance and Financial Stability Costs of a Symbiotic Relationship" (2015) 21 *Columbia Journal of European Law*

internal governance controls and market discipline is not enough to restrain bank risk-seeking and shareholder search of ever higher rents.[6]

Even where directors and senior managers become front-line supervisors, as is the case under the new risk management framework and senior managers' regimes,[7] a form of so-called meta-regulation,[8] compliance is less the product of any belief in voluntary enrollment of the regulated[9] and more the product of compulsion. Extending command and control (compulsion) regulation to the level of senior bank management, largely reflects regulators' pragmatic approach to resolving the still existent information asymmetries between senior bank management and bank regulators. Yet it might indeed plant the seeds of radical change in banking sector's culture and incentives. For now, though, effective supervision is at least as important, if not more, as the regulatory framework that underpins it. Gradual changes in the business models of credit extension, (dis)intermediation, and alternative payment systems (jointly called FinTech) shall increase rather than decrease the remit of financial supervisors, even if fractional reserve banks' business turnover and balance

[6] Anat R. Admati, Peter M. DeMarzo, Martin F. Hellwig, Paul Pfleiderer, "The Leverage Rachet Effect", Stanford Business School, Working Paper No. 3029,last version 32 December 2015, available at https://www.gsb.stanford.edu/gsb-cmis/gsb-cmis-download-auth/345321

[7] BCBS, "Guidelines Corporate Governance Principles for Banks", July 2015; See PRA Rulebook, Senior Managers Regime (SMR) and Senior Management Functions.

[8] See F. Akinbani, "Is meta-regulation all it's cracked up to be? The Case of UK Financial Regulation" (2013) 14(1) *Journal of Banking Regulation* 16-32. For a general discussion of meta-regulation see Cary Coglianese and Evan Mendelson, "Meta-Regulation and Self-Regulation" in *Martin Cave, Robert Baldwin, Martin Lodge* (eds), *The Oxford Handbook on Regulation* (OUP, 2010). For an earlier critique of meta-regulation - focusing on the difficulty involved in building a shared understanding of regulation (and of its objectives) between the regulators and the regulated see J. Black, "The Emergence of risk-based regulation and the new public risk management in the United Kingdom' (2005) *Public Law* (issue 3) 512, pp.543-5.

[9] See, in general J. Black, 'Enrolling actors in regulatory systems: examples from UK financial services regulation" (2003) *Public Law* (Spring), 63-91.

sheet keep shrinking.[10]

But, it should not be assumed that regulation is a panacea and the answer for all failures of the market and of market discipline, especially when it reaches the levels of complexity prudential regulation has currently "attained". Unlike flawed market behaviour that can either be self-correcting or corrected by means of public intervention, financial regulation is a much less flexible - and less adaptable to change - system. As Roberta Romano has very perceptively noted about US financial regulation, a maxim that also applies to prudential regulation, in general, there is an "Iron Law of Regulation".[11] Regulation is normally crisis driven, "adopted at a time when there is a paucity of information regarding what has transpired". Thus, it often offers sub-optimal outcomes, yet it is "arduous to revise or repeal given the stickiness of the status quo".[12]

B. PRUDENTIAL REGULATION

A concise (and modern) definition of prudential regulation would describe it as the thick and complex web of rules employed to: (a) keep financial institutions safe and a going concern and failing that, (b) to assist their resolution and/or restructuring, and (c) to augment the resilience of financial system to withstand shocks emanating from system-wide events as well as from bank failures and, where possible, prevent the

[10] On the challenge of FinTech see *Journal of Financial Perspectives*, special issue: 'FinTech: Who will disrupt the Disruptors", Winter 2015.

[11] Roberta Romano, "Regulating in the Dark" in Cary Coglianese (ed.), *Regulatory Breakdown: The Crisis of Confidence in U.S. Regulation* (University of Pennsylvania Press, 2012), Ch. 5.

[12] Prof. Romano adds: "The ensuing one-way regulatory ratchet generated by repeated financial crises has produced not only costly policy mistakes accompanied by unintended consequences but also a regulatory state whose cumulative regulatory impact produces over time an increasingly ineffective regulatory apparatus." See Roberta Romano, "Further Assessment of the Iron Law of Financial Regulation: A Postscript to Regulating in the Dark", Yale Law School, John M. Olin Center for Studies in Law, Economics, and Public Policy Research Paper No. 515, 3 Nov. 2014.

occurrence of system-wide risks.[13] This remodeled definition is based on the fact that Prudential regulation has undergone seismic changes in the post-2008 period, at least in the USA, EU, and the UK as a result of the crisis.

The new prudential regime is increasingly shaped up at the global (G-20, Financial Stability Board) or the regional level (the EU) or driven by developments in key jurisdictions (e.g., USA). Gradually, regulators' armoury has expanded to include, apart from licensing and on-going compliance requirements, widened deposit insurance schemes, ex ante recovery and resolution planning for financial institutions, including banks, revamped corporate governance and remuneration standards, and a radically reconfigured structural framework. In particular, recovery and resolution plans may be used to simplify bank corporate structures, as complex organizational structures are rightfully viewed as an impediment to orderly resolution.[14] In addition, capital requirements have been overhauled and new liquidity requirements have been introduced.

The post-2008 prudential regime is complemented by an expansive and intrusive recovery and resolution framework, which aims to eliminate, or at the very least drastically reduce, the possibility that a financial institution becomes too-big-to-fail. Where resolution and prudential regimes overlap is in the area of early intervention, so-called prompt corrective action (pre-insolvency regimes). Moreover, new ideas have been implemented to further shore up bank capital to either keep a failing bank a going concern through prompt recapitalisation or resolve it in an orderly manner, in order to put an end to bank access to public funds, eradicating, to some extent, the moral hazard effect of bailouts. As such a new class of contingent

[13] See also Avgouleas, Bank Regulation (n 3).

[14] See Emilios Avgouleas, Charles Goodhart, Dirk Schenmacker, "Living Wills as a Catalyst for Global Financial Reform" (2013) 9 *Journal of Financial Stability* 210-218.

capital instruments (CoCos) is introduced. These may be converted into equity to shore up bank capital before the bank enters into resolution, avoiding thus to have to push banks through disruptive resolutions. In addition, a certain portion of bank liabilities may be used to restore a failing bank to health under the new bail-in process introduced under Tittle II of the Dodd-Frank Act [15] in the USA and the Bank Recovery and Resolution Directive (BRRD)[16] in the EU, and the more recent Total Loss Absorption Capacity (TLAC) requirements.[17]

Critically, a new approach to prudential regulation has been introduced, so-called macro-prudential regulation. Under this framework, regulators have responsibility to look at the resilience of the financial system as a whole and the way it interacts with the wider economy, including the possible formation of asset bubbles, since the latter, normally, have deleterious effects on financial stability. In this context, a number of new measures like leverage ratios, countercyclical capital requirements, and lending controls (like Loan to Value and Loan to Income ratios) have both a micro- (institutional stability) and macroprudential objective (systemic stability). This is a very important development.

Goodhart has accurately suggested that central banks have always had this dual role: : maintaining price stability and financial stability. [18] The key difference is that there is a renewed focus on financial stability in the wake of the

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[15] Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub, L. No. 111/203 (2010).

[16]Directive 2014/59/EU establishing a framework for the recovery and resolution of credit institutions and investment firms OJL 2014 173/190 [hereinafter BRRD].

[17] See FSB, "Total Loss-Absorbing Capacity (TLAC) Principles and Term Sheet", 5 November 2015; BCBS, "Consultative Document - TLAC Holdings", November 2015, available at http://www.bis.org/bcbs/publ/d342.pdf

[18] Charles Goodhart, *The Evolution of Central Banks* (MIT Press, 1988); Goodhart, D. Tsomokos, "Analysis of Financial Stability" in in Pierre L. Siklos et al., "*Challenges in Central Banking* (CUP, 2010), Ch. 5.

GFC.[19] Simply put, the financial stability mandate has been more explicit and is now pursued with a far more concrete set of powers. But this is a material change. First, regulatory effectiveness in terms of financial stability maintenance has become more measurable and thus an accountability framework ought to be constructed around this perspective. Secondly, the explicit reconfiguration of regulatory responsibility cannot leave unaffected the way the central bank is using its Lender of Last Resort (LoLR) tool.

This chapter is in five sections with the present introduction. Section II will examine the fundamental properties of financial supervision in the post-2008 era. The Section focuses on the issues of optimal regulatory architecture, regulatory accountability, and supervisory powers. Section III discusses the general framework for the operation of the Lender of Last Resort. Section IV explains the challenges the LoLR faces in the context of post-GFC markets and offers arguments in favour a wider use of the LoLR facility when firesales are looming threatening systemic instability. Finally, the last section provides the conclusion.

II. RECONCEPTUALISING BANK SUPERVISION

A. BANK SUPERVISION BECOMES AN AUTONOMOUS PROCESS/CONCEPT

Bank supervision is the process through which the application of and compliance with prudential, conduct, and systemic regulation is safeguarded. It is normally exercised by public agencies that have the competence to approve the establishment and operation of credit institutions and to monitor continuous compliance with the requisite prudential framework and with the conduct rules applicable to licensed

[19] See Dirk Schoenmaker, "The Role of Central Banks in Financial Stability" in G. G. Caprio (ed.), *Handbook of Safeguarding Global Financial Stability* (Elsevier Amsterdam, 2012), Ch. 28.

financial institutions. The same institutions are vested with remedial (early intervention) and enforcement powers in the event of a breach of any the above.

There is no clear distinction between the two different functions of bank regulators, i.e., regulation: rule-making/standard-setting, on the one hand, and supervision on the other.[20] Thus, the distinction adopted here between the executive (supervision and enforcement) and rule-making functions (regulation) of public bodies overseeing financial sectors is mostly conceptual and far from being a clear-cut one. But it is increasingly gaining traction in regulatory practice.[21] According to the Board of the US Federal Reserve System that acts as the chief microprudential regulator of the most important US banks[22]:

> Bank supervision involves the monitoring, inspecting, and examining of banking organizations to assess their condition and their compliance with relevant laws and regulations . . . Bank regulation entails issuing specific

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[20] Eric Pan, 'Challenge of International Cooperation and Institutional Design in Financial Supervision: Beyond Transgovernmental Networks' (2010) 11 *Chicago Journal of International Law* 243–84. Earlier works which draw a distinction between bank regulation and supervision are Rosa M. Lastra, 'The Governance Structure for Financial Regulation and Supervision in Europe', (2003) 10 *Columbia Journal of European Law* 49 and Cynthia Crawford Lichtenstein, 'The Fed's New Model of Supervision for "Large Complex Banking Organizations": Coordinated Risk-Based Supervision of Financial Multinationals for International Financial Stability' (2005) 18 *Transnational Lawyer* 283, 287–8.

[21] E.g., the Board of the US Federal Reserve (FRB) explains its competence vis-à-vis the banks and similar institutions within tis remit as both supervision and regulation. See Board of Governors of the Federal Reserve System, "Mission" available at http://www.federalreserve.gov/aboutthefed/mission.htm FRB clarifies: "The Federal Reserve has supervisory and regulatory authority over a wide range of financial institutions and activities . . . The Federal Reserve has responsibility for supervising and regulating . . segments of the banking industry to ensure safe and sound banking practices and compliance with banking laws . . ." US Federal Reserve System, "Supervision and Regulation", Ch. 5, p. 59, available at http://www.federalreserve.gov/pf/pdf/pf_5.pdf It then explains: "Although the terms *bank supervision* and *bank regulation* are often used inter- changeably, they actually refer to distinct, but complementary, activities." Id.

[22] US Federal Reserve System, "Supervision and Regulation", Ch. 5, pp. 59-60. Also San Francisco Federal Bank, part of the US Federal Reserve System, specifies that "supervision" in this context is described as involving the examination "of the financial condition of individual banks and evaluate[on] [of] their compliance with laws and regulations." On the other hand, according to the same institution, "bank regulation involves setting rules and guidelines for the banking system." See the Federal Reserve Bank of San Francisco, "What is the Fed: Supervision and Regulation", available at http://www.frbsf.org/education/teacher-resources/what-is-the-fed/supervision-regulation

regulations and guidelines governing the operations, activities, and acquisitions of banking organizations.

Lack of any capacity to supervise cross-border institutions and of any clear co-operation structures involving them, when it comes to crisis management, means that transnational regulatory networks, such as the Basel committee and the Financial Stability Board, should be understood as regulators with no supervisory functions, inspite their peer review mandates.[23] The same applies the European Banking Authority (EBA), which is predominantly a rule-making body,[24] but not to the other t bodies comprising the European System of Financial Supervisors, since those have a dual regulatory and supervisory mandate, though the latter is narrower than the former.

The post-2008 crises have also profoundly affected the style of bank regulation/supervision. The latter even if, in principle, risk-based and resources conscious, is in practice detailed and intense. A detached analyst would observe that the supervisors are torn between upholding the prophylactic rules that are well enshrined in post-crisis prudential as well as conduct and consumer protection regulations and the need to concentrate their resources on the riskier operators and parts of the financial system.

Another conceptual distinction that reflects recent regulatory practice is that between microprudential and macroprudential regulators. Most of the post-reform

[23] On the peer review competence of the FSB and BCBS see respectively, FSB, "Peer Reviews" available at http://www.fsb.org/what-we-do/implementation-monitoring/peer_reviews/ and BCBS, "Process for policy development and implementation reviews", October 2015, available at https://www.bis.org/bcbs/review_process.pdf

[24] See European Banking Authority, "Missions and Tasks", available at http://www.eba.europa.eu/about-us/missions-and-tasks

microprudential regulators are either parts of a central bank or a wholly owned subsidiary of the central bank. In general, central banks have acquired an explicit mandate to protect financial stability and act as macroprudential supervisors[25] or, at the very least, as the dominant part of macroprudential supervisory bodies.[26] Financial stability powers/competences given to key central banks are in addition to the exercise of their powers as monetary authorities. For example, the current mission of the Bank of England is to promote the good of the people of the United Kingdom by maintaining monetary and financial stability, the latter being the objective of the UK's macroprudential supervisor the Financial Policy Committee[27] The conspicuous exception to this trend is the United States where the systemic risk regulator, the Financial System Oversight Council, established under Title I of the Dodd Frank Act, is a more pluralistic body in terms of composition and membership[28] being chaired by the Secretary of the Treasury and housed at the US Department of the Treasury.

Moreover, central banks, such as the US Federal Reserve Board (FRB) have seen their role as microprudential regulators strengthened or, like the Bank of England, they have resumed their role as prudential regulators. Thus, FRB's *primary objective* is, inter alia, "evaluation of the overall safety and soundness of a banking

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[25] E.g., the US Federal Reserve Board states as two out of its four objectives: supervising and regulating banking institutions to ensure the safety and soundness of the nation's banking and financial system and to protect the credit rights of consumers maintaining the stability of the financial system and containing systemic risk that may arise in financial markets. The other two are: " - conducting the nation's monetary policy by influencing the monetary and credit conditions in the economy in pursuit of maximum employment, stable prices, and moderate long-term interest rates . . . - providing financial services to depository institutions, the U.S. government, and foreign official institutions, including playing a major role in operating the nation's payments system". Board of Governors of the Federal Reserve System, "Mission" available at http://www.federalreserve.gov/aboutthefed/mission.htm

[26] E.g., the Bank of England's Financial Policy Committee (FPC), which has four independent members out of 10 with the rest coming from the BoE. See http://www.bankofengland.co.uk/about/Pages/people/fpc.aspx

[27] Ibid.

[28] See Financial Stability Oversight Council, "FSOC Member Agencies" available at https://www.treasury.gov/initiatives/fsoc/about/council/Pages/default.aspx

organization".[29] Similarly the primary objective of the UK's Prudential Regulation Authority, a subsidiary of the Bank of England, is to "promote the safety and soundness of the firms it regulates".[30]

This concentration of so much power and so many competences within major western central banks such as the Bank of England (BoE) or the ECB (and to some extent the FRB) has had, inter alia, three important consequences. First, it has re-opened the debate about central bank governance and accountability as bank supervision is an executive competence. Secondly, it has given rise to concerns as to how compatible is the pursuit of price and financial stability objectives by the same institution. Thirdly, there is the less visible in the regulatory and academic debate issue of how the enhanced financial stability mandate and powers that modern day central banks enjoy should affect the lender of last resort function (LoLR).

An example in hand is the US view on a limited role for the LoLR (as provided by s. 1101 of the US Dodd-Frank Act).[31] US opposition to wider use of the LoLR is as much based on historical as on contemporary concerns which are discussed in more detail in section IV.B below. This is probably out of pace with both

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[29] Board of Governors of the Federal Reserve System, "Mission" available at http://www.federalreserve.gov/aboutthefed/mission.htm

[30] See Bank of England, "Prudential Regulation Authority", available at http://www.bankofengland.co.uk/pra/Pages/default.aspx

[31] Section 1101 of the Dodd-Frank Act amended Section 13(3) of the Federal Reserve Act, which provided authority to the Board of Governors to extend credit to nonbank, private parties in "unusual and exigent circumstances." New rules represent a significant restriction on the authority that the Board of Governors enjoyed and used in the autumn of 2008. CF Stanley Fischer, currently the vice chairman of the US Fed and of the FSB (formerly the governor of the Bank of Israel), who notes that this is not an absolute prohibition "the Fed retains the power to extend discount window loans to insured depository institutions--including commercial banks, thrift institutions, credit unions, or U.S. branches and agencies of foreign banks. Such loans can be to individual institutions facing funding pressures, or they can be to banks more generally to address broader financial stresses. See Stanley Fischer, speech at "The Lender of Last Resort: An International Perspective," 10 February 2016, a conference sponsored by the Committee on Capital Markets Regulation, Washington, D.C., available at: https://www.federalreserve.gov/newsevents/speech/fischer20160210a.htm#fn1
Still this "exemption" is, arguably, more limited than structural challenges of today's financial system require. For a detailed discussion see Section IV.B below.

the structural (liquidity) needs of the contemporary financial system that is over-reliant for short-term liquidity on repo markets and the reconceptualized content and objectives of post-2008 bank supervision, which have altered the content of the central banking contract.[32]

Naturally, a functional LoLR is an issue of cardinal importance for the wider economy,[33] as it is inextricably linked with effective monetary policy and absorption of macroeconomic shocks. [34]In fact, it has been argued that provision of liquidity to the economy is even more important than money.[35] Yet the significance of a well-functioning LoLR often fades in memory due to the infrequency of its use, especially before 2008. At the same time, providing a system with tighter safeguards like the new US framework to enhance central bank accountability in discharging its LoLR function is essential for the legitimate operation of the LoLR. But as this has

[32] The central banking contract is supposed to be the contract struck between the government and the central bank when the central bank is given its mandate. Sometimes it is assumed that another implicit but direct contract exists between the central bank the polity of a nation. This was certainly the basis of the relationship of the Deutsche Bundesbank (DB) with the German public in the post-war years, which was premised on the understanding that the DB would be much more effective to keep inflation under control, following the trauma of the Weimar Republic, than politicians and thus enjoying the nation's trust to do so. See also Pierre L. Siklos et al., "The State of Play in Central Banking and the Challenges to Come" in Siklos et al., *Challenges in Central Banking* (CUP, 2010), Ch. 1, at p.5.

[33] As a senior executive of the Bank of England has noted: "[W]ithout an effective LOLR framework, economies cannot hope to foster strong and sustainable growth over the long run. History shows that, sooner or later growth, and the employment it supports, will be threatened by an unexpected withdrawal of liquidity from key parts of the financial system, unconnected to the underlying quality of real assets in the economy." See A. Hauser, "Between feast and famine: transparency, accountability and the Lender of Last Resort", speech given at the Committee on Capital Markets Regulation conference, 'The Lender of Last Resort: an international perspective', Washington D.C., 10 February 2016, available at http://www.bankofengland.co.uk/publications/Pages/speeches/2016/881.aspx

[34] The view that liquidity can to some extent alleviate the impact of macroeconomic shocks was introduced in 1963 by Friedman and Schwartz who argued that a more accommodating monetary policy would have led to a smaller GDP drop during the Great Depression. See Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States, 1867-1960* (Princeton: Princeton University Press, 1963).

[35] See Nobuhiro Kiyiotaki and John Moore, Clarendon Lectures, Lecture 1 – "Evil is the Root of All Money", Oxford, 21 November 2001, pp. 2-5, available at http://homepages.econ.ed.ac.uk/~jhmoore/papers/Clarendon1.pdf What this view holds is that outside money, i.e., government money, are an anomaly unlike inside money, i.e., short-term claims mostly created by fractional reserve banks which are a natural consequence of monetisation of trade. It is the supply/circulation of these short-term claims that is measured as liquidity according to Kiyiotaki and Moore.

gradually become an important part of the supervisors' armoury to preserve financial stability, while it also remains a key monetary policy transmission mechanism, a very restrictive approach to LoLR liquidity will generate more problems than it will resolve (see section IV.B below).

B. THE QUESTION OF OPTIMAL ARCHITECTURE FOR FINANCIAL SUPERVISION

Broadly speaking there are three approaches to structuring the supervision/regulation of the financial sector: the institutional approach, the functional approach, and the objectives-based approach. In practice, financial supervision and regulation can be organized as a combination of these three approaches.[36] The institutional approach, of which the USA is the chief example, means that the regulator is essentially focusing on the supervision of individual institutions. This approach is regarded as very apt for the regulation of banks.[37] Its distinct advantage is that regulatory overlaps and turf-wars are avoided and there is a single public agency to hold accountable in the event of regulatory failure. On the other hand, disintermediation, diversity of activities, technology, and financial innovation are gradually rendering ineffective regulation along institutional lines. Moreover, even after segregation and/or ring-fencing of certain banking operations,[38] banks will keep raising consumer protection questions, which are better monitored by a conduct regulator with across the board competences.

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[36] Christine Fay and Nicolas Parent, The Organizational Structure of Financial Market Regulation: Highlights from the Literature' (2004) *Financial System Review* 53-59.

[37] Giorgio Di Giorgio, Carmine Di Noia, and Laura Piatti, 'Financial Market Regulation: The Case of Italy and a Proposal for the Euro Area, Wharton, Financial Institutions Center, Working Paper 00-24, 2000, pp.4-6.

[38] E.g., the bank ring-fencing regime established in the UK by the Financial Services (Banking Reform) Act 2013, c. 33, and the separation of activities mandated in the US by the Volcker Rule (s. 619 of the Dodd Frank Act (12 U.S.C. § 1851)).

The functional approach focuses on the kind of business undertaken by financial firms. In principle, the functional approach provides three main benefits: (a) regulatory neutrality, (b) level playing field: the regulator applies the same rules to all regulated firms that perform the same activity; and, (c) it allows firms to select the precise services they wish to offer; and, thus, it best supports financial innovation.[39] An important limitation of the functional approach in this era of complex and interconnected global markets is over-specialization, where the overall state of the regulated institution escapes regulatory attention.[40]

In practice the two approaches are complementary. Goodhart *et al.* have argued that a strict dichotomy between the institutions and functions based approach is misleading.[41] Financial institutions need to be regulated both in order to safeguard their safety and soundness and to make them uphold the highest standards in the way they conduct their business and treat their customers.[42] Given the financial stability externalities created by the operation of financial institutions and especially by banks and the market failures and sharp practice that, on occasion, borders on fraud, that pervaded banks' dealings with consumers, the mixed approach is the better argued and more justified one. In addition, the mixed approach also allows for competitive regulatory neutrality securing a playing field for prudential regulation and equitable treatment of firms when it comes to compliance with conduct of business regulation.

The most adaptable form of the mixed approach is the objectives-based approach under which financial intermediaries and markets are subject to oversight

[39] Fay & Parent, Organizational Structure of Financial Market Regulation, (n 36), p. 54.

[40] Di Giorgio, Di Noia, Piatti, Financial Market Regulation, (n 37), pp. 6-7.

[41] Charles Goodhart, Philipp Hartmann, David T. Llewellyn, Liliana Rojas-Suarez, *Financial Regulation: Why, How and Where Now?* (Central Bank Governor's Symposium, 1998), Ch. 8.

[42] Ibid.

and scrutiny by more than one authority, each of which is responsible for one objective of regulation regardless of the legal form of the regulated intermediaries and/or of the activities they perform. The aim is to create a structure that reflects the objectives of regulation and, at the same time, it promotes those objectives most effectively and efficiently.[43]

An example of the objectives-based approach is the twin-peaks structure advocated by Taylor in 1995, which comprised two regulatory agencies, one responsible for ensuring the soundness of the financial system and the other focusing on consumer protection.[44] The most important criticism levelled against this model was that the number of regulators seemed to depend on the view that each must have only one objective, but investor protection and systemic risk oversight are not easily separable.[45] The alternative would be consolidating all financial regulation within a single agency. In summary, arguments in favour of single regulator point to[46]:

- Efficiency gains: economies of scale and scope (synergies), which should lead to reduced regulatory costs
- Greater transparency and accountability, because a simple regulatory structure should be easily understood and recognized
- Better monitoring of diversified firms.

[43] Fay & Parent, Organizational Structure of Financial Market Regulation, (n36), pp. 54-55.

[44] M. Taylor, *Twin Peaks: A Regulatory Structure for the New Century* (London: Centre for the Study of Financial Innovation, 1995); Michael Taylor, *Peak Practice: How to Reform the UK's Regulatory System* (London: Centre for the Study of Financial Innovation, 1996).

[45] See O. McDonald, "Financial Regulation in Germany and the UK: A Comparison" , LSE Financial Markets Group, Special Paper series, Special Paper 82, February 1996.

[46] Goodhart et al. (1998), Ch. 8. For benefits of regulatory specialization see J. Coffee, "Competition versus Consolidation: The Significance of Organizational Structure in Financial and Securities Regulation" (1995) 50 *The Business Lawyer* 447–84. On the benefits of regulatory plurality and regulatory competition see R. Romano, "Empowering Investors: A Market Approach to Securities Regulation." (1998) 107 *Yale Law Journal* 2359–430.

- Possible avoidance of problems such as competitive inequality, inconsistency, effort duplication, overlaps, and gaps
- Easier retention and utilization of expertise

On the other hand, some convincing arguments against a mega-regulator refer to[47]:

- Concentration of excessive power within one institution and a high likelihood that the institution might become too sluggish and bureaucratic and thus unable to speedily react to emerging or acute threats
- Confusion over regulatory objectives
- Potential moral hazard resulting from the public perception that the risk spectrum among financial institutions has disappeared or become blurred
- Higher cost of regulatory failure if a single regulator adopts an inappropriate regulatory regime

Until 2008 two discernible structures underpinned financial supervision. The first divided responsibility for prudential regulation, either between banks and securities firms or between federal and state regulators and the second concentrated all regulatory/supervisory powers for the financial sector within a single institution, a mega-regulator. In the UK, all prudential and conduct regulation was entrusted to a single mega-regulator, in the case of the UK to the Financial Services Authority (FSA). But even where prudential regulation was entrusted to a single agency or a constellation of agencies independent of the central bank, the central bank still had some role in prudential regulation.[48] It would have a large hand in supervising the payments system, it would be in possession of important information for prudential regulation, and it would be the body, which in a crisis would make available lender-

[47] Goodhart et al. (1998), Ch. 8.

[48] C. Goodhart and D. Schoenmaker, "Institutional Separation Between Supervisory and Monetary Agencies", in C. Goodhart, *The Central Bank and the Financial System* (London, Macmillan, 1995).

of-last-resort facilities.

Post-2008 regulatory/supervisory structures in key western jurisdictions (Eurozone, USA, UK) look like the twin peaks (plus) model. In the UK the regulatory system for the financial sector comprise the PRA, the Financial Policy Committee (FPC), a Bank of England body, that is tasked with the supervision of systemic risk, and the Financial Conduct Authority (FCA). In the European Banking Union, the role of the macroprudential (National Central Banks) and microprudential supervisor (predominantly the SSM) is more distinct than in the UK and the twin peaks plus model becomes more complicated, reflecting path dependence, vested regulatory interests, and political realities within the Eurozone.

C. SUPERVISORY POWERS

Supervisory Techniques utilised to safeguard the objectives of prudential (and conduct) regulation are discharged in addition to bank regulators' rule-making powers. As a leading supervisor has put it[49]:

> "[S]upervision" and "regulation" as terms are used interchangeably. That's wrong. . . .Supervision is about how we use [regulation] in practice. For me, two critical elements of supervision are that it is forward-looking, and it requires the use of judgement. . . . *Supervision is therefore a skill – in fact it's quite a few skills. The essence of the job is to understand risks* in firms, and where necessary to step in . . .

The fundamental content and reach of supervisory powers is normally provided by secondary legislation and the agencies' own rulebooks, merely specify and elaborate further the ambit and style of exercise of what is prescribed by statute or Act of

[49] Emphasis added. See Andrew Bailey, ex head of the PRA, keynote speech, in the New York Federal Reserve conference, "Defining the objectives and goals of supervision", 18 March 2016, available at http://www.bankofengland.co.uk/publications/Documents/speeches/2016/speech894.pdf

Parliament, or in the case of EU member states by relevant directives and regulations. [50] Requisite supervisory powers/techniques may be summarized as follows[51]:

- authorization (licensing) of the applicant institution and approval of "permitted activities"
- approval of senior management and other key employees through fit and proper regimes
- approval and regular testing of technological systems within licensed institutions
- securing regular reporting to regulators by the licensed institutions, including reporting on major shareholdings, capital and liquidity levels, risk positions and large exposures, other major changes,

[50] E.g., CRD IV prescribes a host of supervisory powers extending from authorization and continuous monitoring to suspension of operating licenses for breaches of the conditions of authorisation including maintenance of minimum capital requirements. See of Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms OJ 2013 L 176/338, 27.6.2013, Title II, Title III, Title IV.

[51] To large extent bank supervisory competences/powers follow the Basel template and thus they are rather similar across jurisdictions. See BCBS, "Core Principles for Effective Banking Supervision", revised September 2012.

- scrutiny of regulated (licensed) institutions business plans,
- oversight of risk management and corporate governance practices of licensed institutions
- scrutiny of the recovery and resolution plans of licensed institutions,[52]
- continuous monitoring including on site inspections,
- regular capital and liquidity stress testing
- early intervention powers
- investigation and enforcement powers (sanctions)
- (primary or auxiliary) resolution powers
- (primary or auxiliary) powers to promote competition

In addition, bank regulators, normally the conduct regulators (e.g., the FCA), have monitoring and enforcement powers with respect to compliance with conduct and consumer protection rules, the market integrity rule-book, and anti-money laundering.

The first barrier to entry facing those who intend to operate a licensed bank is meeting the requirements for authorization. Authorization (licensing) may be effective in keeping out of the system criminal elements of society, the under-resourced, and those who lack the expertise or standing to carry out financial business. It is a particularly important screening method in the most sensitive business of banking and investment which is vulnerable to abuse by criminal or terrorist elements to finance illegal and terrorist operations and

[52] E.g., §165(d) of the Dodd Frank Act 2010 specified in 12 CFR part 243 (Board of Governors of the Federal Reserve System) and 12 CFR part 381 (Federal Deposit Insurance Corporation)requires that bank holding companies with total consolidated assets of $50 billion or more and nonbank financial companies designated by the Financial Stability Oversight Council (FSOC) for supervision by the Federal Reserve periodically submit resolution plans to the Federal Reserve and the Federal Deposit Insurance Corporation. Each plan "must describe the company's strategy for rapid and orderly resolution in the event of material financial distress or failure of the company, and include both public and confidential sections." See Board of Governors of the Federal Reserve System, "Resolution Plans" available at http://www.federalreserve.gov/bankinforeg/resolution-plans.htm

launder money. It can also help evaluate the internal structures that will be employed to manage conduct of business and financial risk. Thus, authorization is central to the prudential regulation of banking. It has been mandatory in Europe since the First Banking Directive of 1977.[53]

The idea is to prevent undesirable activity by obliging those who provide banking services to meet a range of standards and threatening to withdraw approval in the event of any breach of standards.[54] While authorization can be a very powerful tool of control, its success in practice depends on the thoroughness of the vetting and the extent to which the behaviour of those authorized is monitored, and the capacity of the regulatory authority to take disciplinary action against those who infringe standards. There can also be a tension between effective authorisation, on the one hand, and the monopoly effects produced by preventing entry on the other.

The gradual homogenization of bank supervisory powers across the globe does not mean symmetrical supervisory mandates. The priorities, properties, and characteristics of financial systems differ from jurisdiction to jurisdiction and thus they present different challenges for relevant public authorities. The fact that supervisors may not share entirely symmetrical mandates could make cross-border supervision and enforcement problematic, an aggravating factor that operates in addition to the key cross-border supervision problem: the existence of asymmetrical incentives facing host and home supervisors. Divergences, however, are fewer than in the past. According to the BCBS review of its "Core Principles" in 2012 the areas where supervision required to be strengthened were more or less the same as those where regulatory standards have tightened or the regulatory approach is radically

[53] Dir. 77/780/EEC [1977] OJ L322/30.

[54] A. Ogus, *Regulation: Legal Form and Economic Theory* (Oxford, Clarendon, 1994), ch. 10.

altered. In specific, the BCBS review highlighted:

- the need for greater supervisory intensity and provision of adequate resources to deal effectively with systemically important banks;
- the importance of applying a system-wide, macro perspective to the microprudential supervision of banks to assist in identifying, analysing and taking pre-emptive action to address systemic risk;
- the need to place increased focus on effective crisis management, recovery and resolution measures to reduce both the probability and impact of a bank failure
- the need to adopt enhanced focus on improving bank corporate governance and risk management aided by improved financial reporting and external audit.[55]

D. BANK SUPERVISORS' ACCOUNTABILITY

The widespread powers enjoyed by bank supervisors especially in the post-2008 period, both in the context of bank resolution and early intervention and in the ordinary course of discharging their supervisory and enforcement powers ought to be subject to a strict accountability framework. This is especially the case with central banks which in combining monetary policy powers, financial stability (macroprudential), bank supervision (microprudential), and lender of last resort competences have become among the most influential national centres of power, and, in the case of the bigger central banks, burgeoning global institutions.

The demand for accountability for financial regulators goes way beyond a mere review of their supervisory and enforcement decisions and of due process and cuts deep into the democratic edifice and decision-making of modern western societies, notwithstanding the traditional independence enjoyed by the central banks in the

[55] See BCBS, revised "Core Principles", (n 51).

exercise of their monetary powers since the 1990s. Thus, in most systems there is a loose mechanism of political/Parliamentary accountability.

E.g., the activities of the UK regulators are reviewed by the Treasury Select Committee of the House of Commons while the governor and deputy governors of the Bank of England are accountable to the court of the Bank and, in particular, its oversight committee that is an internal body.[56] In addition, Part 6 of the Financial Services Act 2012 (the Act) requires the UK regulators to maintain a complaints scheme for the investigation of complaints arising in connection with the exercise of, or failure to exercise, any of their relevant functions. The regulators are also required to appoint an independent person (referred to from this point as the Complaints Commissioner) to be responsible for the conduct of investigations in accordance with the complaints scheme (the Scheme).[57] But the Scheme merely scrutinizes complaints against the PRA and the FCA in relation to any instance of mistake, unprofessional conduct, unreasonable delay, bias, or lack of integrity on the Authority's part. Complaints about policy or regulatory decisions are not covered.[58]

The accountability framework of the ECB in discharging its supervisory competence, as key part of the SSM, is wider than that of the BoE. Under the SSM Regulation (Article 20 of Regulation (EU) No 1024/2013 (the SSM Regulation)) the ECB in its supervisory capacity is accountable to the European Parliament and the euro members' grouping of the EU Council (the Eurogroup). How the accountability

[56] "The Bank demonstrates its accountability to Parliament principally through the House of Commons Treasury Committee, before which the Governors, Executive Directors and external MPC and FPC members regularly appear. The Bank is overseen by a unitary board of directors, known as Court . . . The Oversight Committee of Court, consisting solely of non-executive directors and supported by an Independent Evaluation Office, reviews and reports on all aspects of the Bank's performance." See Bank of England, "How Are We Governed?" available at http://www.bankofengland.co.uk/about/Pages/governance/default.aspx

[57] See The Bank of England, the Financial Conduct Authority and the Prudential Regulation Authority, Complaints against the regulators, The Complaints Scheme, Updated March 2016.

[58] Ibid. Pt 3.

requirements are to be fulfilled in practice is clarified in an Interinstitutional Agreement between the European Parliament and the ECB[59] and an MoU between the ECB and the European council.[60] The main channels of accountability in this case are Parliamentary hearings and exchange of views in the Eurogroup. Also by means of written questions addressed by members of the European parliament or of the Eurogroup to the chair of the supervisory board and by means of detailed annual reports submitted by the ECB to the European Parliament, the EU Council, the Eurogroup, the European Commission and the national parliaments of participating Member States which explain how it has carried out its supervisory tasks (Articles 20 and 21 of Regulation (EU) No 1024/2013). However, the complexity and in some cases unpredictability of the scenarios in which bank regulators are involved means that frequently political accountability can be very attenuated.

A key issue in this context is whether central banks that enjoyed very strong constitutional safeguards[61] in discharging their monetary policy objectives should continue enjoying this level of independence and immunity now that they discharge

[59] See "Interinstitutional Agreement between the European Parliament and the European Central Bank on the practical modalities of the exercise of democratic accountability and oversight over the exercise of the tasks conferred on the ECB within the framework of the Single Supervisory Mechanism" (2013/694/EU), OJ 2013 L 320/1, 30.11.2013.

[60] "The ECB is therefore accountable for the implementation of that Regulation to the European Parliament and the Council as democratically legitimised institutions representing the citizens of the Union and the Member States". See "Memorandum of Understanding between the Council of the European Union and the European Central Bank on the cooperation on procedures related to the Single Supervisory Mechanism (SSM)", December 2013, Rec. D.

[61] E.g., Art 19 of the SSM Regulation provides: "When carrying out the tasks conferred on it by this Regulation, the ECB and the national competent authorities acting within the SSM shall act independently . . . and shall neither seek nor take instructions from the institutions or bodies of the Union, from any government of a Member State or from any other public or private body . . . The members of the Supervisory Board and the steering committee shall act independently and objectively in the interest of the Union as a whole and shall neither seek nor take instructions from the institutions or bodies of the Union, from any government of a Member State or from any other public or private body."

executive competences carrying out the tasks of bank supervision and resolution.[62] For example, Charles Goodhart has argued before a House of Commons Committee that the Bank of England Court is not the right body to hold the BoE executive accountable with respect to financial stability issues, rather this oversight role is for Parliament and the Government who should hold the Bank accountable for its financial stability decisions.[63] Arguably, PRA resolutions with a microprudential focus should be subject to such Treasury oversight given their importance for national economic growth.

Another much discussed issue is whether macroprudential/financial stability and monetary policy powers should be discharged by the same institution and how there can be an institutional structure that will separate the exercise of the two possibly conflicting remits.[64] In this environment the way supervisors or structured/organized and their internal governance and monitoring processes become as important as outside accountability mechanisms.

[62] See K. Alexander, 'The ECB and Banking Supervision: Building Effective Prudential Supervision?' (2014) 33(1) *Yearbook of European Law* 417-432.

[63] Charles Goodhart, answering q. 148, House of Commons, Oral Evidence taken before the Treasury Committee (n 55). See also Goodhart, "The Macro-Prudential Authority: Powers, Scope and Accountability", Special Paper 203, LSE FMG series, October 2011, pp. 33-34, available at http://www.lse.ac.uk/fmg/workingPapers/specialPapers/PDF/SP203.pdf

[64] Dr Wadhwani, a former member of the Bank of England's Monetary Policy Committee, explained this issue before a House of Commons committee as follows: "If, for example, it turns out that we get another housing boom and the FPC wants to tighten lending requirements and it essentially increases capital requirements, which then widens lending margins and it puts rates up, that will then slow the economy and by slowing the economy might then lead the MPC to expect inflation to undershoot the target. There is then a risk that the MPC responds to this by cutting interest rates, and you then get into this unproductive game. The other issue that this raises is related to accountability, because the FPC might come here and say to you that we did increase capital requirements but we were not successful because the MPC actually cut interest rates. . . . " See House of Commons, Oral Evidence taken before the Treasury Committee, Corrected Transcript of Oral Evidence to be published as HC 874-ii, 23 May 2011, answer to q. 143, available at http://www.publications.parliament.uk/pa/cm201012/cmselect/cmtreasy/874/110323.htm

III. THE CENTRAL BANK AS THE LENDER OF LAST RESORT

A. THE CENTRAL BANK AS A LIQUIDITY PROVIDER TO THE FINANCIAL SYSTEM

(ii) Overview of Central Banks' Liquidity Function and QE

Most central banks act as bankers to the government – with the notable (and lamentable) exception of the European Central Bank - and as providers of liquidity to the economy. The latter can take the form of bond purchases using central bank money, so-called quantitative easing (QE). Moreover, there are a number of circumstances in which a central bank may wish or need to provide reserve money[65] (and other forms of liquidity) to the financial system. This may happen in the following ways:

(a) through open market operations (OMOs), as part of monetary policy implementation if the market faces shortage of reserve money;

(b) by facilitating the functioning of the payments system, especially when it faces any currency (especially foreign currency) demand shocks;

(c) by increasing aggregate supply of reserve money or liquid assets when normal market functioning is disrupted;

(d) by smoothing up the idiosyncratic needs of one bank or of a small group of banks in offering bilateral/idiosyncratic lender of last resort (LOLR) liquidity support at the discretion of the central bank; this is, normally, provided in order to avoid spillover disturbances to the stability of the financial system;

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[65] See Marc Dobler, Simon Gray, Diarmuid Murphy, and Bozena Radzewicz-Bak, "The Lender of Last Resort Function After the Global Financial Crisis" IMF Working Paper, WP 16/10, January 2016, pp 4-6. [Hereinafter IMF, The Lender of Last Resort, 2016].

(e) by acting, as a multilateral – systemic lender of last resort to the financial system - this is a much more rare and less established practice than the bilateral LoLR.

Banks always need a minimum amount of central bank liquidity in order to conduct their business and this is part of their liquidity management operations.[66] The LoLR function of the central bank is in some way the continuation of these operations. But unlike standing facilities like OMOs and discount window lending, the central bank's response to idiosyncratic needs of a banking institution is discretionary, taking, however, into account the fact that in a closed system of reserve supplies, the central bank is the only "port of call" for banks needing extra reserves.[67]

A central bank can never become insolvent in its own currency due to its monopoly of issuing that currency. The LoLR function is therefore derived directly from the central bank's monopoly on issuing legal tender (currency).[68] The central bank is the only institution capable of satisfying any excess demand for safe and liquid assets, to support the banking sector when it faces a liquidity shock and restore

[66] E.g., the Bank of England's Discount Window Facility that may be extended to all participants of the Sterling Monetary Framework (whose membership is not restricted to deposit-taking banks) on the following terms:" The Discount Window Facility (DWF) is a bilateral on-demand facility. It is aimed at banks experiencing a firm-specific or market-wide shock. It allows participants to borrow highly liquid assets in return for less liquid collateral in potentially large size and for a variable term . . . the DWF allows participants to perform a liquidity upgrade of their collateral." See Bank of England, "Extract from the Red Book: The Banks' Current Operations in the Sterling Money Markets – Discount Window Facility", October 2013, available at http://www.bankofengland.co.uk/markets/Documents/money/publications/redbookdwf.pdf and BoE, "Eligibility Criteria for Participation in the Bank of England's Operations under the Sterling Monetary Framework", 5 Nov. 2014, available at http://www.bankofengland.co.uk/markets/Documents/money/documentation/smfterms.pdf

[67] IMF, The Lender of Last Resort, 2016, pp. 5-6.

[68] The classic writings on the LoLR are C. Goodhart and G. Illing, eds., *Financial Crises, Contagion, and the Lender of Last Resort: A Reader* (OUP 2002); H. Thornton, *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain* (London: 1802); W. Bagehot, *Lombard Street – A Description of the Money Market* (New York: 1999 [1873]); C. Goodhart, "Myths about the Lender of Last Resort," in Goodhart and Illing, Financial Crises (2002); C. Goodhart, "What Central Banks Do? –The Changing role of Central Banks" paper presented at the BIS Annual Research Conference, June 2010, Lucerne, Switzerland, available at http://www.bis.org/events/conf100624/goodhartpaper.pdf

financial stability. Thus, in its role as lender of last resort the central bank can prevent the occurrence of a "bad" equilibrium.

Since the time of Bagehot (and Thornton before him) LoLR was based on the understanding that the central bank should lend freely[69] and at a higher than the market interest rate against good and marketable collateral, i.e., to solvent banks. To this effect a bank without good and marketable collateral was deemed to be insolvent. Of course, in practice, central bank lending that charges interest over the market rate may be defeating the purpose of granting such liquidity. First, market prices might have spiked either due to a generalized liquidity shock, or due to doubts about the health of the institution, or more likely, category of institutions, that require a liquidity injection.[70] Secondly, Bagehot's reference to "penalty rates" was not just in order to contain moral hazard but critically it was based on a desire to protect the money stock under the Gold Standard[71] from an emergency expansion of credit. Clearly, the many ways employed to create claims and counterclaims in modern financial systems and the limited use of notes for payments take away a serious part of the foundation of the "penalty rates" rationale.

Moreover, distinguishing between illiquidity and insolvency is not a straightforward exercise even in view of a strict adherence to the guidance offered by

[69] Bagehot, *Lombard Street*, p. 78, 88. As Bagehot put it: "Theory suggests, and experience proves, that in a panic the holders of the ultimate Bank reserve (whether one bank or many) should lend to all that bring good securities quickly, freely, and readily. By that policy, they allay a panic; by every other policy they intensify it." *Lombard Street* Id. 78.

[70] Lending at around and possibly below markets rate, but above the Central Bank target interest rate, could be obtained through the so-called discount window by banks that have exhausted all other possible options, though to battle moral hazard it is the strongest institutions that have access to lower than market rates. For the history of the Federal Reserve's "discount window" facility" and its many transformations see Federal Reserve Bank of New York, "The Discount Window", May 2015, available at https://www.newyorkfed.org/aboutthefed/fedpoint/fed18.html This opportunity is no longer available as more recent legislation has banned the Fed from lending at below market rates.

[71] See also Gayane Oganesyan, "The Changed Role of the Lender of Last Resort - Crisis Responses of the Federal Reserve, European Central Bank and Bank of England", Institute for International Political Economy Berlin, WP 19/2013, pp. 2-4, available at http://www.ipe-berlin.org/fileadmin/downloads/working_paper/ipe_working_paper_19.pdf.

bank capital ratios, because asset valuation is an inexact science and recovery rates for distressed assets could depend on uncertain macroeconomic conditions. Even the qualification about marketable collateral has come under scrutiny. Since 2008 a consensus has been reached that even where there is good (i.e., not distressed) collateral that is, however, not marketable, the central bank should not shrink from its role as liquidity provider to the banking system. On the contrary, in such a case the central bank can still provide liquidity by offering a price for the asset, including a haircut, to secure central bank's interests, with the central bank essentially acting as a market maker of last resort. Arguably, at this stage the boundaries between LoLR support and QE become blurred and the two activities virtually indistinguishable. [72]

The above observation explains why there is often confusion between LoLR operations and asset repurchase programmes run by central banks, so-called Quantitative Easing (QE). To some extent, the confusion is justified. First, in both cases the goal of central bank liquidity injections is to smooth up liquidity shocks faced in different parts of the economy and the furthering of monetary policy. Secondly, as mentioned earlier, when the central bank buys asset backed securities from the banks whether it is a straightforward liquidity injection to the financial system and the economy or in performance (much more rarely) of systemic lender of resort duties, QE and LoLR liquidity become indistinguishable giving rise to a host of policy questions. Apart from asset valuation concerns associated with QE, for many

[72] For BOE's special lending facilities initiated in 2009 (and most closed down in 2012), which broadened the range of collateral and began to target liquidity stress in the markets in general see Oganesyan, The Changed Role of the Lender of Last Resort, Ibid. pp.18-20, available at http://www.ipe-berlin.org/fileadmin/downloads/working_paper/ipe_working_paper_19.pdf. In the process BoE's Asset Purchase Facility which turned it to a market maker and buyer of last resort became undistinguishable from QE operations. *Id.*

QE is public debt support mechanism[73] and a fiscal tool as much as a monetary policy mechanism.[74]

On the other hand, there are also fundamental differences between QE and the LoLR facility, excluding the scenario where the central bank outrightly buys asset backed securities as a buyer of last resort. First, in conducting QE operations central banks use their balance sheets as requisite transactions amount to outright purchases of assets by the central bank, whereas, LoLR liquidity provision is (over-) collateralised and thus, in principle, it is balance sheet neutral as far as the central bank is concerned. Secondly, QE is, in practice a supplement of national economic (fiscal) policy, directly targeting economic growth goals, rather than merely acting as a targeted stabilising mechanism for parts of the financial system as the LoLR does. Thirdly, QE can result in asset price inflation, whereas LoLR assistance, when it merely amounts to liability substitution - whereby LoLR money replaces fleeing bank creditors (e.g., the role of ELA more or less) - should not result in any appreciable upwards price pressures even when it is used as an avoidance of firesales mechanism.

(ii) The Key Rationale for a LoLR for Banks

There are, in general, two rationales for the use of LoLR funding: financial stability and transmission of monetary policy. An impaired financial system cannot be used to

[73] In a way QE is monetary financing since the central bank itself sets the upper boundary for the price of public debt eradicating market discipline. See A. Johnson, T. Pugh, "The Law and Economics of Quantitative Easing", Sheffield Institute of Corporate and Commercial Law Working Paper Series, July 7, 2014.

[74] QE is a way to support asset prices and thus maintain existing levels of wealth and avoid serious private wealth losses. This is a good policy to support current levels of economic activity, avoid exponential growth of NPLs and a debt overhang, prevent a precipitous fall of tax revenue, while possibly stimulating, due to cheap credit (low interest rates new economic activity. But there are serious risks, especially as regards asset inflation. On QE's function as regards wealth protection see Alan Blinder, *After the Music Stopped: The Financial Crisis, the Response, and the Work Ahead* (New York: Penguin Press, 2013), p. 94.

implement/transmit monetary policy in the same way as in normal times.[75] Of course, these are overlapping rationales since provision of sufficient liquidity to the banking sector to secure financial stability ultimately also serves to implement monetary policy and secure price stability.[76] As a result, the fundamental objective of provision of funding by the central bank either as bilateral LoLR or on a multilateral basis is preservation of financial stability and not the viability of insolvent financial institutions.

Bilateral LOLR is needed when an individual financial institution's demand for liquidity may stem from that institution encountering immediate problems (such as deposit outflows or inability to roll over wholesale funding). It could also be a group of similar institutions facing such liquidity difficulties—perhaps banks with similar business models or geographical focus.[77] The rationale for a bilateral LoLR function is quite similar with that underpinning deposit insurance and has direct reference to the idiosyncratic way, compared with other financial intermediaries, banks fund asset creation.[78] Namely, banks finance long-term illiquid and often non-marketable assets through short-term liabilities, which are deemed to be exchangeable at any time for legal tender at their nominal value, absent a bail-in. This balance sheet structure and the fact that banks maintain a fraction of their deposits as reserves, makes banks

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[76] IMF, The Lender of Last Resort, p. 8.

[76] Price stability is of courses the ultimate goal of OMOs.

[77] "The terms "LOLR", "Emergency Liquidity Assistance" (ELA), and "Exceptional Liquidity Assistance" are mostly used interchangeably yet in certain cases they have specific meanings based on whether the central bank extends liquidity as a bilateral or multilateral measure . . . The use of the term Exceptional Liquidity Assistance appears to be more defined. "The word 'exceptional' rather than 'emergency' is used by some central banks when, for example, the liquidity-stressed banks may require prolonged assistance and not just temporary support." See IMF, The Lender of Last Resort, 2016, pp. 8-9 and note 15.

[78] For an excellent early exposition of this rationale in a (term) portfolio management context see C. A. E. Goodhart, "Why Do Banks Need a Central Bank?" 39(1) *Oxford Economic Papers* (Mar., 1987), pp. 75-89.

fragile.[79] Their economic survival depends, to a large extent, on the expectations of their depositors and other creditors that a bank can always meet its liabilities. A sudden loss of confidence and fears of bank insolvency will first give rise to a bank run. Large deposit withdrawals can drive an otherwise solvent (fractional reserve) bank into, first, illiquidity, and secondly, default. Namely, as the IMF puts it, banks are exposed to possible multiple equilibria brought about by self-fulfilling expectations, which can bring the bank down.[80]

A run on bank deposits that may not be stemmed by the assurance offered by deposit insurance[81] would also translate into preceding or ensuing inability of the affected bank/banks to obtain liquidity from other banks; the bank in question will most probably have been frozen out from the interbank market. In fact, if the crisis affected a number of institutions, the interbank market itself and other sources of wholesale funding might have collapsed. In such cases, banks may only generate liquidity through sales of performing assets at discounted prices. But firesales can take place at prices below fundamental value when market conditions are anomalous and macroeconomic prospects uncertain (e.g. as is the case right now in a number of Eurozone countries). In this scenario selling banks accumulate losses which will not only aggravate the downward liquidity spiral for similar assets but might also threaten

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[79] D. Diamond and P. Dybvig, "Bank Runs, Deposit Insurance and Liquidity" (1983) 91 *Journal of Political Economy* 401-419;

[80] See J.-C. Rochet and X. Vives, "Coordination Failures and the Lender of Last Resort – Was Bagehot Right after all?" (2004) 6(2) Journal of the European Economic Association 1116-1147; F. Allen and D. Gale, *Understanding Financial Crises* (Clarendon Lectures in Finance) (Oxford University Press, 2009).

[81] E.g "Electronic bank-runs" triggered by institutional depositors, money market funds, or other banks not protected by government deposit guarantees and where deposits can usually be withdrawn in a very short period of time remain problematic inspite of deposit insurance. See H.-S. Shin, "Reflections on Northern Rock: The Bank-Run that Heralded the Glob- al Financial Crisis," (2009) 23(1) *Journal of Economic Perspectives* 101-109.

the bank's solvency.[82] If the liquidity shock affects a number of banks and they all start selling similar assets at the same time, the stability of the financial system as a whole will come under threat.[83] Of course as illiquidity is also a matter of structuring a bank's funding model. E.g., one of the main benefits of the new liquidity ratios (Liquidity Cover Ratio and Net Stable Funding Ratio)[84] is that, by curbing over-reliance on wholesale funding, recourse to central bank money may become less frequent. But this assumption remains to be tested in practice.

(iii) Systemic Lender of Last Resort at the Central Bank's Initiative

In the case of market-wide shocks, the financial system as a whole may face an increased demand for liquid reserves. In such a situation, the central bank is more likely to provide reserves on a multilateral basis through an auction-type mechanism. Liquidity is provided at the initiative of the central bank in response to a systemic increase in demand due to a market crunch. In response to this need the central bank may have to change the terms on which OMOs are provided, by lengthening the tenure and expanding the kind of collateral accepted. Systemic conditions may even necessitate the creation of new facilities as normal OMOs may not provide sufficient. For example, during the global financial crisis (GFC), the US Federal Reserve rolled over a Term Auction Facility (TAF) as an effective mechanism, to expand the Fed's

NB: It is, however, wrong to say that an example of this was Northern Rock. While there was indeed an electronic run on Northern Rock deposits which crashed the bank's systems and intensified the run, the true cause of the run was the inadequate cover of the UK's deposit insurance scheme, which was reformed immediately after the event.

[82] M. Brunnermeier and L. H. Pedersen, "Market and Funding Liquidity" (2008) 22 *The Review of Financial Studies* 2201–2238; S. Morris, and H.-S. Shin, "Liquidity Black Holes," (2004) 8(1) *Review of Finance* 1–18.

[83] C. Goodhart, M. Brunnermaier *et al*., *The Fundamental Principles of Financial Regulation.* Geneva Reports on the World Economy, Centre for Economic Policy Research (CEPR), 2009.

[84] E.g., see BCBS, "Basel III: The Net Stable Funding Ratio", final version, October 2014, available at http://www.bis.org/bcbs/publ/d295.htm

OMO counterparties well beyond the normal small group of (non-bank) Primary Dealers, allowing thus deposit taking institutions to take part and bid for funds.[85]

Where such facilities prove insufficient to meet all market needs because of credit risk concerns involved in on-lending funds to non-banks other methods/instruments may be introduced. Collateral limitations within the Eurosystem made the systemic provision of liquidity by the European Central Bank (ECB) through LTROs ineffective in satisfying extra-ordinary liquidity needs. Thus, where possible the ECB relaxed its collateral restrictions or created new (ad hoc) liquidity lines. A good example of this is the ECB's institution of asset backed purchase programmes and gradual relaxation of eligible collateral[86] and extension of eligibility to non-marketable collateral[87] as well as expansion of its LTROs to offer targeted longer-term maturity funding through so-called Targeted- LTROs.[88]

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[85] FRB describes this use of TAF as follows: "[t]he TAF enabled the Federal Reserve to provide term funds to a broader range of counterparties and against a broader range of collateral than it could through open market operations. As a result, the TAF helped promote the distribution of liquidity when unsecured bank funding markets were under stress. It also provided access to term credit without the stigma that had been associated with use of the discount window . . . TAF, is available only to institutions that are financially sound. All loans extended under the TAF were fully collateralized .. . participating depository institutions placed bids specifying an amount of funds, up to a pre-specified limit, and an interest rate that they would be willing to pay for such funds. See Board of Governors of the Federal Reserve System, Term Auction Facility (TAF), Release of 1 Dec. 2010, available at https://www.federalreserve.gov/newsevents/reform_transaction.htm. TAF auctions took place for the entire period between December 2007 and April 2010. For the extraordinary measures the FRB took to pump liquidity during the crisis into banks and the financial system more generally see FRB, "Usage of Federal Reserve Credit and Liquidity Facilities", updated 9 December 2013, available at https://www.federalreserve.gov/news
events/reform_transaction.htm

[86] For the latest ECB Covered Bonds Purchase Programme see Decision ECB/2014/45, Guideline ECB/2014/60, Decision ECB/2014/40) and Guideline ECB/2007/9 (ECB/2014/31) and Decision on the implementation of the asset-backed securities purchase programme (ECB/2014/45).

[87] Three types of non-marketable assets are eligible as collateral: fixed-term deposits from eligible counterparties, credit claims, and non-marketable retail mortgage-backed debt instruments. For a full list of ECB decision on eligibility of non-marketable collateral see ECB, Collateral, Eligibility Criteria and Assessment, Non-marketable assets, available at
http://www.ecb.europa.eu/paym/coll/standards/nonmarketable/html/index.en.html#assessment

[88] See Decision of the ECB of 29 July 2014 on measures relating to targeted longer-term refinancing operations (ECB/2014/34).

The aforementioned functions mean that central banks have added to their traditional role as bilateral lenders of last resort a new role as systemic lenders of last resort. The rationale for this is clear. As already mentioned, even an idiosyncratic liquidity event suffered by an individual lender may not be resolved without the bank resorting to a sale of its (performing) assets at a deep discount (firesales), which can build up momentum to such an extent as to become a systemic risk. The LoLR can act to prevent firesales. So central bank liquidity may be offered on a more systematic way and not just on a bilateral basis to prevent a system-wide liquidity shock and widespread firesales of performing assets – avoiding thus the controversy surrounding non-performing loans (NPLs), which are normally a solvency issue. But, provision of liquidity to the financial system in this more generalized way (e.g., the ECB's Long Term Refinancing Operation (LTRO))[89] has widened the role of the Central Bank as a LoLR and has amended the modalities of operation of this function.

B. CONDITIONS FOR EXTENSION OF LoLR LIQUIDITY

(i). Rules vs discretion and the pre-resolution stage

The key considerations a central bank is likely to face in sanctioning the provision of LoLR liquidity are two-fold: normative (philosophical) and operating. The normative considerations relate to i) protection of the CB's balance sheet; and (ii) minimizing moral hazard. The discretionary extension of liquidity disbursement under extra-ordinary conditions, normally referred to as "constructive ambiguity", is considered, alongside "penalty rates", and the perceived "stigma" suffered by the borrowing institution,[90] as a potent mechanism to counter moral hazard and prevent banks from

[89] The Eurosystem's regular open market operations consist of one-week liquidity-providing operations in euro (main refinancing operations , or MROs) as well as three-month liquidity-providing operations in euro (longer-term refinancing operations , or LTROs). See ECB, "Open market operations", available at https://www.ecb.europa.eu/mopo/imp
the World Economy 11, (2009).

taking serious liquidity risks with their balance sheet. As this argument goes, the only universally accepted rule should be that the LoLR is extended to a viable entity and thus the central bank must conduct a thorough review of the viability of the borrower, which should include thorough consideration of the borrower's business model and its ability to generating sufficient cash flow to replay LoLR loans and borrower's present capital conditions and future capital requirements.

Where the rules versus discretion dilemma will play a dramatic role is of course when a bank enters the pre-resolution/early intervention stage. In this context the new discussion about banks having sufficient Total Loss Absorbing Capacity (TLAC)[91] or Minimum Requirements of Eligible Liabilities[92] to be bailed-in so that bank losses in resolution may be covered is most relevant. The EU BRRD provides that banks enter resolution at the point of non-viability (Arts 32, 59 BRRD). If this point of non-viability is very narrow or very uncertain LoLR liquidity that would be of vital importance at this stage may be withheld. So if the central bank does not retain reasonable discretion to extend liquidity to an otherwise viable bank this bank, will certainly be pushed into resolution. But then, we run the risk of forcing into resolution more banks than is strictly necessary or socially efficient. I discuss further

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[90] See Ian Plenderleith, "Review of the Bank of England's Provision of Emergency Liquidity Assistance in 2008-9", October 2012, p. 75, available at ews/2012/cr1plenderleith.pdf" http://www.bankofengland.co.uk/publications/Document/news/2012/cr1plenderleith.pdf

[91] The TLAC standard defines a minimum requirement for the instruments and liabilities that should be readily available for bail-in within resolution of Globally Systemically Important Banks (G-SIBs). The TLAC standard has been designed so that failing G-SIBs will have sufficient loss-absorbing and recapitalisation capacity available in resolution for authorities to implement an orderly resolution that minimises impacts on financial stability, maintains the continuity of critical functions, and avoids exposing public funds to loss. See FSB, "Total Loss-Absorbing Capacity standard for global systemically important banks", 9 November 2015, available at http://www.fsb.org/wp-content/uploads/20151106-TLAC-Press-Release.pdf

[92] Maintenance by banks (not just G-SIBs) of a minimum requirement for own funds and eligible liabilities (MREL) is meant to complement the bail-in mechanism laid down by the BRRD. See EBA, "Interim Report on MREL", 19 July 2016, available at https://www.eba.europa.eu/documents/10180/1360107/EBA+Interim+report+on+MREL

the matter of LoLR funding at the early intervention/ore-resolution stage in section IV.B below, where I argue that it is preferable to judge non-viability by reference to a simple criterion like unweighted leverage ratios rather than TLAC or MREL based on risk-weights, offering the central bank certainty.

Lack of any clear (save binding) framework can create delays in extension of liquidity that might be essential for the viability of the institution concerned. Moreover, the "stigma" effect[93] that is attached to disclosure of the institution's decision to seek LoLR assistance should not be exaggerated to the point of preventing the troubled institution to resort to LoLR liquidity when it requires it. Not only such publicity might negate the beneficial impact of the LoLR policy[94] and increase solvency stresses for the entire economy. As Ben Bernanke has put it[95]:

> [The] stigma problem . . . affects everyone, not just the potential borrower. If financial institutions and other market participants are unwilling to borrow from the central bank, then the central bank will be unable to put into the system the liquidity necessary to stop the panic. Instead of borrowing, financial firms will hoard cash, cut back credit, refuse to make markets, and dump assets for what they can get, forcing down asset prices and putting financial pressure on other firms. The whole economy will feel the effects, not just the financial sector.

For this reason, central banks must also be very careful in managing disclosure in the

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[93] The "stigma" effect is described as follows by Ben Bernanke, former chairman of the US Federal Reserve: "if the financial institution believes that its borrowing from the central bank will become publicly known, it will be concerned about the inferences that its private-sector counterparties will draw. It may worry, for example, that its providers of funding will conclude that the firm is in danger of failing, and, consequently, that they will pull their funding even more quickly. Then borrowing from the central bank will be self-defeating, and firms facing runs will do all they can to avoid it. This is the stigma problem . . ." See Ben Bernanke, "Warren-Vitter and the lender of last resort", Brookings blogs, 15 May 2015, available at https://www.brookings.edu/blog/ben-bernanke/2015/05/15/warren-vitter-and-the-lender-of-last-resort/

[94] IMF, The Lender of Last Resort 2016, p. 44.

[95] Bernanke (n 93).

event of a bank accessing LoLR liquidity, in order not to trigger a full blown panic and worsen the bank's liquidity problems.

Differing views on the stigma effect also underlie a sharp division between those who favour a rules-based approach to the provision of the LoLR facility and those who favour "constructive ambiguity". The former argue that LoLR must be based on a clear framework which should bind the central bank to a pre-determined set of rules, reflecting Bagehot's and Thornton's principles. It should be noted that the divide between the two approaches runs deep and it is not just restricted to the LoLR but runs through the entire spectrum of exercise of monetary policy by the Central bank. The rules-based approach also raises interesting issues about the central bank's compliance with rule of law,[96] when extending LoLR liquidity. Nonetheless it is less flexible and all-encompassing than the discretionary approach and thus, it is unclear, how it would fare in the event of generalized crisis like the GFC. Either way, as the IMF holds whether discretionary or rules-based LoLR provision of liquidity in response to an idiosyncratic need should only be contemplated when other funding solutions have first been fully explored.

Naturally, the existence of systemic and pre-committed liquidity facilities has of course diluted the meaning of "constructive ambiguity.[97] Notably, the IMF advises against a very strict approach and in favour of the middle road. The IMF suggests that the central bank should have discretion in deciding whether or not to meet the emergency liquidity needs of individual institutions. But it should also possess the

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[96] See Lawrence H. White, "The Federal Reserve and the Rule of Law", Testimony, Subcommittee on Monetary Policy and Trade House Committee on Financial Services, 12 Sept. 2013, available at mony/federal-reserve-rule-law" http://www.cato.org/publications/testi
mony/federal-reserve-rule-law

[97] Plenderleith Review, p. 98 (n 90).

ability and discretion (but not the obligation) to widen the operational parameters of LoLR beyond banks and against a wider than normal collateral list.[98]

(ii) Operating conditions

LoLR's operating considerations normally relate to the appropriate length of support, how best to meet any foreign exchange (FX) needs/payments, and the identification of so-called "good" collateral. Collateralised lending by the central bank can be very effective in providing cash to institutions that need liquidity. Depending on the nature of the shock, the demand may, at times, be for reliably liquid securities that can be used as collateral in market transactions. Nonetheless, it is also possible that the institution concerned may need term funding (i.e., longer term liabilities) or funding in foreign currency rather than cash in the legal tender.

Either way, collateral is taken both to reduce risk to the central bank and to limit the amount of primary recourse to the borrower. The borrower's liability is not affected by the performance of the collateral nor does it change the borrower's credit exposure to the collateral. If the central bank also acts as the bank supervisor it will, of course, have unparalleled access to the bilateral borrower's data and is the best placed institution to answer relevant questions and meet the challenges.

When it comes to provision of liquidity on a multilateral basis the central bank may be aided by the government and the deposit guarantee scheme. E.g., after the collapse of Lehman Brothers, in addition, to the Troubled Asset Relief Programme (TARP) – a government bad bank cum bank recapitalisation vehicle – the US government initiated the use of asset swaps for the purpose of liquidity provision. The government via a Debt Management Office could provide the market with liquid government securities against less liquid assets, for a fee. Moreover, the U.S. Federal

[98] IMF, The Lender of Last Resort 2016, pp. 18-22.

Deposit Insurance Corporation (FDIC) created the Temporary Liquidity Guarantee Program, which allowed it to guarantee the payment of some senior unsecured debt securities newly issued by commercial banks, and also selected non-interest-bearing transaction accounts, for a fee.[99] It expired on 31 December 2010.

Finally, provision of liquidity at pre-post- and intra-resolution stage will remain contentious. Normally, LoLR liquidity will be provided as part of a host of measures taken to stabilise the institution in question. But LoLR assistance and other financial stability measures may not prove enough to prevent the bank from entering resolution. The UK has a clear liquidity assistance framework in liquidation that provides for the possibility of the Treasury having to indemnify the Bank of England if it incurs a loss in funding a bank under resolution (e.g., the bridge bank).[100] Of course, if the central bank offers some liquidity to fund resolution, this funding may not qualify as LoLR financing but as state aid or the central bank may require high-grade collateral. But as by then some of the bank assets will be impaired the exact scope, if any, for offering central bank liquidity to a bank that enters into resolution, remains uncertain, especially in the absence of a state indemnity, which would, nonetheless, amount to state aid. So financing resolution by the central bank will remain a vexed issue.[101]

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[99] FDIC, "Temporary Liquidity Guarantee Program", available at https://www.fdic.gov/regulations/resources/tlgp/

[100] See HM Treasury, "Banking Act 2009: Special Resolution Regime Code of practice", 12 March 2015, available at https://www.gov.uk/government/publications/banking-act-2009-revised-special-resolution-regime-code-of-practice
Commission Delegated Regulation (EU) 2015/63 of 21 October 2014 supplementing Directive 2014/59/EU of the European Parliament and of the Council with regard to ex ante contributions to resolution financing arrangements OJ 2015 L 11/44, 17.1.2015

[101] See E. Avgouleas, C. Goodhart, "Critical Reflections on Bank Bail-ins" (2015) 1 *Journal of Financial Regulation* 3-29, pp 9, 14. IMF argues that "[b[ilateral LOLR to entities which may not be solvent should be fully indemnified by the government, in order to protect the CB balance sheet." IMF, The Lender of Last Resort 2016,

IV. THE UNCERTAIN SCOPE OF THE LOLR FACILITY

C. WHAT IS DEBATED?

(i) Overview

The most contentious of all actions taken by central banks during the financial crisis were the extension of huge sums in liquidity assistance to both licensed banks and non-bank financial institutions. Arguably, those actions helped prevent a global economic and financial meltdown. But they also triggered intense public debate about the appropriate scope and nature of central bank powers. One strand of this debate is led by those who feel that central banks lent 'too much' and too often or too freely during the crisis, using public money – so the allegations go – to support institutions of dubious solvency, sometimes in secret, protecting bankers from their own mistakes, and thereby stocking moral hazard for the future.[102] The main policy conclusion from such thoughts is that central banks' LOLR activities should be constrained. But another strand in the debate draws the opposite conclusion from the crisis – focusing on the risk that central banks might lend 'too little', too rarely or too late, amplifying what might begin as short-term liquidity shortages into deeper or more persistent solvency concerns, and subsequently causing financial institutions to over-insure, reducing their capacity to lend. These (deliberately stylised) perspectives seem diametrically opposed.[103] National debates have tended to lean one way or the other, depending on each country's specific crisis experiences. But, in truth, it is vital

[102] Hauser, Between Feast and Famine (n 33).

[103] Ibid.

we pay heed to both.[104] The main policy conclusion from the overall debate is that central banks need stronger toolkits for detecting and responding to liquidity crises.

In many countries bilateral LOLR is limited to banks based on the 'banks are special' argument which centres on importance of fractional reserve banks as a provider of liquidity on demand[105] to the economy and the fact that deposit taking may only be undertaken by institutions licensed to do so and which are appropriately regulated and supervised. But, as explained in section IV.B below an unduly restrictive approach to the use of LoLR assistance is not in line with the needs of key market operators like Central counterparties whose systemic importance was boosted by regulation and not by choice and the structural characteristics of repo markets. Moreover, a restrictive approach of the employment of the LoLR facility may oblige the central bank to discharge its different competences in an inconsistent way whereby the macroprudential mandate to preserve financial stability will not be served by one of the most potent tools available to the central bank (after smart, adaptable, and diligent supervision), the liquidity supply function.

A classic example of this is ECB's decision to discontinue the provision of ELA to Greek banks in June 2015.[106] Though ELA in the Eurozone is dispensed only to solvent banks that face temporary liquidity needs,[107] as it should. But Greek banks'

[104] IMF Last Resort, 2016, p. 10.

[105] On the role of fractional reserve banking (notwithstanding their ability to create private money – which during various historical periods has been seen both with skepticism or outright hostility, including in the aftermath of the Great Crash 1929 and during and after the GFC) see Emilios Avgouleas, "Large Systemic Banks and Fractional Reserve Banking, Intractable Dilemmas in Search of Effective Solutions" in R. Buckley, Avgouleas, D. Arner (eds), *Reconceptualising Global Finance and its Regulation* (CUP, 2016), ch. 14.

[106] See Martin Götz, Rainer Haselmann, Jan Pieter Krahnen, Sascha Steffen, "Emergency Liquidity Assistance and Greek banks' Bankruptcy", Voxeu.org 25 September 2015, available at http://voxeu.org/article/emergency-liquidity-assistance-and-greek-banks-bankruptc. See also available

[107] Art. 14.4 of the Statute of the ECB. See also for clarification on the condtions under which ELA is granted in the Eurozone ECB, "ELA PROCEDURES - (the procedures underlying the Governing

had passed pan-European stress tests during the course of 2014 and had been recapitalized in the course of 2013-4. ECB's decision was justified on concerns of sovereign solvency and the impact of that on the solvency of Greece's banks. The ensuing capital controls and limits on withdrawal of deposits proved successful to stem a gigantic bank run that had started in December 2014. After the acceptance of a new bailout package by the Greek government ELA was restored.[108] So on grounds of financial stability ECB's decision was never properly scrutinized but had it been taken outside the context of a sovereign debt crisis it would have been deemed as highly controversial as the big Eurozone banks had been placed under ECB supervision since January 2015 via the SSM.

(ii) The US Perspective

Section 13(3) of the Federal Reserve Act (12 U.S.C. 344) to extend credit to nonbank financial firms was used in 2008 the first time since the 1930s. Section 13(3) afforded the Federal Reserve with greater flexibility than its normal lending authority. Using this authority, the Fed created six broadly based facilities (of which only five were used) to provide liquidity to "primary dealers" (certain large investment firms) and to revive demand for commercial paper and asset-backed securities. More controversially, the Fed provided special, tailored assistance exclusively to four firms that the Fed considered "too big to fail"— American International Group (AIG) whose derivatives trading subsidiary was badly exposed in the Credit Default Swaps

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Council's role pursuant to Article 14.4 of the Statute of the European System of Central Banks and of the European Central Bank with regard to the provision of ELA to individual credit institutions)", available at https://www.ecb.europa.eu/pub/pdf/other/201402_elaprocedures.en.pdf?10cc0e926699a1984161dc21722ca841

[108] See Mario Draghi, President of the ECB, "Introductory statement to the press conference (with Q&A) Frankfurt, 16 July 2015 available at https://www.ecb.europa.eu/press/pressconf/2015/html/is150716.en.html

(CDS) market, Bear Stearns (a broker-dealer), Citigroup, and Bank of America,[109] by means of a series of structured credit lines enabling the transfer of distressed assets. AIG's scheme proved particularly successful and profitable,[110] though all such schemes did amount to a covert bailout and in the case AIG that privilege extended to firms that benefited from AIG's avoidance of bankruptcy, chief of which was Goldman Sachs.[111]

All credit extended under Section 13(3) was repaid with interest and all Section 13(3) facilities expired in due course. So contrary to popular belief, the Federal Reserve did not suffer any losses on transactions authorized by Section 13(3), on the contrary, it earned profits of more than $30 billion. On the other hand, these transactions exposed the taxpayer to greater risks than traditional lending to banks through the discount window because in some cases the terms of the programmes had fewer safeguards. [112] The Fed's use of Section 13(3) in the crisis raised fundamental policy questions and led to a debate that was much more heated in the USA than in other parts of the world.[113] In part the reason for the over-politicization of the LoLR debate in the USA goes way beyond the quasi-bailouts mounted by the Fed in 2008,

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[109] See Marc Labonte, "Federal Reserve: Emergency Lending", Congressional Research Service 7-5700, January 6, 2016. Credit outstanding (extended in the form of cash or securities) authorized by Section 13(3) peaked at $710 billion in November 2008. Id.

[110] Serena Ng and Al Yoon, "Taxpayers Win as Fed Wraps AIG Bond Sale" 29 Feb. 2012, available at http://www.wsj.com/articles/SB10001424052970203833004577251771848140502

[111] Richard Teitelbaum, "Secret AIG Document Shows Goldman Sachs Minted Most Toxic CDOs" Bloomberg, available at http://www.bloomberg.com/news/articles/2010-02-23/secret-aig-document-shows-goldman-sachs-minted-most-toxic-cdos

[112] Labonte, Federal Reserve: Emergency Lending (n 109).

[113] These were in summary: Should the Fed be lender of last resort to banks only, or to all parts of the financial system? Should the Fed lend to firms that it does not supervise? How much discretion does the Fed need to be able respond to unpredictable financial crises? How can Congress ensure that taxpayers are not exposed to losses? Do the benefits of emergency lending outweigh the costs, including moral hazard? How can Congress ensure that Section 13(3) is not used to "bail out" failing firms? Should the Fed tell Congress and the public to whom it has lent? Ibid.

they are rather in accord with historical opposition in the USA to the existence of a central bank and the arbitrary monetary conditions this can create. The USA did not have a central bank since President Andrew Johnson let the charter of the Second Bank of the United States to lapse in 1836 and up to 1913. The establishment of the Federal Reserve System in 1913 was largely as a result of the 1907 banking panic and it was neither smooth nor uncontroversial. [114] Objections remained based on two grounds. First, they reflected a disdain for the political influence that such a powerful institution that would not be run by elected politicians would exert. Secondly, they reflected deeply held suspicions among the American polity about the role of the central bank in manipulating the money supply and concerns about any support the central bank would offer to fractional reserve banks which played an important role in private money creation, even under the Gold standard.

Since the restrictions in Section 13(3) placed few limits on the Fed's actions in 2008, the Dodd-Frank Wall Street Reform and Consumer Protection Act (P.L. 111-203) added a number of restrictions to Section 13(3) liquidity provision, attempting to ban future assistance to failing firms while maintaining the Federal Reserve's ability to create broadly based facilities. On December 18, 2015, the Fed promulgated a final rule implementing these changes.[115] Arguably, the qualification that Section 13(3) must be used "for the purpose of providing liquidity to the financial system" is a reasonable one and essential to prevent abuses in dispensing Central bank liquidity.

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[114] See Neil Irwin, "The Federal Reserve" **21** Dec. 2013, *Wash. Post*, available at https://www.washingtonpost.com/news/wonk/wp/2013/12/21/the-federal-reserve-was-created-100-years-ago-this-is-how-it-happened/ See also "The Second Bank of the United States (1816-1836)", available at http://www.let.rug.nl/usa/essays/general/a-brief-history-of-central-banking/second-bank-of-the-united-states-(1816-1836).php

[115] FRS, "Extensions of Credit by Federal Reserve Banks", final rule, 12 CFR Part 201 Regulation A; Docket No. R-1476 RIN 7100-AE08, 30 Nov. 2015, available at https://www.federalreserve.gov/newsevents/press/bcreg/bcreg20151130a1.pdf

But the qualification that access to emergency lending will be restricted to depositary institutions is not.

On November 19, 2015, Fed Oversight Reform and Modernization Act of 2015 was passed by the House.[116] Section 11 of the 2015 Act requires the approval of three-quarters of the Fed regional presidents to activate Section 13(3), tightens the definition of solvency, limits borrowers to financial firms, and provides a formula for setting the interest rate above market rates. New legislation has also increased transparency requirements and the (political) accountability framework governing the LoLR function.[117]

Federal Reserve Chair Janet Yellen contended that the bill would "essentially repeal the Federal Reserve's remaining ability to act in a crisis." Also a Fed governor has opposed further reducing the Fed's discretion under Section 13(3) on the grounds that the Fed needs "to be able to respond flexibly and nimbly" to threats to financial stability.[118] While the effective rescues of AIG et al, as discussed above, might have been highly controversial, this view carries more weight than it appears at first glance both within and outside the US context. The structural intricacies of modern financial markets, especially of short-term funding, and the needs of modern financial infrastructure, as augmented by reform legislation in the field of derivatives markets, mean that the LoLR must be wider rather than narrower if the macroprudential mandate of the central bank is to be attained.

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[116] H.R.3189 - 114th Congress (2015-2016).

[117] FRS, "Extensions of Credit by Federal Reserve Banks", final rule.

[118] Labonte, Federal Reserve: Emergency Lending (n 107).

B. WHAT IS THE PROPER SCOPE OF THE LLR FACILITY?

(i) Pre-resolution Use of the LoLR

A natural extension of bank supervisors' monitoring powers is the right to engage early with a troubled institution, in a rather interventionist way, a process known as early intervention or Prompt Corrective Action (e.g., Articles 28-29 BRRD). Regulatory actions here to protect financial stability are part of a broader financial safety net comprising deposit insurance; capital, liquidity and other regulatory requirements (i.e., responsibilities in tandem with the safety net provision); and access to CB liquidity facilities. So it is hard to see how, in practice, the central bank will be able to legitimately deny LoLR support while at the same time it is trying to help the bank meet its capital and liquidity requirements to avoid resolution.

On the other hand, is not right for the central bank to continue dispensing liquidity to a bank that is clearly beyond the sustainability point, i.e., it has eaten up its capital buffers, as the ensuing central bank claim will impose an additional burden on bank creditors in the course of a mandatory bail-in. This was clearly the case with the continuous supply of ELA to Laiki bank in Cyprus to sustain the bank beyond the national presidential election.[119] Not only Laiki was dissolved in the end but also the continuous substitution of unsecured liabilities by central bank money that are exempt

[119] Various sources described the continuation of the provision of ELA to Laiki Bank as follows: "he country´s second largest commercial bank for almost a year obtained € 9 billion in ELA loans eventually matching 60% of the country´s economy. The emergency liquidity assistance was used by the bank´s management partly to let well connected subordinated creditors and hybrid capital holders exit by offering them generous buy back terms." See Klaus C. Engelen, "Fron Deauville to Cyprus" 50 International Economy, Spring 2013, available at http://www.international-economy.com/TIE_Sp13_Engelen.pdf For the political fallout that followed the Laiki debacle and the strife between the incoming president and the then governor of the local central bank see Id. pp-51-53, 73; cf "Introductory statement by Panicos Demetriades, Governor of the Central Bank of Cyprus, before the Investigation Committee on the Economy", 13 Aug. 2013.

from a resolution bail-in meant that the bulk of the haircut and ensuing Laiki losses fell disproportionately on a small group of big creditors.[120]

Arguably, if nothing else the Cyprus debacle, which took place before the implementation of the BRRD, shows that the pre-resolution stage that the BRRD provides should be used effectively and in a timely manner and be closely tied to conditions for the use of the LoLR. These conditions may not be much wider than the viability requirements that the BRRD and other resolution regimes provide, without total eradication of central bank room for manouver. This approach would totally eliminate controversial decisions like the aforementioned prolonged provision of ELA to Laiki Bank. Thus, it will minimize the room to use LoLR to cover flaws in supervision. At the same time, defining the viability criteria by reference to risk weighted measures might prove an uncertain exercise deterring the LoLR extending liquidity to otherwise viable institutions.

Of course, legislation prohibits provision of LoLR liquidity for the purposes of avoiding resolution, but, in such a scenario, the line between fulfillment of the institutional stability (microprudential) objective and avoidance of resolution will always be a thin one. And there are very good reasons to argue that a bank that is trying to restore itself to health, by engaging into recovery actions, such as selling some assets, should be allowed to use LoLR liquidity, even if under an adverse macroeconomic scenario such support could be held in the future as a solvency boost. But such liquidity assistance must be subject to a strict framework.

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[120] See Central Bank of Cyprus, Press Release, "Clarifications for the better understanding of the resolution measures implemented under the Resolution of Credit and Other Institutions Law, 2013 at the Bank of Cyprus and Laiki Bank", available at http://www.centralbank.gov.cy/nqcontent.cfm?a_id=12631&lang=en

Moreover, exercise of the regulator's pre-resolution powers should lead to change of management (Articles 28-29 BRRD). The combined effect of selling a reasonable potion of the bank under recovery assets – but not to an extent that could cause a firesales cascade – should be sufficient to alleviate moral hazard concerns. A sale of assets at the pre-resolution stage means lower returns for shareholders weakening further any objections that they will unduly gain by taking greater risks on the expectation of central bank liquidity assistance. At the same time, robust liquidity support by the LoLR at this stage stems the risk of widespread firesales, which, of course, are a systemic concern. Depressed market prices would in turn adversely affect the value of other banks' assets (especially in an environment where bank balance sheets tend to be homogeneous).

(ii) Post-Resolution Supply of LoLR Liquidity

Almost invariably a bank entering into resolution becomes the primary responsibility of a specially designated resolution body (e.g., the Single Resolution Mechanism in the European Banking Union[121]) or of the Deposit Guarantee Scheme (e.g., the Federal Deposit Insurance Corporation in the USA).[122] The exception here is the UK where the Bank of England is designated to act as a resolution authority for PRA supervised financial institutions.[123] As already mentioned provision of central bank liquidity in resolution tends to be prohibited, or it is backed by a state indemnity.

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[121] Regulation (EU) No 806/2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund OJ 2014 L 225/1 30.7.2014. It is run on an operational basis by the single Resolution Board (SRB).

[122] https://www.fdic.gov

[123] The Bank has the responsibility for the resolution of a failing bank, building society or investment firm, and their group companies, under the (amended) Banking Act 2009 (the Act). See Bank of England, "Key features of the Resolution Regime", available at http://www.bankofengland.co.uk/financialstability/Pages/role/risk_reduction/srr/keyfeatures.aspx

But what happens when a bank exits resolution post-bail-in, it is returned to the regulator's custody and funding conditions for it are scarce? In this case the entity exiting resolution, which might be a new bank, or the same institution, in the EU scenario of bail-in as a going concern,[124] is likely to face market reluctance to fund it, e.g., due to reputation shocks[125] and funders' behavioural constraints.[126] The post-resolution entity should be funded by the central bank, even if this liquidity prop could mean avoidance of future bail-in rounds.[127] Especially in the face of deteriorating macroeconomic conditions which could adversely impact on the valuation of the new bank's assets. In this case further asset sales by the post-resolution entity or another round of bail-in are not unlikely but they should be avoided. Asset sales beyond some limited amount risk a firesale cascade and successive bail-in rounds (or the expectation thereof) and will make post-resolution funding for the bank very hard. At the end of the day, how is it possible that a bank whose management has changed and shareholders and creditors have taken a hit (up to being wiped out) raises moral hazard concerns because it is being offered LoLR assistance?

(iii) Infrastructure Providers

It has been recently argued that extension of LoLR liquidity should be wider and based on financial stability concerns and not the type of institution receiving

[124] Art. 43(2)(a) BRRD.

[125] See for insightful analysis of this problem Mark Carlson and Jonathan Rose, "Can a Bank Run Be Stopped? Government Guarantees and the Run on Continental Illinois", BIS Working Papers No 554, March 2016.

[126] For an overview of the constellation of the cognitive biases investors face see Emilios Avgouleas, "Cognitive Biases and Investor Protection Regulation an Evolutionary Approach". WP September 2006, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1133214

[127] A good example of successive post-resolution bail-ins following an in-resolution bail-in is the Novo Bank=co the good bank that resulted in from the resolution of Bank Espirito Santo in Portugal. See Christopher Whittall, "Investors File Suit Against Bank of Portugal Over Novo Banco" WSJ.com, 5 April 2016.

support.[128] In this context, the IMF suggests that systemic risk oversight and crisis management bodies should consider whether the failure of an intermediary, or group of intermediaries, would have such a damaging impact that some form of official intervention is justified; or if a sudden change in the behaviour of users could cause systemic problems.

A special category are institutions that have very specific and *sui generis* duties and exposures in supporting the stability of the financial system. The best example of such institutions are central counterparties (CCPs), which have become a key repository of counterparty risk in global derivatives markets following Dodd-Frank and EMIR[129] reforms. The users of the market may well be non-financial companies (or individuals), and so not subject to financial regulation and supervision, and lacking any relationship with the regulators. If these borrowers or investors unknowingly (and so, without due controls) take on excessive funding or liquidity risk, their actions in response to a shock may cause wider problems, whether by failing to make payments when due (because they have lost funding or liquidity and triggering a funds shortage within the CCP), or by pushing down market prices through asset fire sales, in order to obtain liquidity.[130]

Moreover, illiquidity within CCPs can easily spillover to the regulated sector. IMF states that some form of backstop is deemed appropriate for non-banks then the support—whether liquidity support or some other instrument—should be designed in a way that addresses the specific systemic problems and it need not replicate what

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[128] IMF Lender of Last sort, 2016, pp. 13-18, 21-22. See also Hal Scott, "The Federal Reserve: The Weakest Lender of Last Resort Among Its Peers" (2015) 18(3) *Review of International Finance* 321–342.

[129] Regulation (EU) No 648/2012 on OTC derivatives, central counterparties and trade repositories (EMIR) – 04.07.2012 OJ L 201, 27.7.2012, p. 1–59.

[130] IMF, The Lender of Last Resort 2016, p. 21.

might be provided for banks. But "[it] should not in any case be provided on easier terms than to banks."[131]

(iv) How Revamped Supervision and Systemic Regulation impact on the Ambit of the LoLR Facility?

Liquidity shocks within the non-bank financial sector especially when felt by institutions such as money market funds or broker dealers could have spillover effects to banking markets, even after separation and ring-fencing, due to a possible generalized inability to refinance and rollover repo positions or short-term securitised debt. Thus, there is considerable debate as to whether central banks should act as LoLR strictly to licensed banks or the financial system as a whole. While the balance of findings is inconclusive, the IMF seems to favour the more relaxed approach on grounds of systemic stability.[132]

Moreover, assignment of the financial stability objective and attendant competence to the central bank (or functionaries dominated by them) cannot leave unaffected their LoLR function. It is hard to argue that the same institution should use its various competences in an incompatible way. Namely, it may be indefensible to ask the central bank to use, on the one hand, the macroprudential competence to protect the stability of the system as a whole, and, on the other, to use the LoLR competence in a restrictive way to merely cover the institutions it supervises. The LoLR function has offered solid justification for concentration of macro- and micro-prudential powers within the central bank (or within bodies dominated by the central bank). Thus, it is probably illogical to suggest that LoLR is a self-standing

[132] IMF, The Lender of Last Resort, 2016, pp.13-18, 21-22.

competence that should be used independently of the Central bank's macro- and microprudential objective.[133]

This conclusion raises interesting issues since one area of possible LoLR activity whose legitimacy and desirability is bound to be controversial is central bank extension of loans to broker dealers with no deposit-taking function. Provision of LoLR assistance to broker-dealers is generally seen as fostering excessive speculation. Thus it is not just moral hazard concerns that the central bank has to take into account if it intends to extend liquidity to such institutions but also moral outrage. But if such LoLR assistance is to alleviate any liquidity shocks in, say, the repo markets where, inevitably, most deposit-taking institutions will have exposures[134] such intervention will have systemic stability characteristics and liquidity support may be both desirable and legitimate.

The structural characteristics of repo markets and their importance for short-term funding for the financial sector is such that runs and panics are inevitable. E.g., the drying up of liquidity in this part of the financial system, mostly operated by shadow banks, was one of the key causes of the 2008 crisis.[135] So, if inspite of recent reforms, which have tightened the conditions under which global repo markets

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[133] Ibid. p. 13.

[133] Donato Masciandaro, "Reconceptualizing Central Banking: From the Great Inflation to the Great Recession and Beyond" in R. Buckley, E. Avgouleas, D Arner, *Reconceptualising Global Finance and its Regulation* (CUP, 2016), ch. 7, p. 107 et seq.

[134] See, inter alia, "The Financial system in transition: the new importance of repo markets" , Deutsche Bundesbank Monthly Report December 2013, 57, available at https://www.bundesbank.de/Redaktion/EN/Downloads/Publications/Monthly_Report_Articles/2013/2013_12_repo_markets.pdf?__blob=publicationFile
P. Saguato, "The Liquidity Dilemma and the Repo Market: A Two-Step Policy Option To Address the Regulatory Void", LSE Law, Society and Economy Working Papers 21/2015.

[135] A. Metrick, " Regulating the Shadow Banking System" (2010), available at www.ssrn.com/ abstract=1676947

operate, the repo market faces serious liquidity shortages, this development will probably have an impact both on depository institutions and financial stability in general, undermining the achievement of the macroprudential objective. At the same time, there can be strict requirements for the use of the LoLR facility in such a case by reference to objective indicators about the condition of the repo market and interest rate spikes in it to eliminate the possibility of helping a broker-dealer that has just leveraged too much their position or have taken some bad debts.

Prevention of a financial stability shock stemming from firesales outside the banking sector is of course a contentious justification for extension of LoLR liquidity to (non-bank) broker dealers.[136] However, when provision of liquidity to such institutions is within a strict framework of rules, rather than being discretionary, and is offered against good collateral, while the Central Bank applies a conservative haircut, the aforementioned concerns may be alleviated. This would especially be the case if a financial stability threat is imminent and impossible to be prevented by any other means. But questions will remain when collateral is not of prime quality.

V. CONCLUSION

This chapter has discussed the changes bank supervision has undergone in key jurisdictions (chiefly the UK, EU, and the USA) since 2008 in terms of form: new regulators, a new regulatory architecture, and substance: much more extensive rulebooks, shifting focus from micro- to macro-prudential risks, and strengthening bank internal governance accountability: board and management. While there is no proof that one form of regulatory architecture has serious advantages over another, bank regulation has been reconfigured since 2010. It now focuses on specific areas of

[136] See William Nelson, "Lessons from lender of last resort actions during the crisis: the Federal Reserve experience", BIS Papers No 79, September 2014, pp. 76-82.

banking risk: individual bank liquidity and solvency (microprudential), bankers' conduct and bank governance, and finally, review of systemic trends and adoption of policies to lean against the economic/financial cycle to augment bank resilience during a crisis, or simply to dampen down the dynamics of developing asset bubbles, chiefly loose credit.

It has become clear from the foregone analysis that the new paramount objective of bank regulation and supervision is the preservation of financial stability. As most contemporary systemic regulators and microprudential supervisors tend to be central banks it has been argued that contemporary developments have explicitly broadened to the central banking contract to include preservation of financial stability as an objective of equal value to that of price stability. On the other hand, the central bank is the very institution that provides liquidity assistance to the financial system. Thus, the explicit broadening of the central banking contract mitigates in favour of a more relaxed approach to LoLR liquidity assistance.

The framework for provision of lender of last resort support to banks was to some extent settled, inspite the many ambiguities and grey areas, from the time of Bagehot's publication of Lombard Street up to the 2008 crisis. The generalised pumping of liquidity to the banking system (and, incidentally, to the economy as a whole) in the post-2008 period has generated serious debate and controversy and brought the issue of central bank liquidity provision to the financial system as whole into sharp focus. The old debates of rules versus central bank discretion and the ghost of moral hazard have resurfaced stronger than ever. At the same time, new questions have arisen. For instance, should the central bank offer liquidity assistance to financial undertakings facing serious liquidity difficulties even when such institutions are not factional reserve (deposit-taking) banks? Central bank assistance to entities

outside the banking sector became mired in political controversy post-2008. As a result, the USA has provided a very narrow answer to this question about the proper ambit of the LoLR. The ECB approach, on the other hand, is much more relaxed, and the debate carries on in the absence of a generally acceptable rule to guide the LoLR function.

I have argued in this chapter that since bank regulation and supervision has drastically shifted focus from the viability of individual institutions to preservation of systemic stability, the same rule/guiding principle should apply to provision of LoLR assistance. Namely, every licensed financial institution or licensed provider of financial infrastructure services, for example, Central Counterparties that face objective (i.e., unrelated to its conduct) and insurmountable liquidity/solvency shock that may not be alleviated by a short-term access to the market to cover its liquidity needs, should be able to receive LoLR assistance to avert a cascade of defaults and/or firesales. This should especially be the case if the failure of such institution to refinance its short- and long-term liabilities would severely affect the stability of the financial system.

Widening the ambit of the LoLR to avoid firesales within the financial system would be in accord with the new objectives of financial regulation and supervision systems throughout the western world and would mark a further shift in the legal normative foundations/objectives of the LoLR facility towards an explicit role in safeguarding financial stability, when other tools have failed. This shift has meant that the LoLR liquidity is now part of a bigger package of measures intending to preserve the stability of individual institutions as part of the financial system. Moreover, this shift is further justified by the new (albeit rudimentary) accountability framework,

which the central bank must respect in disbursing LoLR lending, though the latter ought to be strenghtened.

Eligible institutions should still be able to pledge good collateral in the absence of which it is right that they face insolvency/resolution proceedings rather than have their demise unduly delayed with central bank injections of liquidity. The fact that LoLR funding comes at a higher cost than commercial funding, in most cases, and the institution in question will have to pledge a high quality collateral should be seen as an adequate safeguard.

Historical experience has shown that LoLR liquidity is not sufficient to avert a solvency crisis and the Royal Bank of Scotland is the best example. Unlimited provision of liquidity by the BoE which, in the meanwhile, had changed its position on the matter, learning the lessons of Northern Rock, did not save the bank from nationalization and extensive recpitalisation wiping out shareholders. Sooner or later the market catches up with operations that face solvency problems whether that is by building massive short positions on the stock of the institution in question or by denying to insure said institution's debt.

At the same time, restricting LoLR credit to entities within the regulatory net is fair and sound policy as it lowers the risk of financial stability spillovers from the unregulated sector. Inability to access public liquidity sources dis-incentivizes unregulated operators to undertake shadow banking operations that involve taking wild bets on illiquid or difficult to value assets – which would then be difficult to pledge as collateral to obtain market funding - or from relying excessively on short-term sources of funding. This restraint might to some extent discipline their market bets, as liquidity is a real constraint and it is always hard to obtain in tough market conditions, curbing speculation.