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The lender of last resort

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Abstract

This paper develops a model of the lender of last resort (LOLR) from a Central Bank (CB) viewpoint. The model in a static setting suggests that the CB would only rescue banks which are above a threshold size, consistent with the insight of "too big to fail". In a dynamic setting, CB's optimal policy in liquidity support depends on the trade off between contagion and moral hazard effects. Our results show that contagion is the key factor affecting CB's incentives in providing LOLR and they also provide a rationalization for "constructive ambiguity".
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1. Introduction

Although lender of last resort (LOLR) services to individual commercial banks have been a regular, albeit often contentious, part of a central bank's armory since Bagehot (1873) and they have been discussed and debated in the literature (Goodhart, 1988, 1995), there have been few formal models seeking to analyze

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how and why central banks have provided such acts. One reason why there have been few formal models of LOLR is that some economists in this field believe that providing LOLR to individual banks, rather than to the market as a whole (via open market operations (OMO)), is fundamentally misguided.

As a generality, such economists believe that central banks should not lend to individual banks, e.g., through a discount window; the market is as well or better informed than the central bank (CB) about the relative solvency of a bank short of liquidity. [1] Given an aggregate sufficiency of high-powered money, illiquid (but solvent) banks will be able to borrow in the interbank market, whereas potentially insolvent banks will be driven out of the system. Moreover, the monetary authorities will have incentives to exercise forbearance (Kane, 1992) and rescue banks that should have been closed; and the pursuit of financial stability by direct intervention may divert the CB from achieving its primary goal of controlling the monetary aggregates so as to achieve price stability.

There are two ripostes to this position. The first, though not the subject of this paper, is the potential for "market failure". [2] For example, when the Bank of New York computer malfunctioned in 1985 and would not accept incoming payments for bond market dealings, the resultant illiquidity position soon ballooned to a point where no one counterparty bank could take on the risk of making a sufficiently large loan. It would have required a coordinated syndicate, but such syndicates take time to organize, and time was scarce. An even more dramatic example is given by the recent events of September 11, 2001. The functioning of many markets had been severely disrupted. In this crisis, the Federal Reserve System hugely expanded its discount window lending to many individual banks (McAndrews and Potter, 2002). Most central banks would also argue that their supervisory role – or their ready access to supervisory information – should give them additional information, not available in the market. Moreover, as in the case of the Bank of New York, when there is any large-scale need to redirect reserves, there must be a coordination problem. No one commercial-counterparty can single-handedly assume the credit risk, and there is no incentive for a single commercial bank to take on the time, effort and cost of coordinating the exercise of sorting out the problem. [3]

A co-ordination failure [4] may be defined as a condition where a bank, (or, as in the case of 9/11, a set of banks), is solvent, but illiquid, but the market cannot resolve this difficulty, which would be temporary if resolved quickly. This may be because credit counterparty limits prevent any single institution doing the necessary lending,

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[1] See Bordo (1990), Goodfriend and King (1988), Humphrey (1989), Kaufman (1991), Schwartz (1988), amongst others.

[2] Focusing on the micro-aspects of central banks' intervention in dealing with market failure, Freixas et al. (1998) build one of the rare formal models of LOLR. Using the framework of Diamond and Dybvig (1983), they analyze the moral hazard problem caused by bank managers' incentive to choose an inefficient technology that gives them some private benefit. This moral hazard problem, as in Holmstrom and Tirole (1998), sets an upper limit to the finance that would be provided at interim dates by outside investors.

[3] Although financial innovations may make some aspects of coordination easier, they may increase the difficulty of coordination in other aspects, as argued in Merton (1995) and evidenced by the LTCM crisis.

[4] See Rochet and Vives (2003) for an analysis of co-ordination failure from the perspective of LOLR.