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# Myths about the Lender of Last Resort*

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## Abstract

**This topic has been prone to the accretion of myths that sometimes obscure the key issues. As a start, Bagehot is often treated as the first to write on the subject, ignoring Thornton's contribution. Next, Bagehot's proposal that such lending be at 'high' rates is incorrectly translated into 'penalty' rates. This paper, however, concentrates on and criticizes four further myths: that it is generally possible to distinguish between illiquidity and insolvency; that national LOLR capacities are unlimited, whereas international bodies, such as the IMF, cannot function as an ILOLR; that moral hazard is everywhere and at all times a major consideration; and that it might be possible to dispense with LOLR altogether.**

## I. Introduction

There are few issues so subject to myth, sometimes unhelpful myths that tend to obscure rather than to illuminate real issues, as is the subject of whether a

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central bank (or an international financial institution (IFI) such as the International Monetary Fund (IMF)), should act as a lender of last resort (LOLR).

Perhaps the very first myth is that the fount of all wisdom, the *fons et origo*, on this subject is to be found in Bagehot's great book *Lombard Street* (1873). In fact, most of the key policy proposals set out there were anticipated by Henry Thornton in his outstanding study *The Paper Credit of Great Britain*, the greatest treatise on the conduct of monetary operations ever written, though Bagehot gave little credit to any prior writers on the subject in his own book. The main proposals outlined by Bagehot (1873, pp. 196–7) are:

1. Lend freely.
2. At a high rate of interest.
3. On good banking securities.

Let me demonstrate how Thornton dealt with these same questions. First, he wrote on lending freely, as follows:

> The directors [of the Bank], therefore, must seem to themselves to act with extraordinary liberality towards those who apply to them for discounts, [during a season of consternation]. … The liberality in lending which they must exercise, if, when the gold is low, they even augment their paper, must be very extended indeed. (Thornton 1802, p. 116)

On Bagehot's second two principles of lending on good security at a high rate of interest Thornton wrote:

> It is by no means intended to imply, that it would become the Bank of England to relieve every distress which the rashness of country banks may bring upon them: the bank, by doing this, might encourage their improvidence. … The relief should neither be so prompt and liberal as to exempt those who misconduct their business from all the natural consequences of their fault, nor so scanty and slow as deeply to involve the general interest. (Thornton 1802, p. 121)

And again:

> That the bills which the bank discounts, are, generally speaking, so safe, that the security either of goods, or stocks, or land. … may be considered as nearly superfluous. A very small proportion of the five per cent discount, gained upon the bills turned into ready money at the bank, has compensated, as I believe, for the whole of the loss upon them, even in

> the years of the greatest commercial failures which have yet been known. (Thornton 1802, pp. 119–20)

Bagehot only goes further than Thornton in placing more emphasis on the need to raise interest rates to deter unnecessary domestic borrowing, for both Thornton and Bagehot were aware of the need to raise interest rates to check a foreign drain of gold from the bank. But Thornton's lack of emphasis on this point may well have been due to the continuing effect of the usury laws, in force until the 1830s, capping (formal) interest rates at 5% and preventing the bank from using this instrument aggressively in a crisis.

But this emphasis in Bagehot on the need for 'high' interest rates for LOLR has led some commentators (e.g. Keleher and Humphrey 1984)[1] to go further and claim that Bagehot proposed that LOLR should always be at a 'penalty' rate; that is, at a rate *higher* than that available in the market place. This is not so.[2] Certainly the rate should be above that in effect in the market prior to the panic, but not necessarily above the contemporaneous market rate.[3] Bagehot was very concerned that, unless the Bank of England was prepared to lend on the basis of what was normally regarded as good security, no one else would do so at all. The penalty rate would then be infinite. Bagehot wrote:

> If it is known that the Bank of England is freely advancing on what in ordinary times is reckoned a good security – on what is then commonly

[1]They describe the policy prescription for simultaneously meeting external and internal drains as being to 'lend freely at a high (penalty) rate' (p. 200), with those words in quotes, as presumably coming from a separate authority, e.g. Thornton or Bagehot. But no source, or page numbers, are given, and I have not been able to find such a reference, or indeed *any* reference to a 'penalty' rate in either Thornton or Bagehot.

[2]I asked a research assistant to check for any references in *Lombard Street* to 'penalty' or 'penal'. There are four. One, at the start of Chapter 13 (p. 329), notes that the Bank of England is 'under no effectual penalty of failure'. A second (Chapter 7, p. 175), commends the Bank for not over-issuing during the suspension of the Gold Standard when there was 'no present penalty on it'. The other two references are in Chapter 4, describing the penalty individual banks might suffer for over-lending in a 'natural' system without a central bank.

[3]The key reference in Bagehot (p. 197) reads as follows: 'The end is to stay the panic; and the advances should, if possible, stay the panic. And for this purpose there are two rules: – First. That these loans should only be made at a very high rate of interest. This will operate as a heavy fine on unreasonable timidity, and will prevent the greatest number of applications by persons who do not require it. The rate should be raised early in the panic, so that the fine may be paid early; that no one may borrow out of idle precaution without paying well for it; then the banking reserve may be protected as far as possible. Secondly. That at this rate these advances should be made on all good banking securities, and as largely as the public ask for them. The reason is plain. The object is to stay alarm, and nothing therefore should be done to cause alarm.'

> pledged and easily convertible – the alarm of the solvent merchants and bankers will be stayed. But if securities, really good and usually convertible, are refused by the Bank, the alarm will not abate, the other loans made will fail in obtaining their end, and the panic will become worse and worse. (Bagehot 1873, pp. 198–9)

The levels to which bank rates were raised during the period of the Gold Standard were mild[4] by the standards of our current age, with its bouts of inflation and currency crises. When Bagehot remarked that LOLR 'loans should only be made at a very high rate of interest', he would have it in mind that a bank rate of 6 or 7% was very high, and 10% extraordinarily high. It was then said that '7% would draw gold from the moon'.[5]

An even more pervasive interpretation of the teaching of these early scholars is that they advocated that LOLR lending could, and should, be adjusted to distinguish between the illiquid and the insolvent. Indeed, the first of the main myths that I shall discuss is that it is generally possible for a central bank to distinguish between illiquidity and insolvency, and should then confine its LOLR loans solely to the former. Thereafter I want to deal with three other views, which I also hold to be mistaken. These are:

1. That national central bank LOLR capacities are unrestricted, whereas international bodies, or IFIs such as the IMF, cannot function as an ILOLR.
2. That moral hazard is everywhere and at all times a predominant consideration.
3. That it might be possible to dispense with an LOLR altogether.

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[4]They were certainly so in nominal terms in comparison to today. Given medium-term expectations of price stability, 7% nominal is quite high in real terms, but it was not expected to last long, as can be inferred by the remarkable stability (again as compared to today) of Consol prices. It is difficult to compare these real rates with those applied in modern crises, since the forward-looking expectations of future inflation are less well anchored. Even so, the rates introduced in Sweden, and the 15% bank rate briefly attempted in the UK during the EMS crisis, and several occasions of official rates during the East Asian crisis, e.g. in Korea and Hong Kong, produced real rates well above those in nineteenth-century crises. Moreover, these latter real rates failed to restore confidence and bring in foreign exchange inflows from abroad, perhaps because they were perceived as 'too high'.

[5]David Kynaston quotes this in his history of the City of London (Volume II, p. 453), where he writes, 'It was probably at this time [1907] that the tag was coined in the London money market that "7% brings gold from the moon".' The problem nowadays is that, with less of a firm anchor for exchange rate expectations, during crises the minimum level of interest rates necessary to maintain or restore foreign confidence may be perilously close to the maximum that the domestic economy can meet without instigating a financial collapse.

## II. Myth 1

The first myth is that it is generally possible to distinguish between illiquidity and insolvency.

The possibility of large shocks – for example, large jumps in asset prices, especially crises when such a jump is downwards – means that there may be multiple equilibria, to use the current jargon. Panic conditions can lead to circumstances where firms that would be viable during normal times become insolvent, though perhaps only temporarily. This syndrome may be especially serious in commercial banks, because of their interconnectedness (Allen and Gale 1998, 1999). Bagehot[6] and Thornton[7] were well aware of this; Bagehot remarked approvingly of the bank's operations in 1825 when the bank made advances 'by every possible means consistent with the safety of the Bank, and we were not on some occasions over-nice' (p. 52).

In Bagehot's time, the money market operated almost entirely through the discount of bills of exchange. If the bill was 'good' in the sense that the initial drawer of the bill would certainly pay on maturity, a central bank that rediscounted the bill would be repaid in due course, whatever happened to the (bank) intermediary from which it had rediscounted in the meantime.

Bagehot's test of whether a central bank should lend during a crisis did not depend on the individual borrower, but on the security; thus 'advances should be made on all good banking securities and as largely as the public ask for them' (p. 197). But this test has really nothing to do with the question of whether (on best mark-to-market accounting principles) the applicant borrower (commercial bank) had a capital value below some lower limit (e.g. zero or insolvency). Indeed, then as now, a central bank faced with an application for LOLR had, and has, no quick or accurate way of ascertaining this. Instead Bagehot's proposal related simply to the collateral that the applicant could offer, and the effect of this rule in practice was to distinguish, in part, between those loans on which the central bank might expect with some considerable probability to make a loss (bad bills and collateral) and those on which little, or no, loss should eventuate.

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[6]'A panic, in a word, is a species of neuralgia, and according to the rules of science you must not starve it. The holders of the cash reserve must be ready not only to keep it for their own liabilities, but to advance it most freely for the liabilities of others. They must lend to merchants, to minor bankers, to "this man and that man", wherever the security is good. In wild periods of alarm, one failure makes many, and the best way to prevent the derivative failures is to arrest the primary failure which caused them' (Bagehot 1873, pp. 51–2).

[7]'If any one bank fails, a general run upon the neighbouring ones is apt to take place, which, if not checked in the beginning by pouring into the circulation a large quantity of gold leads to very extensive mischief' (Thornton 1802, p. 113).

Such discounting of bills was simultaneously the standard way in Bagehot's time both for injecting cash into the market as a whole and for lending to individual banks. This changed thereafter in the UK towards the end of the nineteenth century, because the Bank of England became increasingly unhappy about regular direct bilateral negotiations with the joint stock commercial banks, since the amalgamation process was causing the latter to become much larger in size than the Bank itself. Instead, from the latter part of the nineteenth century right through to the final decade of the twentieth century, the bank would carry out its general liquidity operations through the discount houses, a group of small intra-market subsidiaries which the Bank actively fostered. Meanwhile direct, last resort support for individual commercial banks, as in the Baring crisis (1890), was separately organized, as we shall discuss below.

This distinction between generalized control of systemic liquidity via open market operations, determining the rate of growth of the monetary base, and LOLR transactions with individual financial institutions, (normally banks) has been taken further today. With the development of broad and deep money markets, e.g. repo markets, the CB operates to determine interest rates (and by those same actions to adjust the monetary base) by open market operation (OMO), undertaken through general market operations, and not in bilateral negotiation with any individual institution.

Among the factors influencing the CB in its conduct of OMO will be issues such as the degree of confidence/risk aversion in markets (e.g. as measured by the pattern of spreads), the demand for cash or measures of public confidence in the banking system. Some writers on this subject have described injections of high-powered money, open market purchases, undertaken to calm actual, or potential, losses of confidence in the financial system as a whole (that is, systemic problems), as LOLR operations. In my view it is wrong to do so. One main reason is that it is practically impossible then to distinguish LOLR-OMO from non-LOLR-OMO. For example, the Bank of Japan has at times in recent years aggressively increased the monetary base. Which actions, and how much of this increase, could be designated as LOLR? It is not possible, except in rare circumstances,[8] to make such a distinction. Hence the concept is effectively non-operational. By contrast, the distinction between lending by the CB to an individual institution and OMO dealing with the market as a whole is simple, practical and self-evidently justifiable. In my view only the former should be described as LOLR, and that is what will be done henceforth.

Individual banks nowadays adjust their own liquidity through these same wholesale money markets. Banks will much prefer, under normal conditions,

[8]One such occasion was the announcement by the Federal Reserve after the 1987 stock market crash that it would make additional liquidity available to the financial system both via OMO and through easy access to the discount window.

to do so than to borrow directly, and bilaterally, from the CB, whether collateralized or not. There is a potential reputational cost from being observed to borrow directly from the CB (at least this is so in most countries). Again in most countries, bilateral direct borrowing from the CB will be more expensive (a penalty rate) than the market rate. There will be times when the wholesale market rate is driven up to the CB's penalty (Lombard) rate, or when the CB's discount rate is commonly below the market rate (as in the US), when lending to individual banks becomes both commonplace and constrained by other (reputational) factors.

Except in such instances, an individual bank will only go to a CB for direct bilateral LOLR assistance when it *cannot* meet its liquidity needs on the wholesale interbank money markets. Almost by definition this must be because it is running out of good security for collateralized loans *and* other (bank) lenders will not lend to it on an unsecured basis in the quantities required (at acceptable rates). Again almost by definition this latter must be because there is some question about its ultimate solvency. The greater the insistence of the CB on charging a 'penalty' rate on its own LOLR loans, the greater the endeavour of commercial banks to use their existing good collateral to borrow in the market place first.

There are some exceptions to this rule, that nowadays illiquidity implies at least a *suspicion* of insolvency. But such exceptions tend to prove the rule. One of the most famous LOLR occasions of recent decades was the massive lending on one overnight occasion (20 November 1985) by the Federal Reserve Bank of New York to the Bank of New York. The Bank of New York had had a computer malfunction. It was a leading participant in the US Treasury bond market; the computer had paid out good funds for Treasury bonds bought, but would not accept cash in-payments for Treasury bonds sold. As a major player in the market with a huge gross turnover, this rapidly led to a ballooning cash deficit. The bank was still, of course, patently solvent; moreover its cash deficit was matched by surpluses spread amongst the other banks, mostly in New York. Nevertheless the private market could not cope with recycling the money back to the Bank of New York, at least not quickly enough. The size of the liquidity deficit was so huge that no one single bank could possibly have been the counterpart lender, since it would have both exhausted its own liquidity and broken through its various (internal) controls on large exposures. Thus a coordinated, syndicated response would have been necessary, and the arrangement of such coordination is time-consuming, somewhat expensive and subject to free rider problems. It was just far easier to let the FRBNY manage the temporary problem.

So, as a generality, whenever an individual commercial bank approaches the CB for direct bilateral loans (LOLR) (unless interest rate relativities make that profitable for the commercial bank), the CB must/should suspect that the

failure of the bank to adjust its liquidity on the open market means that there is at least a whiff of suspicion of insolvency. It is not, however, possible for the CB, at least within the relevant timescale, to ascertain whether such suspicions are valid or not; and if valid, what the extent of the solvency problem is.[9] Of course, a CB, or the associated bank supervisory agency, will, or should, have a good knowledge of the prior reputation of a bank seeking assistance, and *may* be able to obtain a quick reading of the market value of its trading book. I emphasize 'may' because in a crisis situation liquidity can disappear and values become very volatile; moreover, the true value of a complex position in derivatives markets can be far from easy to ascertain.

There certainly will be cases where the CB has such concern about the solvency, and prior inappropriate banking behaviour of a suppliant bank borrower, that the request for LOLR can, and should, be turned down flat. The fact that there is often a murky area where illiquidity and insolvency cannot be distinguished does not mean that this is so in every case of requests for LOLR.

For many 'liberal' commentators the argument that bilateral LOLR generally occurs only when there is a suspicion of insolvency is a good reason why a CB should eschew any such LOLR actions, but confine itself only to OMO. They claim (e.g. Humphrey and Keleher 1984) that this course of action is consistent with the Bagehot principles.[10] I do not believe that this is so. The rules proposed by Bagehot were intended both to prevent the CB suffering any significant loss on its LOLR loans and to prevent an excessive expansion of the money stock. When the CB discounted 'good bills' for a financial intermediary, it did not and could not at the same time estimate the borrower's solvency. It had no good measure of the borrower's balance sheet.

An LOLR loan by a CB is like any other loan, in that it may be repaid (plus interest) or alternatively will be subject to default and some potential loss. That loss would impair the capital of the CB. When the CB was private, as in most cases in the nineteenth century, the capital strength of the CB was as important and relevant an issue as it was to any other private institution. From a CB's viewpoint, Bagehot's concern that no CB should lend in a manner that might expose it to undue loss resonated with good sense.

How far does this concern alter, if at all, when the CB becomes explicitly a public sector body, via outright nationalization or otherwise? Not necessarily

[9]Moreover, as Freixas (1999) has noted, the franchise value of a bank as a going concern may often exceed its mark-to-market accounting value, so the franchise value may be positive while at the same time the accounting value is negative; that is, the bank is insolvent.

[10]Thus they write: 'Conspicuously absent is any mention of the need to channel aid to specific institutions, as would be implied by bail-out operations. Bagehot's emphasis is clearly on aid to the market rather than to the initially distressed bank. He obviously did not think it necessary to prevent the initial failure at all costs' (Humphrey and Keleher 1984, p. 300).

that much. For example, in the case of the Bank of England there used to be an implicit distinction between those aspects of its business that were the affairs of the Bank and those that were the affairs of the government.[11] The Bank of England's own retained capital still gave it some leeway and freedom to act at its own independent volition, and it prized that margin of freedom. Most crisis management continued to be done under the aegis of the Bank, *qua* Bank, with its independent capacity for action. This capacity remained, in some large part though not entirely, bounded by its capital. In Japan, for example, Okina (1999) has noted that the Bank of Japan is concerned whether further purchases of assets, in order to increase the monetary base, might bring about losses. This could be so even for purchases of government bonds, JGBs (see Okina 1999, pp. 18–21). In so far as a CB acts independently but subsequently is forced by events to go directly to the government for financial support in one guise or another, it will lose reputation and independence, as in the case of the Bank of England and Johnson Matthey Bankers in 1984.

Under the Gold Standard, CB loans, whether to maintain market liquidity, to protect the financial system or to support the government's wartime aims, could lead to a drastic reduction of its gold reserves (and in some cases also to an impairment of its capital strength). In such cases the government would step in to declare the Bank's liabilities to be legal tender. Such '*cours forcé*', as this was known in the nineteenth century, was always perceived as a sign of the fundamental weakness of the CB. Such weakness, of course, became generalized in the First World War, and thereafter with the breakdown of the Gold Standard in the inter-war period. Although usually emitted notionally by the CB,[12] fiat money depended not on the (capital) strength of the CB, but on the strength and taxing power of the government behind it. Does this mean that Bagehot's limits for the potential capital loss to the CB no longer had much, or any, force?

The answer, to some extent and in some countries, is 'yes', as Max Fry (1997) has shown. CBs in some countries, mainly in Latin America, have actually become technically insolvent (using generally accepted accounting principles) as a result of losses incurred on loans in support of the domestic financial system. But such insolvency does not make much difference because what stands

[11]See the Radcliffe Committee's (1959) discussion of 'The Bank's Relationship with the Central Government' (paragraphs 760–75), and the associated Minutes of the session of the Committee with C. F. Cobbold (Governor), H. C. B. Mynors (Deputy Governor) and A. W. C. Dascombe (Secretary of the Bank) (pp. 892–900).

[12]Usually but not always. The ten shilling and one pound notes issued in the UK in 1914 after the start of the First World War were the liabilities of H. M. Treasury.

behind the liabilities of the CB is *not* the capital of the CB but the strength and taxing power of the State.[13]

What does this tell us about the handling of systemic problems within a country? Unless such problems involve only a small potentiality for loss, so that the CB can handle it on its own books, such systemic problems will nowadays require joint management and resolution by the supervisory body, the CB and the government. As emphasized in Goodhart and Schoenmaker (1993), he who pays the piper calls the tunes. In large-scale, systemic domestic cases the government pays the piper, so it will be the government which ultimately will decide how the crisis is handled and who bears the losses.

## III. Myth 2

The second myth is that a national CB's LOLR capacities are unrestricted (even without support from its own government), whereas international bodies, or IFIs such as the IMF, cannot function as an ILOLR.

The gist of my thesis so far has been that the key factor determining the scope and scale of a CB's LOLR functions has been its ability to absorb losses. As this has waned, relative to the scale of financial losses involved in systemic problems, as in Japan and Scandinavia recently, the responsibility for handling such crises has, willy-nilly, passed to the governments involved.

But such governments only have domestic, not (almost by definition) international powers. They can require domestic taxes be paid, and internal debts be settled, in their own fiat money. But they cannot create foreign currency,[14]

[13]Both Thornton and Bagehot were well aware of this. Thornton, for example, noted (pp. 31–3) that the 1793 financial crisis was resolved, absent sufficient resolve by the Bank of England, by direct LOLR support from Parliament. Bagehot noted that the experience of 1797, and the subsequent suspension of the 1844 Bank of England Act, 'confirmed the public conviction that the Government is close behind the Bank, and will help it when wanted'. The complete passage reads as follows: 'But no one in London ever dreams of questioning the credit of the Bank, and the Bank never dreams that its own credit is in danger. Somehow everybody feels the Bank is sure to come right. In 1797, when it had scarcely any money left, the Government said not only that it need not pay away what remained, but that it *must* not. The "effect of letters of licence" to break Peel's Act has confirmed the popular conviction that the Government is close behind the Bank, and will help it when wanted. Neither the Bank nor the Banking Department have ever had an idea of being put "into liquidation"; most men would think as soon of "winding up" the English nation' (p. 40).

[14]Kevin Dowd has raised the question with me, in personal correspondence, of whether governments could not also require taxes to be paid in foreign currency. This would happen naturally in a country that 'dollarized'. Even in the absence of dollarization, in certain emerging countries where access to the international capital market is restricted, serious thought has been given to the possibility of requiring multinationals operating in that country to make (tax) payments in US dollars to the government.

and they cannot force foreign creditors to accept payment in domestic liabilities, if the contract specifies otherwise. Moreover, if the domestic authorities create additional domestic fiat money to buy the requisite foreign currency in the open market, this would usually be largely or entirely offset by depreciation in the international value of the domestic currency.

So, just as commercial banks will turn to their CB when they cannot borrow additional high-powered money on acceptable terms in money markets, these national governments and CBs will want to turn to an international LOLR when they, or their private sector, cannot borrow foreign currency on acceptable terms in the international money market. Step forward the IMF. How does the IMF's position as an ILOLR compare with that of a domestic CB's position as an LOLR? In several respects the IMF is much *better* able to act as ILOLR than a CB to act as LOLR within the domestic context. The IMF has more capital, and could sustain larger losses. Moreover, the IMF always has the most senior ranking as creditor, so losses are perhaps even less likely than in the case of a domestic CB. Historically the IMF has suffered very little actual loss on its loans, although quite a large number of countries, almost all heavily indebted poor countries, such as the Sudan, have been in arrears in repayment. Few countries, other than 'basket cases', are likely voluntarily to remain in 'arrears to the IMF', since it carries such a high penalty. Such a country cannot get access to private funds or other public funds (other than concessional funds, e.g. from the World Bank), no matter how desperate it may be.

Nevertheless, as is well known, the IMF's resources and capital are limited, exactly as those of a domestic CB are limited.[15] As a result CBs have eked out their own scarce resources by involving the private sector and by acting as crisis manager in arranging the disposition of funds from a much wider range of private sector institutions. The Fund has done exactly the same. CBs have often sought to resolve crises by acting as guarantors, rather than putting up their own money up front, and by giving their seal of approval to the affairs of the distressed borrower. The Fund does so even more. In these respects,

[15]Moreover, the class of recipient of both the IMF's and domestic CBs' LOLR loans are limited. The IMF can only lend to member governments; the CB (by convention) to domestic commercial banks. In both cases this is primarily because the key reserves, foreign currency in the case of the IMF, high-powered money in the case of the CBs, are centralized in the recipient bodies. But there are subsidiary reasons in both cases, relating to trying to economize on monitoring efforts, to limit the scale and scope of 'safety nets', to concerns about the use of power etc. The dividing lines between commercial banks and other financial intermediaries and between domestic and multinational banks are becoming blurred, and this may cause some difficulties on this front to domestic CBs. There may be some analogues for the IMF; for example, if there were, as an unlikely event, a foreign currency crisis in Euroland, to whom would the IMF lend? Again, could the IMF lend to a subsidiary government with a different currency from the federal government, as in the case of Hong Kong. No doubt Fund lawyers have thought about all such cases.

as Fischer (1999) has noted in his paper on the IMF as an ILOLR, the IMF acts in exactly the same way as a CB.

The IMF differs from national CBs in two main respects. First it cannot buy/sell assets in open financial markets using its own currency liability (the Special Drawing Right, or SDR). Indeed, the conditions under which, and how, the issue of SDRs may be made are strictly controlled and constrained; consequently no issue has been made since 1981; and the issues actually made between the first issues, at the start of the 1970s, and then had relatively little impact on world liquidity. Without the ability to issue its own liabilities at will, the IMF has virtually no capacity to undertake open market operations,[16] e.g. in order to influence world liquidity conditions. Of course, given free international capital mobility, no domestic CB, apart from the US Federal Reserve Board, can do much to influence the level of real interest rates, and/or the risk spreads, in its own country.[17] So in that sense the IMF is not at such a disadvantage in comparison to the capacities of most national CBs.

Nevertheless, it is generally the level of nominal, rather than real, interest rates that is important for the resolution of (systemic) financial difficulties.[18] Indeed, it is the fear that national CBs may lower short-term interest rates too far, for the maintenance of price stability, in the pursuit of systemic stability, that lies behind the argument that a CB with both price and stability objectives could occasionally face a conflict of interest (see Goodhart and Schoenmaker 1993). Whether, or not, such conflicts may be common and problematical, this is clearly a power which the IMF cannot use *directly*. In practice, however, the IMF can influence borrowing governments to vary interest rates as part of 'conditionality'. In the Asian crisis the main criticism of the IMF was that it put pressure on the countries involved to raise interest rates *too much*.

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[16]For some economists writing on this subject (e.g. Capie 1998; Keleher 1999), the central, possibly sole, function of a proper, effective LOLR is to use OMO to offset generalized liquidity crises. For them, no OMO capacity implies, virtually by definition, no LOLR capacity. I have been trying to explain throughout this paper why I disagree.

[17]Robert Keleher, in his role of Chief Macroeconomist to the Joint Economic Committee, has seized on this difference to argue that the Federal Reserve, rather than the IMF, could, and perhaps should, act as an ILOLR. Thus his conclusions (Keleher 1999, p. 10) are: 'Under existing institutional arrangements, the IMF cannot serve as a genuine LOLR. Specifically, the IMF cannot create reserves, cannot make quick decisions, and does not act in a transparent manner in order to qualify as an authentic international LOLR. The Federal Reserve, however, does meet the essential requirements of an international LOLR. It can quickly create international reserves and money, although it has not openly embraced international LOLR responsibilities. The Federal Reserve can easily implement this function by employing several readily available market price indicators and global measures.'

[18]It is sometimes argued that the Federal Reserve helped to relieve US financial difficulties at the end of the 1980s and outset of the 1990s by keeping short rates low, relative to long rates.

Where the IMF is, however, at a crucial disadvantage compared with national CBs is that it does not have a single (world?) government standing behind it, with international powers and taxing authority (note also that the first difference above, the inability freely to issue its own fiat liabilities, follows logically from this second and much more fundamental difference). Consequently the IMF can neither issue fiat money freely nor – and this is vastly more important for ILOLR concerns – expect any loss that impairs its available capital resources to be absorbed by its member governments, or not at least without such a row as would imperil the IMF's own position. The fundamental issue is about decision-taking and burden-sharing in national and international government forums. No CB can cope with a large financial crisis on its own, but it can usually expect to obtain a clear and reasonably quick decision on how to proceed and how the burdens are to be shared from its own national government. As, I would hope, the exception that proves the rule, the failure of the Japanese government to reach any such clear, quick decisions has been a major cause of the long drawn-out difficulties in the financial system there. By contrast, the problems that the IMF would face in getting its disparate governing body to agree to a clear, quick decision on crisis handling and burden sharing are obvious.[19]

This view of LOLR emphasizes the potentiality for loss involved, and hence the need for decisions on burden sharing. After all, if there was no such prospective loss, why could not the market handle any such problem on its own? If such losses may be large, the ability of a CB to absorb them on its own will be stretched beyond its limit; hence the need to involve government. A national CB has one national government with which to cooperate and jointly to come to a decision. This process *should* be much easier than that facing an international body, such as the IMF, with many national representatives on its governing body.

What this analysis also indicates is that the crucial features of the organization of Euroland are such that the European Central Bank (ECB) has much more in common with the IMF, effectively operating as an ILOLR, than with national CBs operating as domestic LOLRs. The central EU government is weak, with strictly limited taxing powers. If the ESCB should find that a rescue

[19]Keleher (1999, p. 6) emphasizes this point as follows: '*The IMF cannot act quickly enough to serve as a LOLR*. Genuine LOLR decisions often must be made very quickly, sometimes within hours (as in a banking liquidity crisis). Under current practices, however, IMF decision-making is ordinarily quite slow and cumbersome. For example, in providing money to a borrowing country, the IMF conducts lengthy negotiations involving reform programs and related conditionalities. Letters of intent and memoranda of understandings are drawn up. IMF executive board decisions are subject to the votes of executive directors who often consult their national authorities. All of this takes a good deal of time.'

operation stretched its own capital position unduly, it could not look for executive action, financial support and decisions on burden sharing from the Commission, the European Parliament and the EU Budget. It would have to appeal for support to the European Council and the Parliaments and budgets of the member states. The 'political' difficulties of that course are all too clear.

Since national governments still maintain the bulk of fiscal power in Europe, the retention of LOLR activities within the euro zone in the hands of NCBs and national governments would seem the best course for the time being. The problem is that, once financial systems across the euro zone become more integrated, NCBs and national Parliaments will become increasingly unwilling to resolve, and pick up the tab for, problems that may have largely originated elsewhere within the EU.

For the time being the considerable (and even surprising) extent of segmentation in national financial systems within Europe will enable the present system of crisis resolution being centred on national institutions to continue (with the ECB playing a consultative, overseeing and advisory role). Once the European financial system becomes more integrated, the disjunction between a centralized, federal monetary system and decentralized national fiscal powers will become more difficult to reconcile. It will be interesting to observe how this disjunction will be resolved in future.

## IV. Myth 3

The third myth is that moral hazard is everywhere and at all times a major consideration.

The market can be expected to provide loans on its own to banks short of liquidity when no loss is to be expected. So LOLR is, almost always, only sought, or needed, when there is some potentiality for loss, in some cases a very large potential loss. If LOLR is then provided, this raises the possibility, often the likelihood, that such losses will fall on those providing the support funds (with CBs nowadays being public sector bodies, this effectively means the tax-payer, whether the loss is absorbed on the books of the CB or not).

This means that some part of the loss will generally fall on those who have had no responsibility for the decisions that led to the loss. This shifting of the burden from those closer to the source of the loss-making decisions to those further away, tax-payers, may cause the decision-makers to take riskier decisions for well known reasons – that is, moral hazard. Many liberal economists and commentators claim that moral hazard is so serious and pervasive that LOLR, as contrasted with standard OMO for liquidity control reasons, should be eschewed altogether.

Even if moral hazard is so pervasive, there remains the question of the possible extent of loss, should there be a (contagious) systemic panic, if the CB refuses LOLR. The CB has to weigh the benefits of preventing panic now against the costs of inducing riskier activity later. Liberal economists claim that any such panic can be checked and prevented by OMO rather than LOLR. But Goodhart and Huang (1999) reply that the uncertainty, dismay and panic engendered by the newsworthy failure of a (large) bank make it that much more difficult to calibrate the necessary extent of LOLR with any accuracy. Again, Okina (1999, pp. 23–4) argues against base money targetry on the grounds that financial instability made the public's demand for currency unstable and unpredictable.

The danger of moral hazard affecting those *closest* to decision-making has always been recognized. There is an apocryphal story of the CEO of a large money-centre bank in the US coming to the then Chairman of the Federal Reserve, Paul Volcker, and asking how he, Volcker, would react if the CEO was to come to him with a request for a rescue injection of liquid funds. Volcker is reputed[20] to have replied that he would be happy to discuss the issue with the CEO's successor. The need to ensure that those whose actual executive decisions have led the commercial bank, or financial institution, into a mess do not benefit from CB LOLR, or rescue, operations is well known and widely understood. It was the failure to remove the executives of LTCM from their positions that caused much of the public disquiet about that episode, even given that no public Federal Reserve money was at stake in this rescue.

While the principle is clear, it is sometimes honoured in the breach. In particular, the current executives have a certain monopoly of inside information, and at times of crisis that information may have particular value. For such reasons some of the executives of Barings (1995), and the top management of LTCM (1998), were allowed to continue in post.

In the case of ILOLR operations carried out by the IMF, the policy measures required to be implemented under the conditionality agreements have been so severely restrictive in recent cases that no one can regard calling in the Fund as a 'soft option'. Indeed, the reverse is probably the greater danger – that is, that the Fund's required terms are perceived as likely to be so onerous that calling for Fund assistance is delayed too long,[21] by

[20]Alas the story *is* apocryphal. When I checked with him, he wrote back, 'I wish the story were true. In spirit, it is true.' Private correspondence.

[21]Dr Lastra has reminded me that, in order to counter this syndrome, conditionality has been relaxed in certain respects over recent years, through new facilities (with 'softer' conditions) and through accelerated procedures to disburse money.

which time foreign exchange reserves are depleted, the financial system is weakened, wealth eroded, foreign capital in full flight etc. (see, for example, Lissakers 1999).[22]

Besides the decision-taking executives, the terms and nature of the equity contract imply that shareholders should also be required to face the responsibility and the adverse consequences of failure, loss and insolvency until their positive asset valuation is eliminated. Shareholders, with their downside protected by limited liability, and being the recipients of any upside potential, have some incentive to encourage (bank) executives into riskier action. (Note that the question of whether shareholders, whether in banks, financial intermediaries or elsewhere, should *not* enjoy the full protection of limited liability is too complex to discuss here.) One proposal recently put forward at a joint meeting of Shadow Regulatory Committees (June 1999) is to require banks also to hold a tranche of subordinated debt as part of their capital. Without any share in upside profit potential, and unprotected from loss of their stake following insolvency, such debt holders could be expected to be acutely sensitive to risk. One benefit could be that the yield on such debt might be a good measure of perceived risk. If so, it would need to be understood that support by the authorities, whether resulting from LOLR activities or otherwise, did not temper any losses to such debt-holders associated with a fall in the distressed bank's capital values.

The problem of where the burden of loss should fall becomes more difficult and complex the further away one moves from the central locus of decision-making. How far, if at all, should a failing bank's losses, beyond those already absorbed by equity and bond holders, fall on its other creditors, especially but not only its interbank creditors? The principle has been broadly accepted that it would be socially wasteful to require ordinary small depositors to monitor their bank, and that some considerable (though preferably *not* 100%) deposit insurance for such depositors is justified. There is no need to re-open that issue here. One hundred per cent deposit insurance may, indeed at times certainly does, lead to moral hazard in the sense that depositors do not monitor their bankers, and instead shift their funds to institutions offering the highest interest rates irrespective of reputation or apparent probity. This can be contained by partial insurance, or co-insurance. Meanwhile, the polar opposite of zero insurance is just too inequitable and socially wasteful to be acceptable.

[22]McKinnon, in personal correspondence, has, however, pointed out that the two-step procedure whereby the IMF lends to a government, and then the domestic monetary authorities lend to commercial banks can lead to a double jeopardy in moral hazard. 'Because the IMF must lend through national governments who in turn bail out national banks, limiting moral hazard involved faces double jeopardy. To be effective, IMF conditionality imposed on governments must sanction them from misbehaving in the future. But this is only effective if the government receiving the loans is not undermined by (undetected) undue risk taking by its own banks.'

The absence of any (partial) deposit insurance is, therefore, likely to enhance the implicit guarantee of full protection to all depositors, since the political alternative is just too horrible to contemplate.

The more immediate question is what to do about the nexus of interbank connections, both domestically and internationally. It is above all such connections that are feared to lead to contagion and systemic problems, as was demonstrated in the Continental Illinois case and has been modelled theoretically by Allen and Gale (1999) and by Aghion et al. (1999). On the other hand, banks ought to be in a better position to monitor their fellow-banks than anyone else, (apart from the official supervisors). Moreover, interest rate terms and spreads are set in bank-dominated wholesale financial markets. If interbank lenders are (thought to be) protected from loss by the operation of domestic and international LOLRs, will not then the pattern of relative interest rates fail properly to reflect true risk, and hence the allocation of capital become distorted?

This is, perhaps, now the focus of most concern, certainly internationally, to a rather lesser extent nationally. How far does LOLR primarily benefit other bank creditors? If so, should this be allowed to continue? When banks have lent to financial intermediaries, such as the Juzen in Japan, what should be the balance of burden absorption between the banks and the tax-payers? On the one hand, placing the burden on the banks would weaken them further at a time of fragility and hence cause more danger of contagion. On the other hand, the banks *should* have known the risks, and it is unfair (besides incurring moral hazard) to shift the burden to the tax-payer.

The same argument runs in the international sphere. There are several schemes for 'bailing-in' the international bank lenders. The 'U-drop' proposal by Buiter and Sibert (1999) is one, among several other, such. As in the domestic arena, a response of the banks is that any such prospective restriction/penalty would make contagion (between countries) more likely and more immediate, and that it could further worsen the volatility of both spreads and flows, as well as raising the average level of spreads faced by emerging countries.

Any supportive action by the authorities represents a form of insurance, and any form of insurance involves moral hazard. But that does not mean that insurance must never be undertaken. There is a need to be careful about the resulting incentive structure. Within this field of LOLR, and financial support actions more generally, the main need – though often not honoured – is to avoid any protection of the position of the main executive decision-makers. Thereafter there is a consensus that equity and bond holders should suffer the full 'hit', up to the extent implied by limited liability at least, but that ordinary (retail) depositors should be largely (though not necessarily) protected. The current battle-ground, both domestically and internationally – but especially

the latter – is what should be the status of interbank creditors of failing institutions. That will no doubt continue to be a main focus for discussion.

## V. Myth 4

The fourth myth is that it is possible to dispense with LOLR altogether.

Being caught in a financial crisis is highly unpleasant. The history of capitalism is littered with such episodes. If the public sector authorities are not in a position to help to prevent the worst effects of such crises, those involved will try to establish private sector alternatives.

Of course, central banking was not the only model, and more oligopolistic systems, as in the US and Canada, had other self-help mechanisms, concentrating in the US around the institution of the clearing house. In the American crises of the late nineteenth century, the (New York) clearing house provided LOLR after a fashion to its members (Timberlake 1978, 1984). But both this mechanism and the underlying problems of moderating (seasonal) fluctuations in liquidity in a system without a central bank were perceived as inherently unsatisfactory after the 1907 crisis. A mammoth official comparative study, the National Monetary Commission (1910–11), indicated that the alternative central bank model was superior; hence the advent of the Federal Reserve.

Given our history, it is unthinkable that any government or central bank would now stand idly by and watch the closure of any of its major banks, the realization of large-scale losses on the bank deposits of its citizens and the collapse of its financial markets, if the authorities could avoid such events. And they could avoid them by judicious LOLR. It is all very well for academic liberals to claim that the best long-term course for the economy would be for the authorities to allow *any* bank to close its doors, while restricting their assistance to generalized OMO. Even if the externalities generated by the resultant panic were not so severe as to make this line of action socially wasteful, it would not be politically acceptable, in the sense that a government doing so would suffer extreme unpopularity.

There is an important question of what *exactly* we mean when we talk about a bank 'failing', and/or about a bank being 'rescued' or 'bailed out'. If the current management of a bank is removed, and the shareholders lose their equity, but the bank is allowed to continue in operation, does that count as a 'rescue' or a 'bail-out'? If we mean by 'failure' the removal of ownership from existing shareholders and of control from existing management, then this can be done, effectively by (temporary) nationalization. This has happened in Japan and Scandinavia, for example. If we mean by failure the closure and liquidation of all positions, then the economic, social and political consequences would become much more extreme.

There *may* be other ways of providing mutual insurance within the banking system with a much larger role for the private sector, e.g. the cross-guarantee scheme advocated by Bert Ely (for example, 1995). There are certainly ways of trying to lessen the potential burden on the tax-payer, e.g. via prompt corrective action, otherwise known as Structured Early Intervention and Resolution, suggested by Benston and Kaufman (1994a, b), and partially incorporated in the Federal Deposit Insurance Corporation Improvement Act, or FDICIA, (1991). The approach taken by New Zealand of requiring all directors, each year as a condition of continued appointment, to sign a letter indicating that they have personally checked, and are happy with, internal risk control mechanisms, thereby leaving themselves open to legal suit if something goes badly wrong, is another highly promising innovation (see Mayes 1997; Shirakawa 1997).

There is much that can be done around the edges, e.g. to improve the incentives facing bank executives and to encourage bank supervisors to intervene earlier. But such measures, highly desirable though they may be, do not lessen the crucial economic verity, that the domestic monetary authorities, the government and central bank, will be held responsible by the electorate for the maintenance of systemic financial stability. This cannot be abrogated in a fit of extreme *laissez-faire*, and any attempt to pre-commit to do so would run into the most patent time-inconsistency.

The domestic monetary authorities have many powers. They can create fiat money, force errant bank managers to step down, recapitalize, merge or nationalize financial intermediaries etc. But, by definition, they cannot create foreign currency, and they cannot by their own actions normally relieve foreign currency indebtedness within their own countries, except by encouraging or facilitating various forms of default (the pros and cons of which take us beyond the range of this paper).

Since a shortage of foreign currency, and an associated potential shortfall in imports and trade finance for exports (in its other guise a collapsing foreign value of the domestic currency), will disrupt the domestic economy, weak countries in such crises will seek financial support from their stronger neighbours. Just as weaker, smaller banks sought financial help from a larger, more central bank within a country, so smaller countries will seek out a larger protector in case of need.

If the IMF should be abolished, it would *not* lead to a cessation of intercountry support actions and 'bail-outs'. Instead of an international financial intermediary, we could then expect arrangements to develop whereby certain groupings of states attempt to arrange their own mutual insurance, perhaps around a hegemon, perhaps not. In Latin America, the abolition of the IMF would simply transfer more responsibility and involvement to the US Treasury. It is arguable that the main moral hazard in international lending

came from the view that friends of the US would always be bailed out, rather than anything that the IMF, in so far as it could act independently of the US, would do. Circumscribing the role of the IMF in such circumstances would be akin to shooting the messenger, but failing to understand the message. In Asia, perceived limitations of the IMF in dealing with the recent crisis have led to proposals for an Asian Monetary Fund under Japanese leadership. In the absence of effective IMF ILOLR, the euro zone would play a similar role in Eastern Europe and Africa (and possibly elsewhere).

If the IMF were abolished, or so circumscribed in its resources and functions that it could not play an effective ILOLR role, the alternative would not be the restoration of a perfectly free market, in which each country stood, or fell, on the basis of its own individual failures or successes. There would, instead, develop an *ad hoc* system of regional (self-help) systems centred on a major currency, and a major power. The implications of that are not, on this view, welcome. Dividing the world into regional spheres of major powers would not be an advance on a truly international solution. Proponents of pure international *laissez-faire* should be aware that the political realities suggest that the result of curtailing the IMF would be a descent into a murkier world of regional major-power groupings, and not a system of pure free markets.

Financial crises are all too common, painful and potentially contagious. Faced with such dangers, all agents will try to insure against it. The weak will look to the strong for support. The question is not whether to have a lender of last resort, either nationally or internationally, because it is vain to think that such a mechanism can be abolished on the altar of free-market doctrine. The more relevant and interesting question is how best to organize the LOLR function that will continue to exist both nationally and internationally.

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