

The Lender of Last Resort Function
in an International Context

by

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INTRODUCTION

Traditionally discussion of the role of the lender of last resort (LLR) has focused on the national economy without regard for international complications. To be sure, Thornton and Bagehot considered the response of international capital flows to actions taken by the LLR, but it was assumed from the outset that the LLR was the national central bank which would provide funds to solvent, national institutions. Over the last two decades, the marked growth of international banking activity in terms of transactions denominated in foreign currencies, cross-border loans, deposit liabilities to foreign residents, foreign offices of domestic banks and domestic offices of foreign banks has made necessary a reconsideration of the function of the LLR.

The growth of international banking has posed two key questions. First, has it increased the probability of a crisis that will require LLR intervention? Second, has the growth of international banking reduced the ability of national LLRs to respond effectively to incipient financial crises?

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This article briefly summarizes why banking systems have become increasingly vulnerable to international disturbances, reassesses the rationale for having an LLR, sets forth the requirements for an effective LLR, and then considers how the growth of international banking has altered the effectiveness of national LLRs. This last issue involves problems in defining lines of LLR responsibility as well as the ability to execute LLR functions effectively even when responsibilities are well defined. Because our analysis is pessimistic about the prospects for establishing effective international LLR arrangements, we also consider "second best" alternatives. And because we conclude that even an effective LLR would be inadequate to cope with some crisis scenarios, we consider where LLR responsibilities for dealing with financial crises end and other governmental responsibilities begin.

I. THE INCREASING VULNERABILITY OF THE BANKING SYSTEM TO INTERNATIONAL DISTURBANCES

Over the past two decades the growth in international activities has had a marked impact on the banking systems in most nations and has transformed international credit relationships. Between 1960 and 1980 the number of foreign branches of U.S. banks has grown from 124 to nearly 800. During the seventies the number of foreign banks and foreign banking offices in the U.S. tripled from fewer than 50 foreign banks with 100 banking offices to more than 150 foreign banks with about 350 banking offices. The Eurocurrency market has mushroomed from negligible levels in 1960 to a gross size of more than \$1 trillion. By 1980, several developing countries and the Eastern bloc had larger debts to private banks than to governments, international organizations and direct investors. And in several years during the seventies, more than 50 percent of the earnings of the ten largest U.S. banks stemmed from foreign sources.

This rapid expansion of international banking activity has produced significant benefits for the world economy: it has greatly increased the efficiency with which savers in one part of the world can be connected with foreign investors; it has increased the interest elasticity of international capital flows; and it has reduced the transactions costs of international intermediation. But the growth in international banking has also caused some problems, not the least of which is that an international banking crisis has become more probable.

There are several reasons for this. First, international banking activity exposes banks to several hazards which either do not arise, or are much more easily controlled in domestic operations. This reflects the relatively high cost of information on borrowers (including foreign banks), the greater danger of moral hazard as a factor encouraging borrower default, the possibility that borrowers will be unable to convert local currencies into loan transaction currencies, the vulnerability of deposit flows to political cross currents, exposure to foreign exchange risks, and relatively light regulatory controls, which contribute to intensely competitive markets and which allow banks to assume greater risks without challenge. International diversification can partly or wholly offset these risks under benign financial conditions. But it will not help much when major shocks occur in a vulnerable world in which questions about bank solvency arise.

Second, the increasing debt service burden of several major countries to banks has reduced the capacity of these countries to withstand disturbances to their foreign exchange earnings or expenses. As a result, the probability of a shock to international banks from this source, has risen.

Third, while exposure to international shocks has increased, the capacity of major banks to withstand such shocks has declined. Capital ratios have

been falling and there has been a growing concentration of claims against specific countries. Judging from spreads on most syndicated country loans, banks are behaving as if they view the probability of a major shock as zero and collect no risk premiums to cover such a contingency. Such behavior is consistent with general findings regarding human behaviour in the face of low probability-high loss hazards established in the natural disaster literature, and has historical counterparts in bank lending to sovereigns in the 14th to 17th centuries, and in the history of foreign bond issues in the U.S. during the 1920s.

We have identified two kinds of crisis scenarios in international banking. The first is essentially a liquidity crisis and would involve a blockage of convertibility by governments of one or more countries in which major banks had large positions. If the British government blocked convertibility of the pound sterling into U.S. dollars, for example, a bank that had been funding sterling assets with dollar deposits might require LLR assistance if its deposits were withdrawn. A similar problem could arise if a government froze the accounts of residents of one or more foreign countries (as the U.S. did last year with Iranian depositors).

The second scenario is essentially an insolvency crisis, and at this juncture it is both more likely and would be less tractable than a liquidity crisis. An insolvency scenario would probably begin with a development that substantially raises the expenses, or reduces the revenues of one or more countries with heavy loans outstanding to banks. One such event would be a marked rise in world interest rates. (Under the floating rate loan contracts characteristic of Eurocurrency loans, banks have protected themselves against interest rate risk by shifting this risk to borrowers). This could lead to a credit shock to lending banks, to a loss of confidence in such banks, and to a run by creditors of such banks including other banks.

II. RATIONALE FOR A LENDER OF LAST RESORT FUNCTION

A lender of last resort is an institution with responsibility for providing credit under conditions of stress. In the classical view of the LLR function developed in the nineteenth century by H. Thornton (1802) and W. Bagehot (1873)¹ the LLR was charged with a responsibility to the entire financial system for the prevention or rapid cure of financial crises, but the discharge of this obligation required credit extensions to specific banks. In the classical view, the LLR was obliged to lend to all sound borrowers who turned to it as a last resort and equally, it was obliged to refrain from lending to unsound borrowers.

Consistent with the classical position, we view direct lending as the crux of the LLR function, and the adequacy of facilities for making direct loans to international banks is the focus of concern of this paper. To be sure, as we show below, some of the problems associated with financial crises can be prevented through general monetary tools, and if potential lenders could be certain of repayment prospects, no direct lending function would be needed. But lenders are rarely certain that debts will be repaid.

Some contemporary analysts, perhaps beguiled by perfect market axioms, take the view that direct lending is not essential to the LLR function. Humphrey (1975) goes so far as to argue that Bagehot would have taken this position if open market operations had been available to the Bank of England in the 19th century. We believe this is a mistake. Bagehot was keenly aware that during periods of financial stress, market judgments of the creditworthiness of banks dependent for their liquidity on their ability to

¹For a provocative discussion of these two treatises, see T. Humphrey (1975).

borrow could be abruptly altered, sometimes for good reasons but often not. He pointed out (1921, p 68) that "Every banker knows that if he has to prove that he is worthy of credit, however good may be his arguments, in fact his credit is gone..." But the LLR would heed the bank that had "good arguments".

Underlying the classical view of the LLR function are several premises that we will reexamine. The first is that banking is peculiarly subject to crises. The second is that the social costs associated with the failure of banks during a financial crisis exceed private costs. The third is that banking crises are preventable by an LLR at relatively small social cost.

A. Vulnerability to Crises

Banking is subject to crises for two reasons. The first is that banks must maintain the confidence of their creditors which is inherently fragile. Information about the soundness of banks is often subject to great uncertainty because perceptions of soundness are importantly influenced by the quality of loans and securities on which timely information is often difficult or impossible to obtain. Furthermore, banks are very highly leveraged, which means that there is always the possibility that a major unanticipated shock will wipe out their capital. Since a large part of bank liabilities are very short term, creditors have the opportunity to run when the possibility of such a shock is suspected.

Second, banking is subject to contagion. In a fractional reserve banking system a "run" on one bank reduces total reserves available to other banks and if these reserves are not replaced, the entire system is weakened.¹ Banks

¹This danger no longer exists in systems like that of the U.S. where reserve effects of currency drains are automatically neutralized by open-market operations. The remaining points continue to be a problem.

typically lend heavily to each other, moreover, which may spread shocks throughout the system. And a weakening of creditor confidence in one bank may easily lead to suspicions about others.

Vulnerability to financial crises can be reduced or eliminated by a comprehensive system of deposit insurance or by 100% reserve requirements.¹ In Eurocurrency markets, however, deposit insurance is unworkable as we shall see later, while 100% reserve requirements are impossible.

B. The Social Costs of Banking Crises

In assessing the social costs of banking crises, we distinguish those costs that can be prevented only by direct lending to individual banks, as opposed to general support to the banking system through open market operations or changes in reserve requirements. We also distinguish costs that go beyond traditional LLR (or central bank) concerns.

1. Deflation

The most obvious costs of a banking crisis arise from the deflationary consequences of wiping out a portion of the public's liquid wealth -- unemployment, income declines and losses in capital values. The central bank can prevent or offset these effects through its general monetary powers (as can government using fiscal tools) and does not require direct lending to individual banks. Adequate general tools may not of course be available. In Bagehot's world, the Bank of England relied on direct credit extensions to

¹In his widely read Fordham lectures delivered in 1959, Milton Friedman argued that deposit insurance in the U.S. had made our banking system panic proof, although he would have preferred 100% reserves (Friedman, 1960). This observation seems much less secure today because of the rapid growth of non-insured liabilities at U.S. banks.

implement general monetary objectives, and this still remains true for many central banks, including some in advanced industrial nations.

2. Failure of solvent banks

A second category of costs are associated with the failure of solvent banks. This reflects the contagion problem referred to earlier. Where the failure of one automobile company ordinarily does not raise problems for other automobile companies - in fact, it is likely to strengthen the other companies - the failure of an insolvent bank may lead directly to the failure of another bank which is basically solvent. The failure of a solvent firm involves needless loss of going concern value including the customer relationships that have accumulated over the years, and it may carry unfavourable consequences for market structure (if the number of banks in the market is already small). Furthermore, solvent banks that fail are likely to be small, which raises income distribution and equity issues as well.

A LLR may be able to prevent the failure of solvent banks through general monetary tools alone if a) adequate general tools are available, b) the problem that arises is illiquidity and there is no question about solvency, and c) private markets operate effectively, which implies absence of interest rate ceilings or other institutional constraints associated with credit rationing. Under these conditions, so long as the LLR sees that overall monetary stringency is not excessive, any bank should be able to meet its liquidity needs in the private market. To be sure, small banks may not be

well connected to private markets and may have to pay very high rates, but they will not fail.¹

If any of the conditions stated above do not hold, the LLR may need to lend directly in order to save solvent banks. We view this as the crux of the LLR responsibility.

If capital markets were perfect, no LLR function would be needed. The central bank could use open market operations to achieve any desired degree of overall stringency in the market, banks would not be subject to arbitrary denials of credit, and creditors would react to the possibility of bank insolvency by charging an appropriate risk premium.

But the markets in which banks borrow are far from perfect, largely because information is inadequate. An LLR may well have better information regarding the condition of a bank than the private markets and may know that the bank is solvent when the private market does not. It is useless for a bank in this situation to offer higher interest rates to private creditors. When banks come under suspicion and existing sources of information are unreliable, the offer to pay a higher rate is interpreted by the market as confirmation of the bank's weakness.² In addition, the LLR may be in a position to impose conditions on a borrowing bank to assure its continued solvency, which the private market cannot do as well. These conditions

¹There may of course be structural and income distribution effects in forcing small banks to meet temporary liquidity needs at very high rates. This is an important factor underlying the administration of the discount window by the Federal Reserve System. Such concessions to small banks would not have met with the approval of Bagehot who believed that loans advanced by a LLR during periods of stringency should carry high rates as an inducement not to get into the same predicament next time.

²Guttentag and Herring (1981), p. 1-14.

include provision of information, as well as required or prohibited modes of behaviour backed by sanctions.

While financial markets are far from perfect, so are LLRs, especially when they must deal with international banks (as we shall see later). To some extent LLRs and financial markets are alternative mechanisms for preventing the failure of solvent banks. Which is likely to be most effective depends on a wide range of circumstances that affect each. Domestically we have decided in the U.S. that a LLR is more effective but assuming that this conclusion was well founded, it does not follow that the same conclusion holds in the international arena. And if it does not hold, it may well be that efforts to improve the efficiency of markets will provide a larger payoff than efforts to improve the efficiency of LLRs.

3. Costs associated with insolvent banks.

Historically and institutionally, LLRs do not deal with problems associated with insolvent banks (although they could be dealt with by a central bank wearing a different hat). While any extended discussion of these problems exceeds the scope of this paper, it is necessary to at least define their general nature so that we understand what an LLR is not fitted to do.

Beyond the general deflationary consequences of bank failures that were discussed above, there are two important problems associated with insolvent banks. The first is to protect creditors and prevent dissipation of the insolvent bank's assets at their expense.¹ If an institution is insolvent, new creditors not aware of the bank's condition will share the losses of the old creditors when the institution is eventually liquidated. More important,

¹For an analysis of this point, see Horvitz (1980).

both new and old creditors are subject to the risk that any delay in closing the firm will increase their losses. This reflects the moral hazard that inheres in any situation where there is a severe conflict between the interests of the management and the interests of the firm. When a firm has no capital, the management has an incentive to engage in high risk/high return ("go-for-broke") ventures in which any gains will benefit management and stockholders while losses will be born entirely by depositors.¹ Incentives also increase for "self-dealing" transactions and fraud. Closing a financial institution thus avoids the risk that once capital is depleted, losses are very likely to accelerate.

Closing an insolvent bank is usually the legal responsibility of the political entity that chartered it, although the LLR may de facto "pull the plug" by its unwillingness to make additional loans, or, if the bank's deposits are insured, the insuring agency could do the same by terminating insurance.

The second problem involved in connection with an insolvent bank is to minimize the loss of going concern value that would result from an outright liquidation. Banks usually are worth much more alive than dead even when their worth alive is negative.²

¹For example, a bank with loans equal to its capital outstanding to a country on the verge of default might make an additional loan of the same amount that carries only a 10% chance of full recovery. In such case the expected social benefit of the additional loan would be .2L exclusive of any externalities involved in keeping the bank alive, and the expected loss would be .9L. Even if externalities are important enough to outweigh this disparity, if the new loan goes the way of the old one, the bank might make still another loan on which the expected loss was larger. So long as the bank remains operational there is no limit on the losses it can impose on creditors.

²The two problems can be illustrated by the following hypothetical example. A bank has assets and liabilities with market values of \$70 and

An insolvent bank's going concern value can be captured by maintaining it operationally with financial assistance (and probably new management), or by merging it with another firm. This is a natural function for a deposit insuring agency, for by saving the insolvent bank's going concern value it minimizes its own losses. In the absence of a deposit insuring agency to perform this function, it must be performed ad hoc by some other official agency, or go undone. If a bank's insolvency is due to losses on loans to a limited category of borrowers, the insolvency could be cured by providing assistance to the borrowers so that they can repay their loans. None of these approaches are within the purview of a central bank.

C. The Social Costs of an LLR Function

There are three costs of offering an LLR function: First, there is the direct cost of the loan procedures that must be administered by the LLR. These are very small. Second, there may be substantial indirect costs to the extent that the availability of LLR facilities leads some banks to assume riskier positions than are socially optimal, and thereby makes the banking system more vulnerable.¹ The extent to which this occurs depends partly on the ability of central banks and other regulatory agencies to prevent it through regulatory sanctions. Third, a LLR that cannot deliver the goods in

\$100, respectively, or an immediate liquidation value of \$-30. This would be the loss to creditors if it were closed immediately. If the bank stays operational, losses could mount to a maximum of \$-100. If the bank were closed immediately and sold to another bank under competitive bidding, the loss might be reduced to \$-10, with the \$20 paid above liquidation value being the bank's going concern value.

¹If markets are not competitive LLR assistance to solvent banks may also involve an efficiency cost. This is a good reason for central banks to be concerned with market structure.

time of real stress seriously weakens the banking system by discouraging the development of private relationships that would, even if imperfectly, have performed the same function of providing credit under stress.

The worst of all possible worlds would be a LLR arrangement that encourages banks to believe that it will be available when needed, which cannot constrain the tendency of banks to overexpose themselves on the basis of faith in the LLR, and then when the crisis hits cannot meet its obligations. It would be far better for the central bank to declare that there is no LLR (for specified banks or under specified circumstances), and to use its powers and influence to provide the market with as wide a range of timely and relevant information as possible.

III. THE REQUIREMENTS OF AN EFFECTIVE LLR

What are the desirable characteristics of an institution which acts as LLR? First, if the LLR is to take timely and effective action in a crisis, it should be sensitive to the full range of social costs that may result from its inaction.

Second, since the role of the LLR is to immunize sound banks from a shock which causes some unsound banks to fail, the LLR should have resources which, if not unlimited, are well in excess of the largest needs that it will likely face in a crisis. If the LLR's resources are inadequate it may not be able to sustain the confidence of creditors of sound institutions. Paradoxically, the larger the LLR's resources the smaller the probability that it will be necessary to draw on those resources.

Third, the LLR must be able to limit the moral hazard its existence tends to create. A LLR creates two types of moral hazard. It was noted earlier that an LLR reduces the cost of risk-taking and therefore may lead the banking

system to assume greater risk exposure than is socially optimal.¹ Second, individual banks whose net worth has become zero or negative have an incentive to misrepresent their current condition in order to obtain LLR assistance, and, once assistance has been given, such banks have an incentive to play go-for-broke by booking riskier loans and/or taking larger trading and investment positions. If the bank has large loans outstanding to a single borrower who will fail unless even more credit is available, and who may well fail even with additional loans, the bank may go ahead and take the risk.²

The first type of moral hazard is controllable only through continuing and effective supervision, which must include (a) the power to obtain accurate and timely information (whether through on-site examinations or other means), and (b) the power to impose effective sanctions. Such sanctions may include administrative actions such as issuing "cease and desist" orders, prohibiting the payment of dividends, replacement of management, or revocation of charter. They could also include monetary penalties in the form of fines, higher interest rates on LLR advances, higher deposit insurance premiums, etc.³

It is not necessary that the LLR be the supervisory agency. Indeed, since the same type of moral hazard would arise from governmental deposit

¹Thornton (1939, p. 188), writing in 1802, warned that it would not "...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."

²Bagehot (1921, p. 230-232) noted that the role of bank capital was "not to work the business but to guarantee the business...(T)he capital is wanted to assure the public and to induce it to trust the concern." Bank capital was "...only wanted as a 'moral influence'..."

³The relative merits of the different approaches to supervision will not be considered in this paper.

insurance, an insuring agency might with equal logic be the institution entrusted with responsibility for preventing excessive risk taking. But the LLR must have complete access to and confidence in the information developed by the supervisor.

One other possible way to avoid this type of moral hazard is to make access to LLR facilities uncertain, something to be determined ad hoc in each crisis. This is indeed likely to make banks more risk averse but it will also make their creditors more prone toward abrupt reassessments of the creditworthiness of banks, and thereby weaken the system. A policy of ambiguity is thus antithetical to the primary function of an LLR. It also provides an inequitable advantage to large banks (see below).

In dealing with the second type of moral hazard - preventing banks whose net worth has been eroded from adopting "go-for-broke" strategies with LLR money -- the LLR is again dependent on effective supervision. As a matter of policy the LLR will lend only to solvent banks. (A bank's net worth is like a deductible clause in an insurance contract; the larger the deductible, the less the moral hazard.) But solvency determinations require the type of detailed information that can only be obtained through the supervisory process. Furthermore, the LLR is concerned not only with the status of the bank at the time it advances credit but also with what the bank does afterwards. In marginal cases where the LLR grants the bank the benefit of doubt on the issue of solvency,¹ the LLR may feel it necessary to tighten

¹Under the best of circumstances a judgement of solvency is a probabilistic assertion: "If the bank is allowed to borrow freely from the LLR, it has an X per cent chance for survival." What chance for survival should be considered sufficient to qualify the bank for aid? No general answer to this question is possible. The higher the threshold is set, the higher the probability that some solvent banks will be denied aid, but the lower the probability that resources will be wasted on insolvent banks.

supervision, perhaps imposing special restrictions on the bank as a condition of assistance, increasing the frequency of examinations or statistical reports on operations, and so on. If another agency is the supervisor the LLR must have full confidence in that agency and there must be complete cooperation in both directions.

A traditional method used by central banks to protect themselves is to demand collateral of value at least equal to the loans extended. Collateralized lending, however, is not very satisfactory. An insolvent bank with some acceptable collateral that obtains a LLR loan can still adopt a "go-for-broke" strategy, and while the LLR may be protected the bank's other creditors (and society) are not. Conversely, a solvent bank with very large needs may have trouble providing enough collateral of the type readily acceptable to the LLR. The bank's other assets may be equally good, but if the LLR cannot determine this without investigation, and if the bank needs funds immediately, it might fail unnecessarily. Of course, if the LLR through its supervisory powers (or those of another trusted agency) is already aware of the quality of the bank's assets this problem need not arise, but, in such case the need for the LLR to take collateral is not pressing, and a good case can be made that it should not do so. The argument is that a LLR with adequate supervisory powers is privy to sufficient information and has sufficient control over a borrowing bank's behaviour to minimize risk to itself without the need for collateral. Collateral lending shifts the risk to other creditors who are less able to protect themselves, and might encourage the LLR to become careless in assessing the bank.

IV. INTERNATIONAL BANKING AND THE EFFECTIVENESS OF LLRs

As noted above, an effective LLR is sensitive to the full range of social costs associated with its action or inactions, has unlimited resources, and can evaluate the solvency and limit the risk exposure of financial institutions to which it may lend. An LLR that meets all three criteria when the financial system is closed to foreign transactions, may be much less effective when its banking system becomes heavily involved abroad.

First, the LLR will not necessarily be responsive to the full range of social costs which may result from a banking crisis. Consider, for example, a French-owned bank, incorporated in the United Kingdom, dealing primarily in US dollars, with deposits largely from residents of the Middle East, and which uses its funds to finance trade between Italy and Brazil. Conceivably, the LLR for this bank might be the central bank in the jurisdiction where the owners reside (France), in the residential jurisdiction (UK), or in the currency jurisdiction (US). Whichever jurisdiction the LLR is in, it is unlikely to be sensitive to the interests of foreign creditors or foreign borrowers. Yet the primary impact of the failure of this bank would be felt by its depositors from the Middle East and the borrowers from Italy and Brazil.

While this example is extreme, most large banks have substantial relationships with scores of countries. Obviously, the ideal LLR for an international bank would be an institution which represents the world community. It is equally obvious that such an institution will be a long time coming. While cooperation and consultation among national LLRs may compensate to some extent for the lack of an appropriate international institution, such arrangements are cumbersome to negotiate and may be unreliable in a crisis.

In a crisis involving Eurocurrency markets, furthermore, major problems may arise in connection with solvent nonbank borrowers who are cut off from access to bank credit. An LLR following the traditional rule of lending freely to solvent banks, assumes that banks in turn will do the same with their own customers. Where banks have long-standing customer relationships, this assumption is usually justified. In Eurocurrency markets, however, customer relationships are less prevalent, and while this has the advantage that markets do not stay in disequilibrium very long, it has the disadvantage that in a crisis solvent nonbank borrowers may be cut off. Nor is there much an LLR can do about this. If solvent domestic borrowers are cut off the LLR might armtwist the banks to meet their responsibilities, and failing that might even lend its own funds to the firms affected. But firms and governments borrowing in Eurocurrency markets are not likely to get such treatment, since they are probably foreign and therefore not a source of great concern to the LLR, nor would the LLR likely have the information needed to assess the solvency of such borrowers.

On the face of it, the question of resources appears more tractable. So long as currency convertibility is maintained, a bank which has access to one convertible currency should be able to buy whatever currency it needs to settle debts when due. If, for example, a bank headquartered in France experiences a run on its dollar-denominated deposit liabilities and exhausts its convertible currencies, it can turn to the French central bank. So long as the amount of dollars the troubled bank requires is small relative to French official foreign exchange reserves, no problem arises. But if the amount of dollars is relatively large, the French central bank may face an uncomfortable policy decision which would not have arisen if the troubled bank had not

issued liabilities denominated in a foreign currency.¹ Any francs it lends to the bank needing dollars will be sold on the exchange market thus causing the franc to depreciate. If the central bank wants to resist the depreciation of the franc,² it must buy back the francs in the exchange market, drawing down its foreign exchange reserves. Since there is some limit to the amount of foreign exchange it can acquire on acceptable terms, fulfillment of LLR responsibilities may come into conflict with the goal of maintaining exchange rate stability.³

But by far the most serious problem faced by a national LLR is that of exercising regulatory control and surveillance over an international bank. We have argued that in order to limit the social costs which may result from its actions, the LLR should either have direct regulatory control over the institutions to which it would provide LLR assistance, or such controls should be exercised by some agency in which the LLR has great confidence and with which it shares information. Otherwise, the LLR cannot readily control the likelihood or extent to which an institution will require LLR assistance, nor can it readily determine at any juncture that the institution is "sound" and therefore eligible for aid.

¹Of course, an equivalent situation could arise if the reason for the run were speculation against the franc in which domestic and foreign deposit holders redeemed their franc denominated deposits in order to buy foreign currency. In a more fundamental sense, convertibility is the problem.

²Letting the exchange rate float is a way around this difficulty only if policymakers are indifferent to the foreign exchange value of domestic currency. In most countries, a policy of indifference to the exchange rate is politically impossible.

³The fact that banks headquartered in countries with very large dollar reserves can attract Eurodollar deposits on more favorable terms than banks headquartered in countries with relatively small dollar reserves, may indicate that market participants are troubled by this possibility.

In this respect international banking, especially Eurocurrency activity, presents a very messy picture. To a considerable extent international banking activity has grown in the gaps between national regulatory systems, taking advantage of asymmetries in banking regulations between the treatment of domestic and foreign currency transactions and between domestic and foreign residents. Most countries regulate the domestic currency activities of resident banks more strictly than their foreign currency activities, and this is a major incentive for Eurocurrency transactions.¹ Since many countries regulate bank transactions with domestic residents more strictly than transactions with foreigners, creditors of and borrowers from Eurobanks tend to reside in a different country than the Eurobank. Since most countries supervise the foreign offices of their own banks less intensively than their domestic offices, Eurobanks located in one country are often branches, subsidiaries or affiliates of banks headquartered in another country. And since nations vary with respect to the regulations and taxes they impose on foreign-owned banks--often with the explicit aim of attracting banking activity--Eurobank activity tends to be concentrated in nations where such burdens are relatively light. Thus, although a Eurobank is potentially subject to regulation by the authority where the parent bank is chartered, the authority where the Eurobank resides, and the authority in whose currency it deals, it will usually be located so as to minimize all regulatory restrictions.

The problem is further complicated by the fact that the entities conducting international banking operations assume several different legal

¹In countries like the US and Germany where foreign currency transactions are generally subject to the same regulations as domestic currency transactions, there is relatively little Eurocurrency activity.

forms which are differently situated with respect to whether, how, or by whom they are regulated. In general, a branch in country B of a bank chartered in country A is regulated by authorities in A, although it is also subject to rules (if any) imposed by authorities in B. A subsidiary chartered in B that is owned by a bank chartered in A is subject to regulation by authorities in B, although the authorities in A may require approval of the acquisition and also may impose some operating constraints. A joint venture chartered in B which may be owned by several banks in different chartering jurisdictions, is subject to regulation by authorities in B and is less likely than a wholly-owned affiliate to be regulated by authorities in the countries where the shareholder bank is chartered, particularly if the shareholder owns a minority interest.

In general, the requirement that a LLR exercise regulatory control over the banks to which it lends suggests that the LLR for foreign branches be the central bank in the country where the branch's parent is chartered, and that the LLR for affiliates and joint ventures be the central bank in the country of residence. The first rule is roughly workable although it is hampered by logistical difficulties in regulating and monitoring activities of foreign branches and in some cases by legal barriers imposed by the country where the bank resides.¹ The second rule is not workable at all because some countries of residence do not regulate corporations that are foreign-owned, some do not have a LLR, and in some the national LLR refuses to accept responsibility for such entities.

¹Countries with bank secrecy laws such as Switzerland, Lichtenstein and the Bahamas pose especially difficult problems.

It is conceivable that the problem of inadequate supervision and regulatory control could be surmounted by international cooperation and coordination among national LLRs. The Standing Committee on Banking Regulations and Supervisory Practices, composed of representatives from the Group of Ten plus Switzerland and Luxemburg, was established in 1974 by the Governors of the Group of Ten. The Committee agreed on a demarcation of responsibilities among national supervisory authorities. With regard to the supervision of liquidity, the Committee "concluded that responsibility for...foreign branches must rest in the first instance with the host supervisory authority..."¹ The host country was also given prime responsibility for supervising the liquidity of locally incorporated banks. With regard to solvency, the host supervisory authority has primary authority for supervising foreign subsidiaries and joint ventures, and the parent authorities have primary responsibility for the solvency of foreign branches.²

The concrete operational measures required to implement this agreement, such as sharing of information, have barely begun. A perspective on the prospects for this venture is provided by the many decades it has taken to coordinate (partially) the actions of the three Federal regulatory agencies in the U.S. It was not until 1979, and under the intense pressure of the Congress, that the agencies adopted a common set of criteria for appraising the soundness of banks. How much greater must be the difficulties when the regulatory authorities involved operate within diverse legal frameworks and

¹G. Blunden, (1977, p 328).

²As we note below, this does not correspond to the division of LLR responsibilities reported to have been agreed upon by the central bankers.

traditions, and where there is no higher authority pressuring them for results.

It thus seems clear that national LLRs are inherently ill-suited to providing LLR assistance to international banks. First, since central banks represent national interests there is no assurance that they will take a cosmopolitan view of their responsibilities in a crisis. During a period of stress national central banks are not in a position to persuade or compel banks to act responsibly toward Eurocurrency borrowers, nor can central banks assist such borrowers themselves. Second, the need to use foreign exchange resources may reduce the LLR's willingness to aid an otherwise sound bank. But most importantly, jurisdictional tangles and gaps in regulatory control make it difficult if not impossible to tie LLR responsibility to regulatory and supervisory control.¹ If it is not possible to coordinate LLR responsibilities with supervisory and regulatory powers, the LLR cannot control the risk exposure of banks or effectively restrict its aid to sound institutions. We must thus conclude that the growth of international banking has made it more difficult for national LLRs to cope with a financial crisis. In the next section we examine current arrangements for dealing with international aspects of financial crises.

V. DEFINING LLR RESPONSIBILITY

A major issue that arises in connection with LLR facilities in an international context is determining the appropriate locus of responsibility. In this section we consider the market's expectations

¹Moreover, the tactic of discounting at a penalty rate may also face difficulties since an LLR may be unable to take possession of collateral held in foreign offices of the troubled bank.

regarding probably access to LLR facilities in a crisis, whether some ambiguity regarding lines of LLR responsibility in Eurocurrency markets may be desirable, the "official" view of central bankers from 11 industrial countries on LLR responsibilities, and the categories of banks that in our view might be without an LLR in a crisis.

A. The Market's View

Market expectations regarding provision of LLR facilities in the Eurocurrency markets can be inferred from interest rate relationships during periods of uncertainty. Branches of a given parent bank can usually attract deposits at rates less than or equal to rates offered by any of the parent's wholly-owned subsidiaries which, in turn, can attract deposits at rates less than or equal to rates offered by any of the parent's joint ventures. This pattern is consistent with the hypothesis that the branch is most likely to get help in the event of a crisis.

Deposit rates do not vary greatly from center to center. For example, deposit rates for Eurobanks residing in London are not substantially lower than deposit rates for Eurobanks residing in tax havens such as Nassau or the Cayman Islands. This pattern seems to suggest that the market does not expect that LLR facilities will be provided by authorities in the residential jurisdictions.

During periods of market strain deposits of Eurobanks chartered in countries having balance of payments difficulties (e.g. Portugal, Italy and Japan in 1974) tend to be priced at a premium above deposits of other Eurobanks. This pattern of tiering by country of the parent bank is consistent with the hypothesis that LLR facilities will be provided by the central banks where the parent bank is chartered.

Finally, among Eurobanks from any chartering jurisdiction the largest banks attract deposits on the most favorable terms, seemingly without regard for capital ratios or other aspects of risk. This is consistent with the hypothesis that the largest banks in any jurisdiction are most likely to have access to LLR facilities.

B. Commitments and Intentions

A major issue that arises in connection with LLR facilities for international banks is the relationship between the type of LLR commitment offered in advance of trouble, and the real intentions and capacities of the LLRs making the commitment. Broadly, there are three possible policies:

1. The LLR explicitly promises to do what it is in fact able and prepared to do, and makes clear what it is not prepared to do.
2. The LLR promises less than it is able and prepared to do.
3. The LLR promises more than it is able and prepared to do.

Legitimate questions can be raised regarding the relative merits of policy one and policy two which will be discussed below. Policy three can be disposed of more quickly because it is a prescription for disaster, although it does offer strong temptations to policymakers to try for a "free ride". If LLRs promise more than they are prepared to deliver and if the market comes to rely on these promises, then private arrangements and resources designed to cope with adversity are bound to be reduced and any emerging crisis is bound to be worse. The worst banking crisis in US history occurred in 1933 after a central bank was in place. While the crisis is attributable largely to Federal Reserve bungling, a contributing factor was the erosion of private

mechanisms that limited the scope of crises that occurred prior to formation of the Federal Reserve, and which became inoperable afterwards.¹

The classical view of the LLR function as enunciated by Bagehot is that its commitment should be clearly and explicitly laid out in advance (as per our policy one). Bagehot argued that "...the public have a right to know whether the holders of our ultimate bank reserve acknowledge this duty and are ready to perform it." (p.165). The rationale for this policy is that "The best palliative to a panic is confidence in the adequate amount of the bank reserve, and in the efficient use of that reserve. And until we have on this point a clear understanding within the Bank of England, both our liability to crises and our terror at crises will always be greater than they would otherwise be". (p. 197).

But there is a cost to this policy which was described earlier in this paper, namely, the moral hazard that banks will take larger risks if they know that in the event of trouble the LLR will bail them out. In the Bagehot scheme this risk was limited because the LLR would confine itself to collateral lending at high rates of interest, but as we have seen collateral lending by an LLR has serious shortcomings and high interest rates may induce banks to take higher risks.²

Because of the moral hazard, central bankers Wallich and McMahon would not apply the classical view to international banking. H. Wallich (1975, p. 95) argues that "There are dangers in trying to define and publicize specific rules for emergency assistance to troubled banks, notably the possibility of

¹See M. Friedman and A. Schwartz, (1963, p. 311).

²See Guttentag and Herring (1981) for a model showing why higher interest rates may increase moral hazard.

causing undue reliance on such facilities and possible relaxation of needed caution on the part of all market participants." C. McMahon (p. 108) has made a similar case, "... it is not possible for them to define in advance with any precision the circumstances in which last resort finance would be forthcoming. Indeed, if they tried to do so, banks might be tempted to sail too close to the wind with the presumption that support would automatically be forthcoming if they got into difficulties."

In effect, Wallich and McMahon argue that policy 2 allows the authorities to counter the moral hazard problem by generating uncertainty about the availability of last resort facilities. This strategic use of uncertainty may make potential users of those facilities more cautious and, therefore, less likely to need an LLR. The other side of the coin, however, is that depositors who are unsure about their bank's access to an LLR are encouraged to run at the first hint of trouble. This means of dealing with moral hazard furthermore, is not very effective in the case of the very largest banks, where the problem of moral hazard is potentially most serious. In a system with no LLR, bank creditors have maximal incentive to monitor the risk exposure of each bank. In a system with an uncertain LLR, in contrast, the market will make judgments regarding the probability that various banks will have access to the LLR. Those banks believed most likely to have access to the LLR will be monitored less intensively. We have already noted that the market assumes that large banks are more likely to get assistance than small banks.¹ Since the failure of a large bank is likely to impose larger social

¹Indeed it has been argued that all deposits of major banks headquartered in Group Ten countries are effectively insured since it is unlikely that a Group Ten Central Bank would let one of its major banks fail. See I. Giddy and J. Dean, (1980, p. 62).

costs than the failure of a small bank, this is a plausible presumption. Thus, quite apart from the riskiness of their operations, large banks are able to attract funds on more favorable terms than smaller banks. Ambiguity regarding access to the LLR thus provides an important and wholly unjustified advantage to large banks.

It is not clear whether, in an international context, the social costs associated with policy one or policy two are greater, but we are confident that it would be preferable for the authorities to acknowledge that there were no LLR facilities for some categories of institutions than to pursue policy three. We turn next to the question of the policy that is actually being followed.

C. The Official Pronouncement

There is a calculated vagueness surrounding official arrangements to deal with an international banking crisis. The official communique, issued by central bankers from eleven industrial nations meeting at the Bank for International Settlements in Basle states only that:

"The Governors...had an exchange of views on the problem of the lender of last resort in the Euro-markets. They recognized that it would not be practical to lay down in advance detailed rules and procedures for the provision of temporary liquidity. But they were satisfied that means are available for that purpose and will be used if and when necessary."¹

Precisely what "means" satisfied the governors is not a matter of public record. There have been reports, however, of a very detailed agreement on division of responsibility. The editors of Euromoney,² for example, reported

¹Quoted by H. Wallich, (1977, p. 95).

²1974, p. 5.

that there was

"...a firm commitment by all the countries present (the Group of Ten plus Switzerland) on these points:

1. Banks that get into liquidity difficulties within national boundaries will be supported by the central bank concerned.
2. Banks that get into difficulties through fraud will not necessarily be bailed out, but all deposits will be protected.
3. Where the difficulty is at a foreign branch of the bank the parent bank will be bullied into making good any losses (and if necessary supported by the central bank concerned under 1 or 2 above).
4. Where the loss is sustained by an overseas subsidiary, the parent will again be responsible and supported by the central bank if necessary.
5. Consortium banks will be supported on a pro rata basis by their parents (again with central bank support if necessary). These points were not spelt out in the official communique because of legal constraints on some of the central monetary authorities involved."

Whether or not this account is accurate it is certainly consistent with the principles which the Bank of England has sought to advance. As the host to the greatest concentration of international banking activity, the Bank of England has been eager to dispel any expectation that it will assume responsibility for all resident banks. Indeed, it has solicited written acknowledgments from shareholders in consortium banks and from the overseas parents of banking subsidiaries that "they accepted a moral responsibility for their offspring in London that went beyond the narrow limits laid down by laws of limited liability."¹

Still, not all of the evidence supports this account of an agreement at the meeting on the sharing of responsibility. There have been reports of

¹C. McMahon, (1977, p. 109).

sharp disagreements between home and host countries regarding responsibilities for subsidiaries and joint ventures. And there were technical problems since at the time of the agreement neither West Germany nor Luxemburg had an official LLR.¹ Furthermore, the U.S. Federal Reserve Board has announced that it does not consider moral commitments made by U.S. banks to the Bank of England to be binding on the Federal Reserve.²

Indeed, under the provisions of the Depository Institutions Deregulation and Control Act of 1980, the Federal Reserve will play a very different role than that outlined in the alleged Basle agreement or than that adopted by the Bank of England. Under that Law "Any depository institution holding reservable transaction accounts or nonpersonal time deposits is entitled to the same discount and borrowing privileges as member banks" (Board of Governors, 1980). This holds regardless of whether the institution is owned by U.S. or foreign residents and regardless of whether it is a branch or affiliate of a foreign institution.³ While some Federal Reserve officials have told us that they interpret the Act to mean that foreign institutions are to have access only to "routine" discounting, not LLR facilities, others have

¹Note that it is important to distinguish LLR facilities from routine discounting facilities. The Bundesbank made extensive use of discount lending to control domestic liquidity, but these credit lines to banks were not suitable for emergency lending in times of stress.

²J. Spero (1980, p. 157).

³The doctrine of parental responsibility also seems inconsistent with the country risk exposure reporting system recently adopted by U.S. authorities, which makes a strong distinction between branches and subsidiaries. Interbank claims on a branch abroad are shifted to the country in which the head office of the branch is located. Claims on subsidiary banks are not shifted unless the parent has formally guaranteed or collateralized the loan. See Federal Reserve Bank of New York (1978).

told us that this distinction, even if it were intended by the Congress, may be difficult to make in practice.

Another indication that the doctrine of parental responsibility is not universally accepted is the extended dispute following the collapse of the Israel British Bank, which was a subsidiary of an Israeli bank incorporated in the United Kingdom. The Bank of England insisted it had no responsibility as LLR for a foreign-owned bank, while the Israeli banking authorities argued that they had no responsibility for a British corporation. Only after more than a year of negotiations and, reportedly, pressure from the United States on the Israeli banking authorities, was there an agreement to pool the assets of the parent bank and the British subsidiary. The Bank of England contributed three million pounds to the pool of assets, in a gesture which it insisted was not a precedent.¹

Thus it is not clear how one should interpret the vague official pronouncements regarding LLR facilities. It is possible that officials have actually agreed to a comprehensive set of arrangements and a precise division of LLR responsibilities, in which case the vague public pronouncement should be interpreted as an attempt to minimize moral hazard. But it is at least equally possible that officials have agreed only that public concern over international LLR arrangements should be allayed despite the fact that they have failed to achieve an agreement on a precise divisions of LLR responsibilities. In this case, the calculated vagueness in the public pronouncements simply reflects the lack of precision in LLR arrangements. The fact that the official pronouncement on LLR responsibilities was made during a period of market turmoil following the Herstatt affair supports this view. So

¹See J. Spero, (1980, p 157).

do some off-the-record discussions we have had with policy makers who were directly involved. If this view is correct, it would hardly be the first time that officials achieved an apparently unified public posture by issuing deliberately vague statements in order to ease the anxieties of the public.

D. Banks That May Be Without Effective LLR Facilities

We are concerned that at present, several categories of banks which conduct a substantial volume of international transactions have, at best, uncertain access to a LLR.

There is clearly a problem in the case of banks which are headquartered in countries which have inadequate LLR facilities or none at all. The doctrine of parental responsibility is meaningless to such banks. Unless the foreign branches and affiliates are located in countries which grant LLR facilities to all resident banks, such institutions are likely to have substantial difficulties in the event of a financial crisis. So far as we know, the U.S. is the only nation that may make LLR facilities available to resident financial institutions without regard to country of ownership, and that is far from clear. The reluctance of the Federal Reserve to acknowledge such a responsibility is understandable in view of the difficulties they could face in dealing with the U.S. branch of a foreign bank about which they cannot obtain reliable supervisory information.

We are also concerned about banks located in countries which have adequate LLR facilities for banking activities denominated in domestic currencies, but inadequate facilities for coping with foreign currency difficulties. This includes banks headquartered in countries which do not have convertible currencies, but to an extent it may also include banks

headquartered in countries with convertible currencies but relatively meager foreign exchange reserves.

Finally, there are foreign affiliates which in the event of a crisis may not have access to the LLR facilities of their parent bank. The LLR may not accept the doctrine of parental responsibility or may accept it subject to conditions and qualifications. The comfort letters sought by the Bank of England to fortify the doctrine of parental responsibility pointed up the problem but did not solve it, since the letters are not binding commitments on either a parent or a parent's LLR. In practice, a parent's LLR might well withhold assistance if (a) the affiliate is a joint venture or consortium in which the parent has only a minority interest, (b) accurate and timely information on the status of the affiliate is not available, or (c) the amounts needed by the foreign affiliate are substantial relative to the capital of the parent, so that assistance rendered the affiliate might significantly weaken the parent.

How large a volume of deposits is covered by these categories?

Unfortunately it is not possible to give a precise answer, nor to gauge the indebtedness of these relatively vulnerable banks to other banks which have clearer access to an effective LLR. We don't really know how many countries today don't have an effective LLR, but even within the Group of 10, as recently as 1974 both Germany and Luxemburg did not. Moreover, many banks that are active in the London interbank market including one of the ten largest banks in the world, are headquartered in countries without convertible currencies.

It can be argued that the market will take care of the problem of banks without access to a LLR. Competition will either force such banks to offer depositors higher rates to compensate for the greater risk, or to hold more

liquid assets as a way of providing liquidity assurance. Either way these banks will earn an unacceptably low return on their capital and eventually they will get out of the international market.

However, this is not the way existing markets work. Under benign financial conditions the markets demand virtually no risk premium of banks without access to an LLR. They may grow and prosper for an indefinite period. When the world becomes vulnerable, occurrence of a non-trivial shock such as the Herstatt crisis in 1974 may drastically alter perceptions of risk associated with banks which have uncertain access to an LLR. A few may be unable to attract any funds and fail (as at least one did following Herstatt). But if the shock is isolated, markets will soon return to "normal"¹ and those banks that survive can remain competitive until the next shock. Of course, the next shock may not be isolated and the banks without access to a LLR could become a key factor of contagion.

VI. PROPOSALS FOR DEPOSIT INSURANCE

Would a system of world deposit insurance compensate for lack of an international LLR? Such a system has been proposed² and is superficially attractive but under closer scrutiny it encounters even more difficulties than creating an effective international LLR. For deposit insurance to significantly affect the potential for panic it must be comprehensive, complete and credible. If insurance coverage is not comprehensive the creditors not covered will still have an incentive to run. If coverage is not complete in the sense that

¹While hard data are not available, evidently most of the tiering that followed the Herstatt affair had disappeared with a year or so.

²See Grubel and Dean or Grubel.

creditors of failed banks will suffer some loss (say five percent), they will run as quickly as if there were no deposit insurance. (After all, why keep your money in a shaky bank where you might lose five percent of it when, without any significant cost, you can shift it to a sound bank?¹) If the deposit insurance commitment of the insuring agency is not credible, it will not affect creditor behavior.²

These requirements pose the following difficulties:

1. Comprehensive and complete insurance coverage for eurocurrency liabilities alone would be politically impossible. All liabilities, domestic and foreign, of all banks in the major eurocurrency countries would have to be fully insured. This would require a world-wide agreement on division of responsibilities of exactly the sort that bedevil the effort of defining LLR responsibilities. For example, who would insure dollar deposits of non-U.S. banks in Nassau?

¹Does this imply that the United States system of deposit insurance, which is neither comprehensive nor complete, is useless? The U.S. system has a dual purpose: to prevent panics, and to protect small depositors and small banks. Small depositors are fully insured, and because small banks have mainly insured deposits, they are protected against runs. Large creditors, however, are not fully insured and large banks which have many uninsured creditors are subject to runs. (The point is well illustrated by the cases of Franklin National and First Pennsylvania, which did not lose significant amounts of small deposits but which did suffer substantial drains from large creditors including other banks). Thus, in a domestic system with many small creditors, deposit insurance which is not comprehensive nor complete may perform the important function of protecting small depositors and small banks, and this may reduce the potential for panic while not eliminating it. In eurocurrency markets, however all banks and virtually all accounts are large so this case for deposit insurance does not arise.

²The US experience indicates that the commitment must be de jure as well as de facto. Since uninsured depositors of U.S. banks suffer loss only when a bank is liquidated, which happens rarely it is sometimes asserted that deposit insurance de facto covers all deposit liabilities. But holders of large deposits still run in the event of trouble because they are not insured de jure and there is always the possibility of a liquidation.

2. Deposit insurance that is complete and comprehensive would create enormous moral hazard. An insolvent bank with indifferent insured creditors can play "go for broke" indefinitely with what essentially is the insuring agency's funds. An LLR can at least limit its liability by refusing further loans, but an insuring agency cannot terminate its insurance commitment without "just cause" - a process which, judging from U.S. experience, can take many months if not years. To protect itself, the agency must have extensive supervisory powers, including power to close a bank if the national authority for some reason does not.

We are led to the conclusion that deposit insurance on a world-wide basis will not work without a world-wide agreement on creation of a supernational agency having enormous resources, as well as supervisory powers that in crucial areas would subrogate the powers of national authorities.

VII. POLICY CONCLUSIONS

It was stated earlier in this paper that worst of all possible worlds would be to have institutions that pretend to be LLRs for international banking activities but which cannot control the risk exposure of international banks, and which will not be able to perform LLR functions for them when a crisis hits. We believe that this is in fact very close to the current arrangement. We have shown that national LLRs are inherently ill-suited to providing effective assistance to international banks, and the probabilities are high that they will not be able to deliver when the chips are down. Yet attempts have been made to convey the impression that reliable LLR mechanisms are in place.

Our view is that while effective LLR facilities are desirable, "second best" is an explicit acknowledgement of where LLR responsibilities stop,

combined with a general policy of reliance on private market mechanisms and maximum disclosure. We believe that disclosure regarding the condition of individual banks should include timely information on country exposure as well as exposure to other banks. This policy would eliminate the moral hazard problem that even LLRs that can't deliver tend to create. It will also encourage the development of private mechanisms for dealing with financial disorder, such as contractually established credit lines. This could provide solvent nonbank borrowers in Eurocurrency markets with the same degree of assurance of credit facilities in a crisis that long-term customer relationships provide in domestic markets.

Discussions we have had with regulators suggest several reasons for opposition to greater disclosure:

1. The market is very likely to misinterpret the data. Statistical data on exposure are ambiguous and require sophisticated analysis to avoid drawing erroneous inferences.

2. The market already has a great deal of relevant information on broad aggregates, it extrapolates between the lines to draw inferences about the magnitudes of specific exposures, and there is no indication that more data are needed.

3. Statistical data on loan concentration by industry may be as important as data on country exposure but are not collected by the regulators.

4. Banks are unalterably opposed to disclosure for competitive reasons.

In our view the first two arguments cancel each other out while the third is irrelevant. The reactions of the banks can't be dismissed out of hand but our exploration of this issue with bankers reveals a curious inconsistency similar to that involved in the regulators' arguments. The bankers don't want their competitors getting information on their activities, at the same time

acknowledging that they now keep tabs on their competitors through careful detective work. Since each bank believes that it now performs this task better than its competitors, they see costs rather than benefits in making the task easy for all.

Another plausible reason for the regulators' resistance to disclosure is quite different. Revealing that bank A has exposure equal to its capital to country Z is a confession that the regulator has been unable to control bank A, which is potentially embarrassing. Acknowledging your own limitations and relying on an alternative mechanism (the market) for help constitutes a loss of manifest power, even if it is not a loss of real power. This comes no easier to a central bank than to an individual. Unless external pressures are imposed on them, central banks are unlikely to urge greater public disclosure.

Would selective disclosure, say among U.S. banks alone, place these banks at a disadvantage? Here we must distinguish the borrowing and lending side of the banks' business. On the borrowing side we see mainly advantages. To be sure, if disclosure reveals some major surprises the individual banks affected might be hurt a bit in the short run but over the long run the competitive position in raising funds of the entire group of banks subject to disclosure would be strengthened. Debt markets tend to err on the side of caution and where there is uncertainty select the least favourable possibility.¹ Unless

¹Bagehot (1921, p. 250-1) also made an argument for full and timely disclosure on similar grounds:

"Supposing that, owing to defects in its government, one even of the greater London joint stock banks failed, there would be an instant suspicion of the whole system. One terra incognita being seen to be faulty, every other terra incognita would be suspected. If the real government of these banks had for years been known, and if the subsisting banks had been known not to be ruled by the bad mode of government which had ruined the bank that had fallen, then the ruin of that bank would not be hurtful. The other banks would be seen to be exempt from the cause

they are glaringly overexposed, the banks subject to disclosure will fare better than those for which the markets must guess. In time, this would generate pressure on other central banks to follow the same disclosure policy.

On the lending side the banks subject to disclosure would be disadvantaged in that other banks would know where they are doing their loan business. Banks tell us that they don't want other banks to know where they are lending in concrete detail, although they also insist that they already know all they need to know about other banks' loan activities. But admittedly this is a cost of unilateral disclosure that must be considered.

An efficient system of market controls based on full disclosure combined with existing LLRs operating within domestic banking systems, would provide a good defense against an illiquidity scenario of the type discussed earlier. An insolvency scenario, however, is another story. The main danger in international banking today is a credit shock that would wipe out a significant part or all of the capital of major international banks. While it is essential that banks not fatally damaged by such a shock have continued access to credit, the disruptive effects of major bank insolvencies would be substantial even so, and would require remedies that go far beyond LLR functions. One category of remedies would channel aid to debtor countries so they can meet their obligations to the banks. The other category of remedies

which had destroyed it. But at present the ruin of one of these great banks would greatly impair the credit of all. Scarcely any one knows the precise government of any one; in no case has that government been described on authority; and the fall of one by grave misgovernment would be taken to show that the others might as easily be misgoverned also. And a tardy disclosure even of an admirable constitution would not much help the surviving banks: as it was extracted by necessity, it would be received with suspicion. A sceptical world would say, 'Of course they say they are all perfect now; it would not do for them to say anything else.'"

would focus on the banks themselves, providing for timely closure, financial assistance or mergers as circumstances may dictate. But these remedies are the subject of another paper.

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