NBER WORKING PAPER SERIES

THE LENDER OF LAST RESORT: SOME HISTORICAL INSIGHTS

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Working Paper No. 3011

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
June 1989

NBER Working Paper #3011
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ABSTRACT

This paper discusses the role for a lender of last resort (LLR) in preventing banking panics (section I), then briefly considers classical and more recent concepts of the LLR (section II). Section III examines historical evidence for the U.S. and other countries on the incidence of banking panics and LLR actions, and the record of alternative LLR arrangements in the U.S., Scotland and Canada, as well as the historical record on bailouts. Section IV offers some lessons from history.

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I. Introduction

The ongoing savings and loan crisis in the U.S. and the bailouts of a number of large banks in recent years in this country and similar rescues abroad have prompted renewed interest in the topic of the lender of last resort.

The need for a lender of last resort arises in a fractional reserve banking system when a banking panic, defined as a massive scramble for high powered money, threatens the money stock, and hence the level of economic activity. The lender of last resort can allay an incipient panic by timely assurance that it will provide whatever high powered money is required to satisfy the demand, either by offering liberal access to the discount window at a penalty rate or by open market purchases.

Henry Thornton (1802) and Walter Bagehot (1873) developed the key elements of the doctrine of the lender of last resort (LLR) in England. They contended that monetary authorities in the face of panic should lend freely but at a penalty rate to illiquid but solvent banks. Monetarist writers in recent years have reiterated and extended the classical notion of the LLR. In contrast, Charles Goodhart and others have recently posited an alternative view broadening the power of LLR to include aid to insolvent financial institutions.

This paper discusses the role for an LLR in preventing banking panics (section I), then briefly considers classical and more recent concepts of the LLR (section II). Section III examines historical evidence for the U.S. and other countries on the incidence of banking panics and LLR actions, and the record of alternative LLR arrangements in the U.S., Scotland and Canada, as well as the historical record on bailouts. Section IV offers some lessons from history.

II. Banking Panics and the Lender of Last Resort

The need for a monetary authority to act as LLR arises in the case of a banking panic -- a widespread attempt by the public to convert deposits into currency and, in response, an attempt by commercial banks to raise their desired reserve deposit ratio. Banking panics can occur in a fractional reserve banking system when a bank failure or series of bank failures produces bank runs which in turn become contagious, threatening the solvency of otherwise sound banks.

Two sets of factors, internal and external, can lead to bank failures. Internal factors which affect both financial and non financial enterprises include poor management, poor judgment and dishonesty. External factors include changes in relative prices and in the overall price level.

Changes in relative prices can drastically alter the value of a bank's portfolio and force it into insolvency.

Banking structure can mitigate the effects of relative price change. A nationwide branch banking system that permits portfolio diversification across regions enables a bank to absorb the effects of relative price change. A unit banking system, even with correspondents, is considerably less effective. The nearly 6000 bank failures that occurred during the decade of the 1920's in the U.S. were small unit banks in agricultural regions. By contrast in Canada, with nationwide branch banking, many bank branches in those regions closed but no banks failed (with the exception of one, in 1923, due to fraud).

A second external factor that can lead to bank failures is changes in the overall price level (Schwartz, 1988). Price level instability (in a non-indexed system) -- sharp changes from rising to falling prices or from inflation to disinflation -- caused either by gold movements under the pre-1914 gold standard, or more recently, by the discretionary actions of monetary authorities, can

produce unexpected changes in banks' net worth and convert ex ante sound investments into ex post mistakes.

Given that bank liabilities are convertible on demand, bank runs represent a rational response by depositors concerned over their ability to convert deposits into currency in the event of a bank insolvency. Bank runs in normal circumstances serve as a form of market discipline, reallocating funds from weak to strong banks and constraining bank managers from adopting risky portfolio strategies (Kaufman, 1988). Bank runs can also lead to a 'flight to quality' (Benston and Kaufman et al, 1986). Depositors may not shift funds from weak banks to those they regard to be sound, they may instead convert their deposits into high quality securities. The seller of the securities ultimately will deposit his receipts at other banks with no loss of bank reserves.

However on occasion, in the face of an external shock to the banking system, incomplete and costly information may make it difficult for depositors to distinguish sound from unsound banks. In that case runs on insolvent banks can produce contagious runs on solvent banks leading to panic. A banking panic, in turn, will lead to massive bank failures, as sound banks are being forced into insolvency by a fall in the value of their assets when a scramble for liquidity induces a fire sale of assets.

By intervening at the point when the liquidity of solvent banks is threatened -- supplying whatever funds are needed to meet the demand for cash -- the monetary authority can allay the panic.

Private arrangements can also reduce the likelihood of panics. Branch banking allows funds to be transferred from branches with surplus funds to those in need of cash. Commercial bank clearing houses by pooling the resources of its members can provide emergency reserves to meet the heightened liquidity

demand. A clearing house moreover represents a signal to the public that in time of panic help will be available to member banks.

Neither branch banking nor clearing houses, however, can stem a nationwide demand for currency occasioned by a major aggregate shock such as a world war. Only the monetary authority -- the ultimate supplier of high powered-money -- can be successful.

Government deposit insurance can prevent panics by removing the reason for the public to run to currency.[1] Ultimately, however, a monetary authority is required to back up an insurance scheme.

III. Alternative Views on the LLR Function

i. The Classical Position

Both Henry Thornton (1802) in An Inquiry into the Effects of the Paper Credit of Great Britain and Walter Bagehot (1873) in Lombard Street were concerned with the role of the Bank of England in stemming periodic banking panics. In Thornton's time, the Bank of England -- a private institution which served as the government's bank -- had a monopoly of the note issue within a 26-mile radius of London and Bank of England notes served as high powered money for the English banking system.[2] For Thornton the Bank's responsibility, though not a formal central bank, in time of panic was to serve as LLR. It should then provide liquidity to the market, discounting freely the paper of all but insolvent banks, no matter how large or important [Humphrey. 1975].

Bagehot, accepted and broadened Thornton's view. Writing at a time when the Bank had considerably enhanced its power in the British financial system, he stated four principles for the Bank to observe as lender of last resort to the monetary system.

First, it should lend freely but at a penalty rate.[3]

> "Very large loans at very high rates are the best remedy for the worst malady of the money market when a foreign drain is added to a domestic drain" (Bagehot, (1873) p.56)

Second, the Bank should make clear in advance its readiness to lend freely. Third the Bank should accommodate anyone with good collateral (valued at normal pre panic prices). Fourth, it should prevent illiquid but solvent banks from failing.[4,5]

ii. Recent Extensions of the Classical Position

Recent monetarist economists have restated the classical position. Friedman and Schwartz (1963), in A Monetary History, devote considerable attention to the role of banking panics in producing monetary instability in the United States (also see Cagan 1965). According to them, the peculiarities of the US banking system as it developed in the nineteenth century, with its unit fractional reserve banking system and reserves pyramided in New York, made it highly susceptible to banking panics. Federal deposit insurance in 1934 provided a remedy to this vulnerability. It served to assure the public that it could always convert deposits into currency.

Friedman and Schwartz highlight the importance in the pre-FDIC system of timely judgment by strong and responsible leadership in intervening to allay the public's fear. Before the advent of the Fed, the New York Clearing House issued clearing house certificates and suspended convertibility and, on occasion, the Treasury conducted open market operations. In two episodes, these interventions were successful, in three others they were not effective in preventing severe monetary contraction.

The Federal Reserve System, established in part to provide such leadership, failed dismally in the 1929-33 contraction. According to Friedman and Schwartz, had the Fed conducted open market operations in 1930 and 1931 to provide the reserves needed by the banking system, the series of bank failures that produced the unprecedented decline in the money stock could have been prevented.

Schwartz (1986) argues that "a real financial crisis occurs only when institutions do not exist, when authorities are unschooled in the practices that preclude such a development, and when the private sector has reason to doubt

the dependability of preventative arrangements" (p. 12). According to her all the real financial crises in the United Kingdom and the United States occurred when the monetary authorities failed to demonstrate readiness at the beginning of a disturbance to meet all demands of sound debtors for loans and of depositors for cash. Finally, she views deposit insurance as not necessary to prevent banking panics. It was successful after 1934 in the U.S. because the lender of last resort was undependable. Had the Fed acted on Bagehot's principles, federal deposit insurance would not have been necessary, as the record of other countries with stable banking systems but no federal deposit insurance attests.

Meltzer (1986) argues that a central bank should allow insolvent banks to fail, for not to do so would encourage financial institutions to take greater risks. Following such an approach would "separate the risk of individual financial failures from aggregate risk by establishing principles that prevent banks liquidity problems from generating an epidemic of insolvencies" (p. 85).

The worst cases of financial panics, according to Meltzer, "arose because the central bank did not follow Bagehotian principles."[6]

Goodfriend and King (1988) make a strong case for the exercise of the LLR function solely by the use of monetary policy, which they define as -- open market operations, to change the stock of high-powered money.[7] Because it need not involve a change in high-powered money, discount window lending (DWL) to particular banks, which they refer to as banking policy, is unnecessary. The reason they regard banking policy as redundant is that central bank discount window lending is similar to private provision of line-of-credit services. Both require monitoring and supervision. The authors argue that it is not clear that the Fed is more efficient than the private sector in such activities. According

to Goodfriend (1989) the only reason the Fed currently has an advantage in providing a line of credit is that it can make fully collateralized loans whereas commercial banks under current regulations cannot do so. There is nothing to prevent the Fed from succumbing to political pressure to extend credit to insolvent banks, although under current arrangements, discount-window lending temporarily aids only illiquid banks. Moreover, discount-window lending can delay a declaration of insolvency by a bank that pledges its best collateral and uses the loan to pay off uninsured depositors before it is closed thus shifting the loss from uninsured depositors to the FDIC. It also ex ante reduces monitoring by depositors and enhances risk taking by the banks.[8]

Goodfriend and King regard government-provided deposit insurance as basically a substitute for the portfolio diversification of a nationwide branch banking system. By itself, without LLR support of high-powered money by the monetary authorities, deposit insurance is insufficient to protect the banking system as a whole from an aggregate shock.

iii. The Case for Central Bank Bailouts

Charles Goodhart (1985, 1987) advocates central bank assistance to insolvent banks. He argues that the distinction between illiquidity and insolvency is a myth, since banks requiring LLR support because of "illiquidity will in most cases already be under suspicion about ... solvency." Furthermore "[b]ecause of the difficulty of valuing its assets, a Central Bank will usually have to take a decision on last resort support to meet an immediate liquidity problem when it knows that there is a doubt about solvency, but does not know just how bad the latter position actually is" (Goodhart, 1985, p. 35).

He also argues that, when depositors run from an insolvent bank in a flight to quality, the valuable relationship between banker and borrower (based

both on trust and agent-specific information) is severed. However this would add to the cost of flight, making it less likely to occur. Replacing such a connection requires costly search, a process which imposes losses (and possible bankruptcy) on the borrowers. To protect borrowers Goodhart would have the central bank recycle funds back to the troubled bank. However, as Schwartz (1988) points out, borrowers need not require this arrangement, rather, they can protect themselves from such a likelihood by simultaneously borrowing and holding deposits with a number of financial institutions.

Solow (1982) also is sympathetic to bailouts. According to him, the Fed is responsible for the stability of the whole financial system. Any bank failure, especially a large one, reduces confidence in the whole system. To prevent a loss of confidence from a major bank failure from spreading to the rest of the banking system, the central bank should bail out insolvent banks. However, such a policy creates a moral hazard, as banks in response engage in greater risk taking and the public loses its incentive to monitor them.

Kindleberger (1978) includes under the rubric of financial crises, deflations and disinflations, the financial distress of large nonfinancial firms and of financial industries, abrupt declines in the prices of particular commodities or assets, and speculative attacks on fixed exchange rate regimes. Extension of LLR responsibility to all these situations ultimately makes the central bank responsible for preventing any major losses in wealth -- a far cry from the original conception of the LLR as providing a temporary source of liquidity to the money market.

iv. Free Banking: The Case against any Public LLR

Proponents of free banking have denied the need for any government authority to serve as lender of last resort. They argue that the only reason for banking panics is legal restrictions on the banking system. Absent, such

restrictions, the free market would produce a panic proof banking system.

According to Selgin (1988, 1989) two of the most important restrictions are the prohibition of nationwide branch banking in the US and the prohibition everywhere of free currency issue by the commercial banking system. Nationwide branch banking would allow sufficient portfolio diversification to prevent relative price shocks from causing banks to fail. Free note issue would allow banks to supply whatever currency individuals may demand.[9]

Contagious runs because of incomplete information would not occur because secondary markets in bank notes (note brokers, note detectors) would provide adequate information to note holders about the condition of all banks. Such markets do not arise for demand deposits because of the agent-specific information involved in the demand deposit contract -- it is hard to verify whether the depositor has funds backing his check. However, clearing house associations can offset the information asymmetry involved in deposit banking.

According to Gorton (1984), and Gorton and Mullineaux (1987), clearing houses in the nineteenth century by quickly organizing all member banks into one firm, established a coinsurance scheme that made it difficult to focus on the weakness of an individual member bank. The clearing house could also allay a panic by issuing loan certificates which served as a close substitute for specie. Finally a restriction of convertibility of deposits into currency could end a panic. Dowd (1984) regards restrictions as a form of option clause.[10] In an alternative option (used in Scotland pre-1765) banks had the legal right to defer redemption till a later date, with interest paid to compensate for the delay.

For Selgin and Dowd the public LLR evolved because of a monopoly in the issue of currency. The Bank of England's currency monopoly within a 26-mile radius of London until 1826 and its extension to the whole country in 1844 made

it more difficult than otherwise for depositors to satisfy their demand for currency in times of stress, in turn creating a need for the Bank, as sole provider of high powered money, to serve as LLR.[11] In the U.S., bond-collateral restrictions on state banks before 1863 and on the national banks thereafter were responsible for the well known problem of currency inelasticity.

These writers do not discuss the case of a major aggregate shock that produces a widespread demand for high-powered money. In that situation only the monetary authority will suffice.

In sum, the two views briefly discussed have considerably different implications for the role of an LLR. The classical prescription is for an LLR to provide temporary emergency assistance to illiquid but solvent banks in a banking panic. The Goodhart prescription is for bailouts of insolvent institutions; and the free banking view argues against any role for an LLR. With these views serving as a backdrop, I now examine evidence on banking panics and their resolution in the past.

The Historical Record

In this section I present historical evidence for a number of countries on the incidence of banking panics, their likely causes, and the role of an LLR in their resolution. I then consider alternative institutional arrangements that served as surrogate LLR's in diverse countries at different times. Finally I compare the historical experience with the more recent bailouts in the US, Great Britain and Canada.

i. Banking Panics and their Resolution

The record for the past 200 years for at least 17 countries shows a large number of bank failures; fewer, but a still considerable number of bank runs; and a relatively small number of banking panics. According to a chronology compiled by Anna Schwartz (1988), in the U.S. between 1790 and 1930 in 14 years bank panics occurred; Great Britain was next with 8 years between 1790 and 1866 in which panics occurred, followed by France and Italy with 4 each.

An alternative chronology that I prepared (Bordo, 1986, Table 1) for 6 countries (the U.S. Great Britain, France, Germany, Sweden and Canada) over the period 1870-1933 lists 16 banking crises (defined as bank runs and/or failures), and 4 banking panics (runs, failures, and suspensions of payments), all of which occurred in the U.S.) It also lists, based on Kindleberger's definition of financial crises (as comprising manias, panics and crashes) 30 such crises and based on Morgenstern's (1959) definition lists 71 stock market crises.

The evidence of a large number of bank failures in all countries, similar to failures of nonfinancial firms, reflects in large measure the normal operation of market forces. In addition to internal factors, the external factors of relative price changes; banking structure; and changes in the overall price level were important. The relatively few instances of banking panics in

the past two centuries attests to the fact that monetary authorities in time developed the procedures and expertise to supply the funds needed to meet depositors' demands for cash. Concurrently, the public developed confidence that the authorities would respond in appropriate fashion.

A comparison of the performances of Great Britain and the U.S. in the past century serves to illustrate the importance of the lender of last resort function in preventing banking panics.

In the first half of the nineteenth century, Great Britain experienced banking panics when the insolvency of an important financial institution precipitated runs on other banks and a scramble for high-powered money ensued. In a number of instances, the reaction of the Bank of England to protect its own gold reserves worsened the panic. Eventually the Bank supplied funds to the market but too late to prevent many unnecessary bank failures. The last such panic followed the failure of the Overend Gurney Company in 1866. Thereafter, the Bank accepted its responsibility as lender of last resort, observing Bagehot's Rule "to lend freely but at a penalty rate." It prevented incipient financial crises in 1878, 1890, and 1914 from developing into full blown panics by timely announcements and action.

The United States in the antebellum period experienced 11 banking panics (according to Schwartz's chronology) of which the panics of 1837, 1839 and 1857 were most notable.[12] The First and Second Banks of the United States had some central banking powers in part of the period, some states developed early deposit insurance schemes (see Benston 1983, Calomiris 1989), and the New York Clearing House Association began issuing clearing house loan certificates in 1857, but none of these arrangements sufficed to prevent the panics.

In the national banking era, the U.S. experienced three serious banking

panics -- 1873, 1893 and 1907-08. In these episodes, although the Clearing Houses of New York, Chicago and other central reserve cities issued clearing house loan certificates, based on the collateral of member banks' assets, as an emergency reserve currency and even issued small denomination hand-to-hand currency, lender of last resort actions were ineffective. In contrast to successful interventions in 1884 and 1890, the issue of emergency currency was too little and too late to prevent panic from spreading. The panics ended upon the suspension of convertibility of deposits into currency. During suspension, both currency and deposits circulated freely at flexible exchange rates, thereby relieving the pressure on bank reserves. The panics of 1893 and especially 1907 precipitated a movement to establish an agency to satisfy the public's demand for currency in times of distrust of deposit convertibility. The interim Aldrich Vreeland Act was successful in preventing a panic in 1914.

The Federal Reserve System was created in 1914 to serve as a lender of last resort. The U.S. did not experience banking panic until 1930 but, during the ensuing three years, a succession of nationwide banking panics, as Friedman and Schwartz point out, accounted for the destruction of one third of the money stock and the permanent closing of 40% of the nation's banks. Only with the establishment of federal deposit insurance in 1934, did the threat of banking panics recede.

To continue the comparison between the U.S. and Great Britain, tables 1 and 2 present, for each country some detailed evidence on factors commonly believed to be related to banking panics, as well as a chronology of banking panics and banking crises for severe NBER business cycle recessions (peak to trough) in the period 1870-1933.[13] The variables isolated include: deviations from trend of the average annual growth rate of real output; the absolute

difference of the average annual rate of change in the price level during the preceding trough to peak and the current peak to trough as a measure of the effect of changes in the overall price level; deviations from trend of the average annual rate of monetary growth; and the percentage change in the money stock due to changes in the deposit currency ratio.[14]

The tables reveal some striking similarities in the behavior of variables often related to panics but a remarkable difference between the two countries in the incidence of panics. Virtually all six business cycle downturns designated by the NBER as severe were marked in both countries by significant declines in output, large price level reversals, and large declines in money growth. In addition, in both countries the deposit-currency ratio produced declines in the money stock in the three most severe downturns: 1893-94 (U.S.) 1890-1894 (G.B.); 1907-08; and 1929-32.

However, the difference in the incidence of panics is striking -- the U.S. had four, while Britain had none. Both countries experienced frequent stock market crashes (see Bordo, 1986, Table 6.1). They were buffeted by the same international financial crises. Although Britain faced threats to the banking system in 1878, 1890 and 1914, the key difference between the two countries (see the last two columns of table 2) was successful LLR action by the British authorities in defusing incipient crises.

Similar evidence over the 1870-1933 period for two other major countries: (France and Germany) and two minor countries (Sweden and Canada), is available in Bordo (1986). In severe recessions in all four countries the quantitative variables move similarly to those displayed here for the U.S. and Great Britain. Yet there were no banking panics. In France appropriate actions by the Bank of France in 1882, 1889 and 1930 prevented incipient banking crises from developing

into panics. Similar behavior occurred in Germany in 1901 and 1931 and in Canada in 1907 and 1914.

One other key difference was nationwide branch banking in all five countries whereas the U.S. had unit banking. That difference likely goes a long way to explain the larger number of bank failures in the U.S.. However, the incidence of incipient crises which did not become panics in most of these countries suggests the primary importance of LLR action.

ii. Alternative LLR Arrangements

In the traditional view the LLR role is synonymous with that of a central bank. Goodhart's explanation for the evolution of central banking in England as well as other European countries is that the first central banks evolved from commercial banks which had the special privilege of being the government's bank. Because of their sound reputation, position as holder of the nation's gold reserve, ability to obtain economies of pooling reserves through a correspondent banking system, and ability to provide extra cash by rediscounting, such banks evolved into bankers' banks and lenders of last resort in a liquidity crisis. Once such banks began to perform the role of lender of last resort, "moral hazard" on the part of member banks (following a more risky strategy) provided a rationale for some form of supervision or legislation. Further, Goodhart argues that the conflict between the public functions of such an institution and satisfying the shareholders made the transition from a competitive bank to a central bank lengthy and painful.

Though Goodhart (1985) Annex B demonstrates that a number of central banks evolved in this fashion, the experience of other countries suggests that alternative arrangements are possible. In the U.S. before the advent of the Fed a variety of institutional arrangements served on occasion to allay banking

panics: deposit insurance schemes in a number of states which were relatively successful before the Civil War (Benston 1983, Calomiris 1989); others at the beginning of the twentieth century which were not (White, 1981); the issue of clearing house loan certificates (Timberlake, 1984, Gorton, 1984); restriction of convertibility of deposits into currency by the clearing house associations in the national banking era; various operations by the U.S. Treasury in the period 1890 to 1907 (Timberlake, 1978); and the Aldrich Vreeland Act of 1908.

Two countries which managed successfully for long periods without central banks were Scotland and Canada. Scotland had a system of free banking from 1727 to 1844. The key features of this system were a) free entry into banking and free issue of bank notes, b) bank notes that were fully convertible into full-bodied coin, and c) unlimited liability of bank shareholders.

Scotland's record under such a system was one of remarkable monetary stability. That country experienced very few bank failures and very few financial crises. One reason, according to White (1984), was the unlimited liability of bank stockholders and strict bankruptcy laws that instilled a sense of confidence in noteholders.[15] Indeed the Scottish banks would take over at par the issue of failed banks (e.g. the Ayr bank, 1772) to increase their own business. A second reason was the absence of restrictions on bank capital and of other impediments to the development of extensive branching systems that allowed banks to diversify risk and withstand shocks.[16]

Faced with a nationwide scramble for liquidity such as 1792-93, 1797 and 1830, however, Scottish banks were able to turn to the Bank of England as a lender of last resort (Cowen and Kroszner 1989).

Although Canada had a competitive fractional reserve banking system throughout the nineteenth century, no central bank evolved (Bordo and Redish,

1987). Virtually all the elements of traditional central banking undertaken either by private institutions or directly by the government had emerged by the beginning of the twentieth century.

The chartered banks had, by 1890, with the compliance of the Government, established an effective self policing agency, the Canadian Bankers Association. Acting in locus parentis, it succeeded in insulating the Canadian banks from the deleterious effects of the U.S. banking panics of 1893 and 1907, by quickly arranging mergers between sound and failing banks, by encouraging co-operation between strong and weaker banks in times of stringency, and by establishing a reserve fund to be used to compensate note holders in the event of failure.

In addition, the nationwide branch system overcame the problem of seasonal liquidity crises that characterized the United States after the Civil War, thus lessening the need for a lender of last resort. However, the Bank of Montreal (founded in 1817) very early became the government's bank performing many central bank functions.

Because, Canadian banks kept most of their reserves on "call" in the New York money market, they were able on occasion in this way to satisfy the public's demand for liquidity, again precluding the need for a central bank. On two occasions, 1907 and 1914, however, these reserves proved inadequate to prevent a liquidity crisis and the Government of Canada had to step in to supplement the reserves.

The Finance Act, passed in 1914 to facilitate wartime finance, provided the chartered banks with a liberal rediscounting facility. By pledging appropriate collateral (this was broadly defined) banks could borrow Dominion notes from the Treasury Board. The Finance Act clause, which was extended after the wartime emergency by the Amendment of 1923, provided a discount window/lender of last resort for the Canadian banking system.

In sum though Canada, Scotland and several other countries did not have formal central banks serving as LLR, they all had access to a governmental authority which could provide high-powered money in the event of such a crisis.

iii. LLR assistance and bailouts

The classic prescription for LLR action is to lend freely but at a penalty rate to illiquid but solvent banks. Both Thornton and Bagehot advised strongly against bailouts -- assistance to insolvent financial institutions. They opposed then because they would encourage future risk taking and would not invalidate the threat to other sound financial institutions.

Bagehot also advocated lending at a penalty rate, to discourage all but those truly in need from applying, and to limit the expansion in liquidity to just that necessary to end the panic.

European countries from 1870 to 1970 in general observed the classical strictures. In the Baring Crisis of 1890, the Bank of England successfully prevented panic. It arranged (with the Bank of France and the leading Clearing Banks) to advance the necessary sums to meet the Barings' immediate maturing liability with guarantee of any loss sustained by the Bank in the process (Schwartz, 1986, p. 19). The German Reichsbank in 1901 prevented panic by purchasing prime bills on the open market and expanding its excess note issue but it did not intervene to prevent the failure of the Leipziger and other banks (Goodhart 1985, p. 96). The Bank of France also followed classic precepts in crises in 1882 and 1889.

The Austrian National Bank, however, ignored the classical advice during the Credit Anstalt crisis of 1931. After the Austrian National Bank provided liberal assistance to the Credit Anstalt at low interest rates (Schubert, 1987) a run on the Credit Anstalt and other Viennese banks in May 1931 followed upon disclosure of the Credit Anstalt's insolvency and a government financial rescue

package. The run degenerated into a speculative attack on the fixed price of gold of the Austrian Schilling.

The U.S. record over the same period is less favorable. In particular, the Fed has never lent at a penalty rate.

By contrast to events before 1970, when LLR action if unsuccessful erred on the side of deficiency, in the past two decades it has erred on the side of excess. In the U.S. the monetary authorities (FDIC and the Fed), on three notable occasions, have provided liberal assistance to major insolvent banks: Franklin National in 1974, First Pennsylvania in 1980, and Continental Illinois in 1984. In each case the authorities guaranteed both insured and uninsured deposits. Moreover they advanced loans at subsidized rates (Garcia and Plautz, 1988). Apparently the Federal Reserve has switched to a policy of bailout reflecting a concern over the potential effects on the financial system and on the reputation of the authorities of allowing a major bank to fail.

The Bank of England followed similar policies in the 1974 Fringe Bank rescue and the 1984 Johnson Matthey affair. In 1985, the Bank of Canada arranged for the purchase by the major chartered banks of the assets of two small insolvent Alberta banks and compensation in full of all depositors.

By contrast to the Anglo-Saxon experience, the German Bundesbank allowed the Herstatt bank to be liquidated in 1974 but provided LLR assistance to the market.

Thus, although the classical doctrine has been long understood and successfully applied, the recent experience of a number of major countries suggests its basic message is no longer adhered to.

V. Conclusion: Some Lessons from History

We can draw a number of conclusions from the historical record.

First, banking panics are rare events. They occurred more often in the U.S. than in other countries. They usually occurred during serious recessions associated with declines in the money supply and sharp price level reversals. The likelihood of their occurrence is greatly diminished in diversified nationwide branch banking system.

Second, panics have been prevented on numerous occasions by successful LLR actions. When they were not, either the requisite institutions did not exist or, if they did, the authorities did not understand the proper actions to take. Most countries developed an effective LLR mechanism by the last one third of the nineteenth century. The U.S. was a principal exception.

Third, some public authority must provide the lender of last resort. The incidence of periodic major international financial crises in 1837, 1857, 1873, 1890-93, 1907, 1914, 1930-33 suggests that in such episodes aggregate shocks can set in train a series of events leading to a nationwide scramble for high-powered money. Such a demand can only be satisfied by the ultimate provider of high-powered money.

Fourth, such an authority does not have to be a central bank. This is evident from the experience of Canada and other countries including the Aldrich Vreeland Act in 1914 in the U.S..

Fifth, the advent of FDIC in 1934 solved the problem of banking panics in the U.S., but absence of government deposit insurance before the 1960's and 1970's in other countries suggests that it is not required to prevent banking panics since they were panic free.

Sixth, and finally, assistance to insolvent banks (bailouts) were the exception rather than the rule until the 1970's.[17] The monetary authorities in earlier times erred on the side of deficiency rather than excess. Goodhart's bailout view is certainly not a description of past practice. The recent experience with bailouts flies in the face of the classical prescription. The prescription for excessive risk taking fostered by liberal assistance to insolvent banks, combined with deposit insurance which is not priced according to risk, creates the conditions for an even greater bailout in the future.

FOOTNOTES

*For helpful comments on an earlier draft I would like to thank George Benston, Allan Meltzer and Anna Schwartz. Paulino Texeira provided valuable research assistance.

[1]In theory private deposit insurance could also be used. In practice, to succeed in the U.S. such arrangements would require the private authority to have the power which the FDIC currently has to monitor, supervise and declare insolvent its members. Also the capacity of the private insurance industry is too limited to underwrite the stock of government insured deposits. (Benston et al, 1986, ch. 3). Alternatives to deposit insurance include requiring banks to hold safe assets (treasury bills), charging fees for service and one hundred percent reserves.

[2]Bank of England notes served as currency and reserves for the London banks. Country banks issued bank notes but kept correspondent balances in the London banks. From 1797 to 1821 Bank of England notes were inconvertible into gold.

[3]Bagehot distinguished between actions to follow in the face of an external drain -- a decline in the Bank's gold reserve induced by a balance of payment deficit -- raise Bank rate; and the action to follow when threatened by an internal drain -- lend freely.

[4]Bagehot has been criticized for not clearly stating when the Central bank should intervene (Rockoff, 1986), for not giving specific guidelines to distinguish between sound and unsound banks (Humphrey, 1975), and for not realizing that provision of the LLR facility to individual banks would encourage them to take greater risks than otherwise (Hirsch, 1977).

[5]According to Humphrey, the Classical position can be stated as:

(2) "...The lender of last resort's responsibility is to the entire financial system and not to specific institutions.

(3) The lender of last resort exists not to prevent the occurrence but rather to neutralize the impact of financial shocks. ...

(4) The lender's duty is a two fold one consisting first, of lending without stint during actual panics and second, of acknowledging beforehand its duty to lend freely in all future panics.

(5) The lender should be willing to advance indiscriminately to any and all sound borrowing on all sound assets no matter what the type.

(6) In no case should the central bank accommodate unsound borrowers. The lender's duty lay in preventing panics from spreading to the sound institutions, and not in rescuing unsound ones.

(7) All accommodations would occur at a penalty rate, i.e., the central bank should rely on price rather than non price mechanisms to ration use of its last resort lending facility.

(8) The overriding objective of the lender of last resort was to prevent panic induced declines in the money stock..."
(Humphrey, 1975 p.9)

[6]Meltzer (1986) succinctly restates Bagehot's four principles.

"1. The central bank is the only lender of last resort in a monetary system such as ours.
2. To prevent illiquid banks from closing, the central bank should lend on any collateral that is marketable in the ordinary course of business when there is a panic ...
3. Central bank loans, or advances, should be made in large amounts, on demand, at a rate of interest above the market rate.
4. The above three principles of central bank behavior should be stated in advance and followed in a crisis" (Meltzer, 1986. p. 83)"

[7]Friedman (1960) earlier argued against the use of the discount window as an unnecessary form of discretion which "involves special government assistance to a particular group of financial institutions" (p. 38). Also see Hirsch (1977) and Goodhart (1988) for the case that Bagehot's rule was really designed for a closely knit/cartelized banking system such as the London clearing banks.

[8]Cagan (1988) in his comment on Goodfriend and King makes the case for retention of discount window lending in the case of 'a flight to quality'. In that case DWL can be used to provide support to particular sectors of the economy which have temporarily had banking services curtailed.

[9]According to the law of reflux, free banks issuing notes on the basis of real bills can never overissue because the loans backing the notes would be self-liquidating. See White (1984).

[10]However a restriction of convertibility itself could exacerbate a panic because the public, in anticipating it, demands currency sooner.

[11]Selgin (1988) argues that the Bank Charter Act of 1844 exacerbated the problem of panics because it imposed tight constraints on the issue of bank notes by the Issue department. However the Banking department surely could have discounted commercial paper from correspondent banks without requiring further note issue. That is one of Bagehot's main points in Lombard Street.

[12]Selgin (1988) based on evidence by Rolnick and Weber (1986) argues that the episodes designated as panics in the ante-bellum Free Banking era are not comparable to these in the National Banking era because they did not involve contagion effects. Evidence to the contrary however is presented by Hasan and Dwyer (1988).

[13]For similar evidence for the remaining cyclical downturns in this period see Bordo (1986, Table 6 1A).

[14]Holding constant the influence of the other two proximate determinants of the money supply: the deposit reserve ratio and the stock of high powered money. It is calculated using the formula developed in Friedman and Schwartz (1963), Appendix B.

[15]Sweden from 1930 to 1902 had a system of competitive note issue and unlimited liability. According to Jonung (1985), there is evidence neither of overissue nor of bank runs.

[16]Switzerland also had a successful experience with free banks 1826-1850 (Weber, 1988) but like Scotland she depended on the Bank of France as lender of last resort (Goodhart, 1985).

[17]Although in the U.S. the policy of purchase and assumption carried out by the FDIC and FSLIC before that date incorporated elements of a public subsidy.

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Table 1
Banking Panics: factors related to, the incidence of, and their resolution:
United States 1870 - 1933

Reference Cycle (peak to trough)		Deviations from Trend of Average Annual Real Output Growth[a] (peak to trough)	Absolute Difference of Average Annual Rate of Price Level Change (trough to peak minus peak to trough)	Deviations from Trend of Average Annual Monetary Growth[b] (Specific cycle peak to trough)	Percentage Change in M due to Change in Deposit Currency Ratio (specific cycle peak to trough).	Banking Crisis[c]	Banking Panic[d]	Resolution	Agency
Peak	Trough	Percent							
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1873	1879	0.5	-7.1	-4.7	2.7		8/73	Restriction of Payments	Clearing Houses/ Treasury
1882	1885	-3.2	-12.2	2.6	5.2	5/84		Successful LLR	Clearing Houses/
1893	1894	-9.5	-9.0	-9.3	-4.3		7/93	Restriction of Payments	Clearing Houses/ Treasury
1907	1908	-14.7	-6.1	-1.7	-2.7		10/07	Restriction of Payments	Clearing Houses/ Treasury
1920	1921	-7.6	-56.7	-2.5	2.8				
1929	1932	-16.7	-12.5	-11.7	-27.4	1930, 1931, 1932	1933	Unsuccessful LLR	Federal Reserve

Data sources: For all columns except (3) see Data Appendix in Bordo (1986), for column (3) see Data Appendix in Bordo (1981)

Notes: a) the trend growth rate in real output was 3.22 percent over the period 1870 - 1941. It was calculated as the difference between the natural logs of real output between initial and terminal year divided by the number of years.
b) the trend monetary growth rate was 5.40 percent over the period 1870 - 1941. It was calculated as in a) above.
c) Banking crisis - runs and/or failures. Source Bordo (1986).

Table 2
Banking Panics: factors related to, the incidence of, and their resolution:
Great Britain 1870 - 1933

Reference Cycle (peak to trough)		Deviations from Trend of Average Annual Real Output Growth[a] (peak to trough)	Absolute Difference of Average Annual Rate of Price Level Change (trough to peak minus peak to trough)	Deviations from Trend of Average Annual Monetary Growth[b] (Specific cycle peak to trough)	Percentage Change in M due to Change in Deposit Currency Ratio (specific cycle peak to trough).	Banking Crisis[c]	Banking Panic[d]	Resolution	Agency
Peak	Trough	Percent							
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1873	1879	0.9	-7.1	-3.1	5.2				
1883	1886	-1.2	-5.4	-2.8	2.3				
1890	1894	-0.2	-4.4	-2.5	-2.2	Baring Crisis 11/90		Successful	Bank of England
1907	1908	-4.7	-13.6	-1.6	-1.0				
1920	1921	-6.9	-68.0	-5.1	4.5				
1929	1932	-3.7	-7.9	-4.3	-1.3				

Data sources: Same as in Table 1.

Notes: a) the trend growth rate in real output over the period 1870 - 1939 was 1.48 percent. It was calculated as described in Table 1.
b) the trend monetary growth rate over the period 1870 - 1939 was 2.71. It was calculated as described in a) above.
c) Same as in Table 1.
d) Same as in Table 1.