

LENDER OF LAST RESORT: THE CONCEPT IN HISTORY

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Averting banking panics and crises is the job of the central bank. As lender of last resort (LLR), it has the responsibility of preventing panic-induced collapses of the money stock. Traditionally, it has discharged this responsibility by making emergency loans of high-powered money to sound but temporarily illiquid banks at penalty rates on good collateral. Ideally, the mere announcement of its commitment, by assuaging people's fears of inability to obtain cash, would be sufficient to still panics without the need for making loans.

Banking scholars agree that the Bank of England in the last third of the nineteenth century was the lender of last resort par excellence. More than any central bank before or since, it adhered to the strict classical or Thornton-Bagehot version of the LLR concept. That version, named for its principal framers Henry Thornton and Walter Bagehot, stressed (1) protecting the aggregate money stock, not individual institutions, (2) letting insolvent institutions fail, (3) accommodating sound institutions only, (4) charging penalty rates, (5) requiring good collateral, and (6) preannouncing these conditions well in advance of any crisis so that the market would know exactly what to expect. These precepts served the Bank well. So well, in fact, that the U.K. suffered no banking crises after 1866. Even today, the Thornton-Bagehot version of the LLR concept provides a useful benchmark or standard for central bank policy. It is time to document the evolution and logic of that concept in some detail.

Henry Thornton's Contribution

The term "lender of last resort" owes its origin to Sir Francis Baring, who in his *Observations on the Establishment of the Bank of England* (1797) referred to the Bank as "the dernier resort" from which all banks could obtain liquidity in times of crisis. But the concept itself received its first—and in many

respects still its most rigorous, complete, and systematic—treatment in the hands of Henry Thornton. It was Thornton who, in his testimony before Parliament, in his speeches on the Bullion Report, and in his classic *An Enquiry Into the Nature and Effects of the Paper Credit of Great Britain* (1802), identified the Bank of England's distinguishing characteristics as an LLR. It was he who also specified the LLR's primary function, who distinguished between the micro and macroeconomic aspects of this function, and who analyzed the LLR's relationship with the monetary control function of the central bank. Finally, it was he who first enunciated the so-called "moral hazard" problem confronting the LLR.

Distinctive Features Thornton identified three distinguishing characteristics of the LLR. First was its unique position as the ultimate source of liquidity for the financial system. The LLR, he pointed out, maintained and created a strategic stock of high-powered money (gold and Bank of England notes) that could be used to satisfy demands for liquidity at critical times. More precisely, it held the central gold reserve from which all banks could draw. Equally important, it supplied the non-gold component of the monetary base in the form of its own notes—notes which, by virtue of their unquestioned soundness and universal acceptability, were considered the equivalent of gold and therefore constituted money of ultimate redemption. The Bank's effective monopolistic power to issue these notes gave it sole control over an inexhaustible source of outside money—the first requisite of an LLR.

Arresting Internal Drains The second hallmark of the LLR was its special responsibilities as custodian of the central gold reserve. It must hold sufficient reserves to inspire full confidence in their ready availability in times of stress. Also it must rely on its own resources (since as the last resort, it can turn to no other source) to protect the reserve from gold-depleting specie drains. Specifically, it must stand ready to freely issue its own paper to stem the panics that produce internal drains as cashholders seek to

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switch from country bank notes to gold or its equivalent. And, while relying on the Bank's monetary control function to prevent external drains caused by persistent inflationary overissue of paper, it must hold so large a gold reserve as to withstand those temporary and self-reversing external drains caused by real shocks to the balance of payments. Should the Bank nevertheless find its gold reserve depleted by an extraordinary succession of such shocks (Thornton mentions three successive crop failures), it must take steps to ensure that the eventual return flow of gold is not delayed by domestic monetary contractions that depress aggregate production and reduce output available for export. For, according to Thornton (1939, p. 118), given downward inflexibility of wages and prices in the face of a money-stock collapse:

the manufacturer, on account of the unusual scarcity of money, may even . . . be absolutely compelled by necessity to slacken, if not suspend, his operations. To inflict such a pressure on the mercantile world as necessarily causes an intermission of manufacturing labor, is obviously not the way to increase that exportable produce, by the excess of which, above the imported articles, gold is to be brought into the country.

In short, the central bank must ensure that secondary monetary shocks do not prolong temporary external drains originating in real disturbances. To do so, it must sterilize or neutralize those drains with temporary increases in its own note issue. In so doing, it maintains the base of high-powered money and prevents sharp contractions in the money stock, contractions which, by depressing manufacturing activity and thus reducing output available for export, would prolong the trade deficit and hinder the return flow of gold. By judicious expansion of its own paper, the Bank of England arrests and reverses these specie drains that imperil its gold reserve.

Public Duties The third characteristic of the LLR was that it was not just like any other bank; it had public responsibilities. Unlike an ordinary commercial banker, whose responsibilities extend only to his stockholders, an LLR's responsibility extends to the entire economy. The LLR's duties include preserving the aggregate quantity and hence purchasing power of the circulating medium during bank runs and panics, and assisting the entire financial system in times of crisis. This responsibility, Thornton argued, dictates that the LLR behave precisely the opposite of a commercial banker in times of general distress, expanding its note issue and loans at the very time the banker is contracting his. For whereas the individual banker can justify his loan and note contraction on the grounds that it will enhance his

own liquidity and safety while not materially worsening that of the whole economy, the LLR can make no such assumption. On the contrary, the LLR must assume that, because of its influence over the total money supply, any contractionary policy on its part would adversely affect the economy. Consequently, the LLR must expand its note issue and loans at a time when the prudent commercial banker is contracting his.

Policy Issues Having outlined the distinctive features of the LLR, Thornton next expounded on four policy issues pertaining to the LLR. The first concerns a possible conflict between the central bank's responsibility as controller of the paper component of the monetary stock and its function as lender of last resort. Since the central bank bears the responsibility for providing a stable framework of monetary growth, it must exercise a moderate and continued restraint on the rate of expansion of its own note issue. It must do so either to protect its gold reserves from displacement by excess paper so that it can maintain the convertibility of its currency under fixed exchange rates or to prevent domestic inflation under floating exchange rates. But coping with unusual liquidity strains or panics through exercise of the LLR function calls for abandonment of this restraint and relinquishing control over the growth rate of the Bank note component of the monetary base. Hence, some banking specialists have noted an apparent conflict between these two central banking objectives.

Monetary Control and the LLR Thornton, however, saw no inconsistency between a policy of stable monetary growth and the actions required to deal with liquidity crises. In the following passage, which Joseph Schumpeter called the "Magna Carta of central banking," Thornton distinguishes between the long-run target growth path of paper money and temporary emergency deviations from the path. The proper policy of the Bank of England, Thornton (1939, p. 259) said, is

[T]o limit the total amount of paper issued, and to resort for this purpose, whenever the temptation to borrow is strong, to some effectual principle of restriction; in no case, however, materially to diminish the sum in circulation, but to let it vibrate only within certain limits; to afford a slow and cautious extension of it, as the general trade of the kingdom enlarges itself; to allow of some special, though temporary, increase in the event of any extraordinary alarm or difficulty, as the best means of preventing a great demand at home for guineas;¹ and to lean

¹ Thornton is here referring to the public's demand for gold coin, the guinea being the name of a standard gold coin in use in England at the time.

to the side of diminution, in the case of gold going abroad, and of the general exchanges continuing long unfavourable; this seems to be the true policy of the directors of an institution circumstanced like that of the Bank of England. To suffer either the solicitations of merchants, or the wishes of government, to determine the measure of the bank issues, is unquestionably to adopt a very false principle of conduct.

Remedies for External Drains Thus, to Thornton, the main responsibility of the central bank was to regulate paper money so that it expands at a steady noninflationary pace roughly comparable to the long-term growth rate of output. The bank must also counter those specie drains that periodically threatened to deplete its gold reserve and force suspension of convertibility. As previously mentioned, these drains were of two types: external (or foreign), composed of exports of gold to cover an adverse balance of payments, and internal, consisting of panic-induced increases in the quantity of gold held by domestic residents. Now temporary (self-reversing) external drains arising from transitory real shocks to the balance of payments can normally be met from the large buffer stock of gold reserves held precisely for that purpose, the temporary runoff of gold being offset by a reverse flow later on. But an extraordinary succession of such drains, if sufficient to exhaust the metallic reserve and deplete the gold in circulation, may require expansionary policy. Such policy, Thornton argued, would neutralize (sterilize) the gold outflow, prevent needless monetary contraction and the resulting disruption of the export industries ("those sources of our returning wealth"), and thereby contribute to the prompt correction of the trade deficit and the speedy return of gold. By contrast, *persistent* external drains arising from inflationary over-issue of paper call for restrictive policy. Either by reducing inflated British prices relative to foreign prices or by creating an excess demand for money which domestic residents attempt to satisfy by selling more goods and buying less, such restrictive policy spurs exports, checks imports, eliminates the trade-balance deficit, and halts the outflow of gold. Clearly monetary contraction, he thought, is the correct remedy for persistent external drains.

LLR and Internal Drains In the case of a panic and internal drain, however, the Bank should be prepared temporarily to expand sharply both its note issue and its loans to satisfy the public's demand for high-powered money. This means that the Bank must step off its path of stable note growth to prevent the money stock from shrinking. Indeed, Thornton argued that emergency expansions of Bank of England notes were required to keep the entire stock

of paper money (Bank notes plus notes issued by country banks) on path in the face of panic-induced demands to switch out of country notes. There need be no conflict between the functions of money control and lender of last resort, however, since the first refers to the long run and the second to temporary periods of emergency that may last for only a few days. If the LLR responds promptly and vigorously to the threat of a liquidity crisis, the panic will be averted quickly. Indeed, Thornton held that the mere expectation of such a response may be sufficient to stop the panic before additional notes are issued. Thus, the deviation of the paper component of the monetary base from its long-run target path will be small, both in magnitude and duration.

Macro vs. Micro Responsibilities The second issue considered by Thornton concerns the extent of the lender of last resort's responsibility to individual banks as opposed to the banking system as a whole. Suppose these individual banks are unsound. Must the LLR act to prevent their failure; that is, are bailout operations necessary to preserve the stability of the payments mechanism? Thornton (1939, p. 188) answered in the negative.

It is by no means intended to imply, that it would become the Bank of England to relieve every distress which the rashness of country banks may bring upon them; the bank, by doing this, might encourage their improvidence. There seems to be a medium at which a public bank should aim in granting aid to inferior establishments, and which it must often find very difficult to be observed. The relief should neither be so prompt and liberal as to exempt those who misconduct their business from all the natural consequences of their fault, nor so scanty and slow as deeply to involve the general interests. These interests, nevertheless, are sure to be pleaded by every distressed person whose affairs are large, however indifferent or even ruinous may be their state.

Thornton made four key points in this passage. First, the lender of last resort's primary responsibility is to the market ("the general interests") and not to the individual bank. The central bank has no duty to sustain particular institutions. Second, the LLR must take account of the moral hazard problem. That is, it must recognize that when it makes liberal accommodation available, it may create incentives that encourage laxity and recklessness in the lending practice of individual banks. Thornton's solution to this problem was to advise against bailout operations for banks whose distress arises from "rashness," "improvidence," or "misconduct." By subsidizing the risk-bearing function of poorly managed banks, such rescue operations, he asserts, would encourage other banks to take excessive speculative risks without fear of the consequences. In short, individual imprudence

should be punished by losses. Only if the financial repercussions of such punishment threaten to become widespread should the lender of last resort intervene. His third point, however, was that even in this latter case, aid should be extended sparingly and on relatively unfavorable terms. Finally, he was skeptical of the claim that economic welfare is inevitably harmed when a bank fails. This argument, he noted, would provide every large bank, no matter how poorly run, with an automatic justification for aid. He was aware that the public interest may be better served by the demise of inefficient banks, because the resulting improvements in resource allocation may well outweigh any adverse spillover side effects of the failure.

Containing Contagion The third issue addressed by Thornton was whether the lender of last resort should try to prevent shocks to the financial system. Here Thornton answered in the negative. The lender of last resort exists, he said, not to prevent shocks but to neutralize their secondary repercussions. He argued that a panic could be triggered by any kind of "alarm"; for example, rumors of a foreign invasion, an initial bank failure, and so on. The central bank has no responsibility for stopping these triggering events, but it does have a responsibility for arresting the panic, stopping it from spreading throughout the system. "If any one bank fails," said Thornton (1939, p. 180), "a general run on the neighboring ones is apt to take place, which if not checked at the beginning by a pouring into the circulation a large quantity of gold, leads to very extensive mischief."

The proper response, according to Thornton, is not to stop the initial failure, but to pump liquidity into the market. In Thornton's view, the actual occurrence of a widespread panic would be properly attributable not to the initial bank failure, but to the central bank's failure to insulate the economy from the impact of that event. He distinguished between the effect of closing an individual bank and the policy errors of the lender of last resort. Closing an individual bank, he said, contributes very little to "general distress" or "general commercial difficulty." By contrast, policy errors of the lender of last resort create a "general shock to credit" that "produces Distress through the whole Kingdom" (Thornton, pp. 287-88, 304-5).

Protecting the Money Stock Finally, Thornton identified the paramount objective or primary purpose of the lender of last resort. That objective he specified as the prevention of panic-induced declines in the money stock, declines that could produce depressions in the level of economic activity. That is, he

viewed the LLR as essentially a monetary rather than a banking function. While recognizing that the LLR also functions to forestall bank runs and avert credit crises, he insisted that these functions, although undeniably important, were nevertheless ancillary and incidental to the LLR's main task of protecting the money supply. In other words, the LLR's crisis-averting and run-arresting duties were simply the means (albeit the most efficient and expeditious ones) through which it pursued its ultimate objective of preserving the quantity, and hence the purchasing power, of the money stock. The important point was to prevent sharp short-run shrinkages in the quantity of money, since hardship ensued from these rather than from bank runs or credit crises per se.

In this connection, he drew a sharp distinction between bank *credit* (loans and discounts) on the one hand and the stock of *money* on the other. He then argued that, while the two aggregates tend to rise and fall together, it is the fall of the money stock that does the damage to the real economy. More precisely, he asserted that, while credit indeed finances and supports business activity, such credit arises from money rather than vice versa. Since credit springs from money and not money from credit, it follows that monetary contractions rather than credit collapses per se are the root cause of lapses in economic activity. Regarding this point, Thornton (1939, p. 307) asserted that a run-induced contraction in bank credit is not as harmful as the corresponding decline in the money stock: "It is not the limitation of Discounts or Loans, but . . . the limitation of Bank Notes or the Means of Circulation that produces the Mischiefs [of unemployment and lost output]."

To show how such monetary contraction and the resulting fall in output and employment would occur in the absence of an LLR, Thornton traced a chain of causation running from an alarm or rumor to financial panic to the demand for high-powered money to the money stock itself and thence to aggregate spending and the level of real economic activity. Panics, he noted, trigger doubts about the solvency of country banks and the safety of their note and deposit liabilities. As a result, moneyholders seek to convert these assets into money of unquestioned soundness, namely gold or Bank of England notes. These two items, he noted, comprise the base of high-powered money, an unaccommodated increase in the demand for which in a fractional reserve banking system is capable of causing a multiple contraction of the money stock. The demand for base money, he said, is doubly augmented during panics. For at the same time that moneyholders are attempting to convert suspect country bank notes and

deposits into gold or its equivalent, country banks are seeking to augment their reserves of these high-powered monetary assets, both to meet anticipated cash withdrawals and to allay public suspicion of financial weakness. The result is a massive rise in the demand for base money—a rise that, if not satisfied by increased issues, produces sharp contractions in the money stock and equally sharp contractions in spending. Since Thornton contended that wages and prices were downwardly sticky and therefore responded sluggishly to declines in spending, he thought that output and employment would bear most of the burden of adjustment; that is, the monetary contraction would fall most heavily on real activity.

To prevent this sequence of events, the LLR must stand ready to accommodate all panic-induced increases in the demand for high-powered money. And this it can readily do since it has a monopoly over its own Bank note component of the monetary base. Expressed in modern terminology, Thornton's argument was essentially this: The LLR must be prepared to offset falls in the money multiplier arising from panic-induced rises in currency and reserve ratios with compensating rises in the monetary base. By so doing, it maintains the quantity of money intact and therefore also the level of economic activity.

Walter Bagehot's Contribution

After Thornton, LLR theory received its strongest and most influential exposition in the writings of Walter Bagehot. In his seminal 1873 volume, *Lombard Street*, Bagehot revived and restated many of the points made earlier by Thornton. For example, he emphasized the Bank of England's special position as the holder of the ultimate reserve. This position, he noted, rendered the central bank different from ordinary commercial banks. It also gave the Bank the power as well as the duty to lend to all solvent institutions offering good collateral in a crisis, the very time when other bankers would be contracting their loans. He also followed Thornton in advocating that the Bank of England hold large buffer stocks of gold reserves from which periodic drains could be met without adversely affecting the quantity of money in circulation. Finally, like Thornton, he distinguished between the appropriate response to internal versus external cash drains. An internal drain, he said, should be countered by a policy of lending freely and vigorously to erase all doubt about the availability of bank accommodation. An external drain, however, should be met by a sharp rise in the central bank's lending rate, the high

interest rate serving to attract foreign gold and encouraging the retention of domestic gold. This rate increase, Bagehot thought, was necessary to protect the metallic component of the monetary base. According to Bagehot (1962, p. 155), "the first duty of the Bank of England was to protect the ultimate cash of the country, and to raise the rate of interest so as to protect it."

A sufficient gold reserve, of course, was necessary both for the preservation of the gold standard and for the maintenance of public confidence in the convertibility of paper currency into gold. On the potential fragility of public confidence, Bagehot (1962, pp. 156-57) argued that "a panic is sure to be caused" if the gold reserve falls below "a certain minimum which I will call the 'apprehension minimum.'" It follows that the lender of last resort should strive to keep its gold reserves above this critical threshold.

Bagehot's Rule Bagehot (1962, pp. 27-28) thought that a persistent external drain would trigger an internal drain as the public, observing the diminution of the gold stock and fearing a suspension of convertibility, sought to convert deposits and country bank notes into gold. "Unless you can stop the foreign export," he said, "you cannot allay the domestic alarm." In this case, in which "periods of internal panic and external demand for bullion commonly occur together," the lender of the last resort must "treat two opposite maladies at once—one requiring stringent remedies, and especially a rapid rise in the rate of interest; and the other, an alleviative treatment with large and ready loans." Therefore, "the best remedy...when a foreign drain is added to a domestic drain" is the provision of "very large loans at very high rates." Here is the origin of the famous Bagehot Rule: "lend freely at a high rate."

Like Thornton, Bagehot stressed that last-resort lending should not be a continuous practice but rather a temporary emergency measure applicable only in times of banking panics. Like Thornton, he argued that if the central bank responded promptly and vigorously, the panic would be ended in a few days, by implication an interval not long enough for the paper component of the monetary base to depart significantly from its appropriate long-run growth track.

Responsibility to the Market Bagehot also viewed the role of the lender of last resort as primarily macroeconomic. The central bank, he said, bears the responsibility of guaranteeing the liquidity of the whole economy but not that of particular institutions. He prescribed last-resort lending as a remedy for

emergencies affecting the entire banking system, not for isolated emergency situations affecting an individual bank or a few specific banks. Nor did he intend it to be used to prevent very large or key banks from failing as a consequence of poor management and inefficiency. As shown below, he did not think that support of such distressed key banks was necessary to forestall panics. Like Thornton, he emphasized that the task of the central bank was not to prevent initial failures of unsound institutions but rather to prevent a subsequent wave of failures spreading through the sound banks of the system.

More generally, he believed with Thornton that the lender of last resort exists not to prevent shocks but to minimize their secondary repercussions. His views on this point are contained in his analysis of panics. Panics, said Bagehot (1962, p. 61), can be triggered by a variety of exogenous events—"a bad harvest, an apprehension of foreign invasions, a sudden failure of a great firm which everybody trusted." But "no cause is more capable of producing a panic, perhaps none is so capable, as the failure of a first-rate joint stock bank in London" (Bagehot 1962, p. 29). The shock of this initial failure must be contained before it gets out of hand, for "in wild periods of alarm, one failure makes many." The problem is how to "arrest the primary failure" that causes "the derivative failures." Bagehot's solution, quoted below (1962, p. 25), stresses the liberal provisions of liquidity to the whole system rather than loans to the distressed bank:

A panic, in a word, is a species of neuralgia, and according to the rules of science you must not starve it. The holders of the cash reserve must be ready not only to keep it for their own liabilities, but to advance it most freely for the liabilities of others. They must lend to merchants, to minor bankers, to 'this man and that man,' whenever the security is good . . . The way in which the panic of 1825 was stopped by advancing money has been described in so broad and graphic a way that the passage has become classical. 'We lent it,' said Mr. Harmon, on behalf of the Bank of England, 'by every possible means and in modes we had never adopted before; we took in stock on security, we purchased Exchequer bills, we made advances on Exchequer bills, we not only discounted outright but we made advances on the deposit of bills of exchange to an immense amount, in short, by every possible means consistent with the safety of the bank, and we were not on some occasions over nice. Seeing the dreadful state in which the public were, we rendered every assistance in our power.' After a day or two of this treatment, the entire panic subsided, and the 'City' was quite calm.

Conspicuously absent is any mention of the need to channel aid to specific institutions, as would be implied by bailout operations. Bagehot's emphasis is clearly on aid to the market rather than to the

initially distressed bank. He obviously did not think it necessary to prevent the initial failure at all costs.

Up to this point, Bagehot has been depicted largely as a follower or disciple of Thornton. But Bagehot did more than just elaborate, refine, and coordinate Thornton's analysis. He also contributed several original points that added substance to the lender-of-last-resort doctrine and advanced it beyond Thornton's formulation. At least five of these points deserve mention.

Preannounced Assurance First, Bagehot distinguished between the central bank's extending support to the market after a crisis began, and its giving assurance of support in advance of an impending crisis. He argued that the lender of last resort's duty did not stop with the actual provision of liquidity in times of crisis, but also involved making it clear in advance that it would lend freely in all future crises. As Bagehot (1962, p. 85) put it, "the public have a right to know whether [the central bank]—the holders of our ultimate bank reserve—acknowledge this duty, and are ready to perform it." This assurance alone, he thought, would dispel uncertainty about and promote confidence in the central bank's willingness to act, thus generating a pattern of stabilizing expectations that would help avert future panics.

Penalty Rate Second, he advocated that last-resort accommodation be made at a penalty rate. Borrowers should have relief in times of crises, but they should be prepared to pay a price that implied a stiff penalty. The central bank has a duty to lend, but it should extract a high price for its loans, a price that would ration scarce liquidity to its highest-valued uses just as a high price rations any scarce commodity in a free market. Moreover, a penalty rate also had the appeal of distributional equity, it being only fair that borrowers should pay handsomely for the protection and security afforded by the lender of last resort. Allocative efficiency and distributive justice aside, the penalty rate, Bagehot claimed, would produce at least four additional beneficial results. First, it would encourage the importation and prevent the exportation of specie, thus protecting the nation's gold reserve. It would achieve this result by attracting short-term capital from abroad and by exerting a deflationary influence on spending and domestic prices, thereby improving the external balance of trade by spurring exports and reducing imports. Second, consistent with the objective of maintaining stable growth of the note component of the money stock, a penalty rate would ensure the quick retirement of emergency expansions of the Bank note issue once the emergency ends. The very unprofitability of bor-

rowing at the above-market rate would encourage the prompt repayment of loans when the panic subsides, and the resulting loan repayment would extinguish the emergency issue so that the Bank note component of the money stock would return to its noninflationary path. Third, the high rate of interest would reduce the quantity of precautionary cash balances that overcautious wealth-holders would want to hold. Without the high rate to deter them, these cash-holders might deplete the central gold reserve. As Bagehot put it, the penalty rate would serve as "a heavy fine on unreasonable timidity," prompting potential cashholders to economize on the nation's scarce gold reserve. In this connection, he advocated that the penalty rate be established "early in the panic, so that the fine may be paid early; that no one may borrow out of idle precaution without paying well for it; that the Banking reserve may be protected as far as possible" (Bagehot 1962, p. 97).

Last and most important, the penalty rate would, in addition to rationing the scarce gold reserve, provide an incentive for banks to exhaust all market sources of liquidity and even develop new sources before coming to the central bank. By encouraging individual banks to develop better techniques of money management and the capital market to develop new channels to mobilize existing liquidity, the penalty rate would promote allocative efficiency in the financial system. In short, the penalty rate would protect the gold reserve, minimize deviations of the Bank note component of the money stock from its stable path, allocate resources by market price, discourage reliance on the central bank, and ensure that recourse to the latter's lending facilities was truly a last resort.

Bagehot's analysis, it should be noted, implies still another use for the penalty rate: providing a test of the soundness of distressed borrowers. A penalty rate set a couple of percentage points above the market rate on alternative sources of funds would encourage illiquid banks to turn to the market first. Success in obtaining accommodation at the market rate—defined here as the going rate on default-free short-term credit instruments—would indicate that lenders judge these borrowers to be sound risks, for the borrowers and their assets would pass the market test. On the other hand, resort to the central bank at the penalty rate would tend to indicate weakness in the borrowing institutions, suggesting that they may be unable to borrow in the market at the lower rate. Fearing default, private lenders may demand a risk premium in excess of the differential between the risk-free market rate and the penalty rate, forcing the banks

to resort to the central bank's lending facility. Thus, the penalty rate will have provided a test of the banks' soundness.

Eligible Borrowers and Collateral Bagehot's third contribution was his specification of the types of borrowers the lender of last resort should accommodate, the kinds of assets it should lend on, and the criteria it should use to determine the acceptability of those assets. Regarding the types of borrowers, he stated that the Bank of England should be willing to accommodate anyone with good security. Last-resort loans, said Bagehot (1962, p. 25), should be available "to merchants, to minor bankers, to this man and that man." The objective of the central bank in time of panic is to satisfy the market's demand for liquidity. It makes little difference, he said, whether this objective is accomplished via loans to merchants, to bankers, or to any other sound borrowers.

Concerning the type of collateral on which the central bank should lend, Bagehot's answer was clear. The bank should stand ready to lend on any and all sound assets, or, as he put it, "on every kind of current security, or every sort on which money is ordinarily and usually lent" (Bagehot 1962, p. 97). Besides the conventionally eligible bills and government securities, acceptable collateral should include "all good banking securities," and perhaps even "railway debenture stock" (pp. 97, 101). In another passage he makes the point that the "*amount* of the advance is the main consideration . . . not the nature of the security on which the advance is made, always assuming the security to be good" (p. 101). The basic criterion was that the paper be indisputably good in *ordinary or normal times*. The latter qualification is important. It implies that the lender of last resort should not be afraid to extend loans on normally sound assets whose current market value is temporarily below book value owing to depression in the securities market.

To summarize, Bagehot felt that few restrictions should be placed on the types of assets on which the central bank might lend, or the kinds of borrowers it might accommodate. This position was consistent with his advocacy of price as opposed to non-price rationing mechanisms. He recommended that the central bank eschew qualitative restraints—eligibility rules, moral suasion, administrative discretion and the like—and instead rely on the penalty rate to ration borrowing.

Unsound Institutions Fourth, Bagehot delineated the extent of the lender of last resort's responsibility to individual banks as distinguished from the banking system as a whole. Concerning the question of

whether this responsibility included assistance to insolvent banks, Bagehot's answer was an unequivocal no. The central bank's duty, he said, is not to rescue "the 'unsound' people" who constitute "a feeble minority." Such businesses, he said, "are afraid even to look frightened for fear their unsoundness may be detected" (Bagehot 1962, p. 97). In short, the job of the central bank is not to prevent failure at all costs but rather to confine the impact of such failure to the unsound institutions.

Bagehot meant for his strictures to apply even to those key banks whose failure, in the absence of central bank action, could shatter public confidence and start a falling-dominoes chain-reaction sequence of financial collapse. Thus, Bagehot (1962, p. 129) acknowledged that if:

owing to the 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 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 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 skeptical world would say 'of course they say they are all perfect now; it would not do for them to say anything else.'

Even in this case, however, Bagehot did not think it appropriate for the central bank to extend aid to poorly managed key banks. It is, instead, "the 'sound' people, the people who have good security to offer" who constitute "the majority to be protected." The lender-of-last-resort function should not be interpreted to mean that unsound banks should not be permitted to fail. Instead it implies that the failure should not be allowed to spread to sound institutions. To Bagehot, the distinction is crucial. In his words, "no advances indeed need be made" on assets on "which the [central] Bank will ultimately lose." Again, in another passage, he offers assurance that if the lender of last resort "should refuse bad bills or bad securities" it "will not make the panic really worse." To arrest a panic, he says, it is sufficient that the bank guarantee to provide liquidity to the "solvent merchants and bankers" who comprise the "great majority" of the market. This policy ensures that "the

alarm of the solvent merchants and bankers will be stayed" (Bagehot 1962, p. 97).

Strengthening Self-Reliance Finally, Bagehot warned against undue reliance on the lender of last resort and stressed the need to strengthen individual banks. The lender of last resort, he pointed out, was not meant to be a substitute for prudent bank practices. Consistent with his laissez-faire, free-market philosophy, he argued that the basic strength of the banking system should rest not on the availability of last-resort accommodation, but rather on the resources and soundness of the individual banks. According to Bagehot (1962, p. 36):

[W]e should look at the rest of our banking system, and try to reduce the demands on the Bank [of England] as much as we can. The central machinery being inevitably frail, we should carefully and as much as possible diminish the strain upon it.

Bagehot (1962, p. 60) described in glowing terms the self-reliant character of a hypothetical decentralized "natural system of banking," composed "of many banks keeping their own cash reserve, with the penalty of failure before them if they neglect it." Elsewhere he pointed out that "under a good system of banking . . . a large number of banks, each feeling that their credit was at stake in keeping a good reserve, probably would keep one; if any one did not, it would be criticized constantly, and would soon lose its standing, and in the end disappear" (Bagehot 1962, p. 52). In relying on its own soundness rather than the resources of the central bank, such a system, he noted, "reduces to a minimum the risk that is caused by the deposit. If the national money can safely be deposited in banks in any way. This is the way to make it safe" (p. 53).

Providing Liquidity via Open Market Operations One final observation should be made concerning Bagehot's views on the central bank's most appropriate instrument to combat panics. Today many banking experts regard open market operations, rather than discount window accommodation, as the most effective way to deal with systemic liquidity crises. Bagehot likely would have agreed. Although he consistently prescribed loans, rather than open market purchases of assets, to stop panics, this was mainly because the latter weapon was not widely used in his day. Had the technique of open market operations been highly developed at that time, he probably would have approved of its use, at least in those cases where there was no danger of the gold stock being depleted by a foreign drain. On these occasions, Bagehot favored resorting to the most expeditious means of stopping an internal cash drain. Open

market operations are quite consistent with his dictum "that in time of panic" the central bank "must advance freely and vigorously to the public . . . on all good banking securities" (Bagehot 1962, pp. 96-97). Moreover, open market operations would have appealed to his preference for market-oriented allocation mechanisms. He would have approved of this particular policy instrument, which regulates the total amount of money but not its allocation among users or uses.²

Conclusion

Thornton and Bagehot believed the LLR had the duty (1) to protect the money stock, (2) to support the whole financial system rather than individual institutions, (3) to behave consistently with the

² Note that open market operations would render Bagehot's penalty rate inoperative. With such operations, however, penalty rates are in any case unnecessary since the market itself rations or allocates newly-created money among cashholders.

longer-run objective of stable money growth, and (4) to preannounce its policy in advance of crises so as to remove uncertainty. They also advised the LLR to let insolvent institutions fail, to lend to credit-worthy institutions only, to charge penalty rates, and to require good collateral. Such rules they thought would minimize problems of moral hazard and remove bankers' incentives to take undue risks. These precepts, though honored in the breach as well as in the observance, continue to serve as a benchmark and model for central bank policy today.

References

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