

Averting Financial Crises: Advice from Classical Economists

BY THOMAS M. HUMPHREY

Editor's Note: The story of how central banks handled the global financial crisis in 2007-2008 is now familiar: They bent the traditional rules of lending to provide emergency funds to a wide array of institutions that lacked short-term financing, hoping to keep the institutions alive and minimize recession and job loss.

Since then, scholars have continued to debate central bank crisis procedures. The starting point for many is the 19th century classical economists, whose prescriptions would go on to govern some of the world's most successful central banks. Two economists in particular, Henry Thornton and Walter Bagehot, are credited with literally writing the books, in 1802 and 1873 respectively, on crisis management by the Bank of England.

These writings established rules for what is today called the "lender of last resort." Why the need for special rules? Emergency lending comes with a longer-term risk: that when investors expect to be protected from losses, they'll overfund risky activity, leading potentially to greater and deeper crises — and still more bailouts. In a crisis, modern policymakers, including those within the Fed in 2007-2008, are left to weigh the degree to which financial turmoil threatens the broader economy today against the likelihood that moral hazard from emergency lending will create more panics in the future.

A well-designed last-resort lending mechanism may address both sides of the equation: establishing a clear, reliable system in advance that reassures markets, while making the loans sufficiently unsavory to borrowers that financial markets will want to minimize the risk-taking that might lead to bailouts.

For that reason, the prescriptions of the classicals are as relevant as ever. One student of the topic is Thomas Humphrey, a historian of monetary thought who retired in 2005 from the Richmond Fed as a senior economist and research advisor and editor of the Bank's *Economic Quarterly*. The following is adapted from talks that Humphrey delivered in 2014 at the annual meeting of the American Economic Association and at James Madison University concerning the classical lessons and whether the Fed followed them during the crisis of 2007-2008.

Nineteenth century English classical economics left a mixed legacy. Its Ricardian model of production and distribution, though pathbreaking and pertinent at the time, seems quaint, outmoded, dated, even wrong today. Questionable elements include the model's labor and cost-of-production (rather than marginal utility) theories of value, its Malthusian population mechanism and iron law of wages, its prediction that a capitalist economy will converge to the classical stationary state where all growth stops, its theory of relative income shares in which land's rental share comes to dominate, and its relative neglect of technological progress at the very time that such progress was transforming British society. Nobody pretends that these obsolete notions describe the operation of developed market economies now.

But the classical school got at least one thing right. I'm referring to its explanation of how central banks operate as lenders of last resort (LLR) to resolve financial panics and crises and so prevent them from deteriorating into recessions and depressions. This theory is as relevant and useful today as when it was first formulated. True, it suffered neglect during the Great Moderation, the period from roughly 1985 to 2008, when crises and panics came to be regarded as things of the past. But the recent financial crisis showed how wrong this view was and stimulated renewed interest in the classical theory. Central bankers needing all the help they could get sought to tap into the accumulated wisdom

of the classicals and to use their benchmark LLR model as a source of expert advice. Here's a prime example of how the history of economic thought, particularly monetary thought, earns its keep. It still has much to teach. Indeed, its lessons continue to inform policymakers to this very day.

Classical Teachings

What was classical LLR theory? By classical here, I mean the work primarily of two Englishmen, namely Henry Thornton (1760-1815), a prominent banker, member of Parliament, evangelical reformer, anti-slavery activist, and all-time great monetary theorist writing in the early years of the 19th century, and Walter Bagehot (1826-1877), a financial writer and longtime editor of *The Economist* magazine who wrote in the century's middle decades.

Classical LLR theory referred to the central bank's duty to provide emergency injections of liquidity to a banking system facing massive cash withdrawals when no other liquidity source is available. The central bank fulfills this duty either through discount window loans to stressed banks or through open market purchases of Treasury bills, bonds, or other assets. Because open market operations were infrequently used in 19th century England, classicals instead advocated discount window loans, albeit at high interest rates so as to discourage too-frequent resort to the loan facility, to creditworthy, cash-strapped borrowers offering good collateral. The goal was to prevent bank runs that cause sudden, sharp

contractions in the money stock, and thus declines in spending and prices. Given downward inflexibility of nominal wages, these declines lead to rising real wages and corresponding falls in profits that induce collapses in output and employment, collapses the classicals fervently sought to avoid.

But classical noted that the LLR has no business bailing out unsound, insolvent banks. Its mission is to stop liquidity crises, not insolvency ones. Nevertheless, if the LLR acts swiftly, aggressively, and with sufficient resolve, it can prevent liquidity crises from deteriorating into insolvency ones. By creating new money upon demand for sound but temporarily illiquid banks, the LLR makes it unnecessary for those banks, in desperate attempts to raise cash, to dump assets at fire-sale prices that might render banks insolvent.

Two lessons emerge from classical LLR theory. Lesson number one: Filling the market with liquidity — or, even better, credibly pre-committing to do so in all current and future panics — is sufficient to still panics and end crises. Liquidity provision by itself is enough to do the job. There is no need also to bail out insolvent, poorly managed institutions or to charge below-market subsidy interest rates on LLR loans.

Lesson number two: The panic- and run-arresting duties of the LLR are part and parcel of its monetary stabilization responsibilities. The two tasks are not mutually exclusive. They are one and the same. By keeping the money stock — or better still, that stock adjusted for shifts in the demand for it so as to preserve money supply-demand equilibrium — on track in the face of shocks, panics, and crises that otherwise would shrink it, the LLR preserves nominal income and spending at their full capacity, non-inflationary, non-deflationary paths.

Thornton's Contributions

Although Walter Bagehot is the economist most often identified with classical LLR theory, Henry Thornton, writing decades before him, can lay claim to being its true father.



Henry Thornton (1760-1815)

Thornton also noted that the LLR has a macro-economic duty to the entire economy, or the “general interest,” as he called it. This duty differentiates the LLR from an individual banker whose duties extend only to his bank’s

What did Thornton do? For starters, he identified the LLR’s distinguishing feature as its open-ended power to create base or high-powered money in the form of its own notes and deposits. The Bank of England possessed this power in spades during the Napoleonic Wars when the government had released it from the obligation of maintaining gold convertibility of its currency.

Thornton also noted that the LLR has a macro-economic duty to the entire economy, or the “general interest,” as he called it. This duty differentiates the LLR from an individual banker whose duties extend only to his bank’s

owners and customers. Let a panic occur. The individual banker will seek to contract his loans and deposits knowing that such contraction will boost his safety and liquidity without much affecting the whole economy. By contrast, the LLR, because it governs the entire money stock whose shrinkage will have widespread adverse effects, can make no such assumption. Thus, when panic hits, the LLR must act opposite to the banker, expanding its operations at the very time the banker is contracting his.

Another thing Thornton did was to identify the LLR’s chief purpose as a monetary rather than a banking or a credit one. To be sure, the LLR acts to forestall bank runs and avert credit crises. But these credit-market actions, although vitally important, are not the end goal of policy in and of themselves. Rather, these actions are the means, albeit the most expedient and efficient means, through which the LLR pursues its ultimate objective of protecting the quantity, hence purchasing power, of the money stock. The crucial task is to prevent sharp and sudden shrinkages of the money stock since hardship follows from these rather than from bank runs and credit crises per se.

Why did Thornton see the LLR’s function as a monetary rather than a credit one? Simple. He thought that money does what credit cannot do, namely, serve as the economy’s unit of account and means of exchange. Since money forms the transaction medium of final settlement, it follows that its contraction, rather than credit crunches and collapses, constitute the root cause of lapses in real economic activity and of breakdowns of the payments mechanism.

To show how the failure of LLR policy allows panic-induced money-stock contraction to cause falls in output and employment, Thornton presented his theory of the monetary transmission mechanism. He traced a chain of causation running from external shocks (he mentions agricultural crop failures and rumors or alarms of a big bank failure or of an invasion of foreign troops) to a financial panic, thence to a flight-to-safety demand for high-powered money, thence to the broad money stock, spending, and the price level, and finally, via sticky nominal wages (which together with falling prices produce rising real wages and thus falling business profits), to real activity itself.

According to Thornton, a panic triggers doubts about the solvency of banks and the safety of their note and deposit liabilities. Anxious holders of these items then run on the banks seeking to convert notes and deposits into cash money of unquestioned soundness, namely gold plus the central bank’s own note and deposit liabilities (considered as good as gold). These aggregates, whether circulating as cash or held in bank reserves, comprise the high-powered monetary base. Unaccommodated increases in the demand for this base in a fractional reserve banking system cause multiple contractions of the broad money stock.

Thornton noted that panics cause the demand for base money to be increased in two ways. Not only does the public wish to convert bank notes and deposits into cash and currency, but bankers, too, are trying to augment their reserves

of high-powered money both to meet cash withdrawals and to allay public suspicion of their financial weakness. The result in a fractional reserve banking system is a sudden, sharp multiple contraction of the broad money stock and equally sharp collapses in spending and prices. Because nominal wages are downwardly sticky and therefore respond sluggishly to falls in spending and prices, such falls tend to raise real wages, thereby reducing profits and so inducing firms to slacken production and lay off workers. The upshot is that output and employment bear much of the burden of adjustment, and the impact of monetary contraction falls 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. It can do this by virtue of its open-ended capacity to create base money in the form of its own notes and deposits. By so doing, the LLR maintains the quantity and purchasing power of money and so the level of economic activity on their non-inflationary, non-deflationary full-capacity paths.

Thornton noted a further complicating factor. Not only do panics, if unopposed, produce multiple contractions of the money stock, they also produce falls in its circulation velocity, or rate of turnover of the money stock against total dollar purchases, due to flight-to-safety spikes in the demand for money, considered the safest liquid asset in times of panic. In this case, the LLR cannot be content merely to maintain the size of the money stock. It also must expand that stock to offset the fall in velocity if it wishes to preserve the level of spending and real activity. This means that the money stock must temporarily rise above its long-run non-inflationary path. But it will revert to that path at the end of the panic when velocity returns to its normal level and the LLR extinguishes the emergency issue of money. The lesson is clear: Deviations from the stable-money path are short-lived and minimal if the LLR promptly does its job. There need be no conflict between LLR emergency actions and long-run stable, non-inflationary monetary growth.

These were Thornton's pathbreaking and seminal contributions. After him came Bagehot. Writing in the 1850s, '60s, and '70s, most famously in his 1873 book *Lombard Street: A Description of the Money Market*, Bagehot wasn't as emphatic as Thornton on the money stock stabilization function of the LLR. This was because by the time Bagehot was writing, Britain had restored the gold convertibility of its currency. The convertibility constraint meant that the Bank of England had less room to maneuver than in Thornton's time when the constraint was suspended. Still, the central bank, even under the gold standard, possessed some wiggle room, especially in the short run. And indeed, in one of his earliest publications, written when he was only 21, Bagehot stated the essence of the LLR's function, namely its quick issue of additional currency to accommodate sudden, sharp increases in the demand for money that threaten to depress spending and the price level and to disrupt the payments mechanism.

Bagehot's Contributions

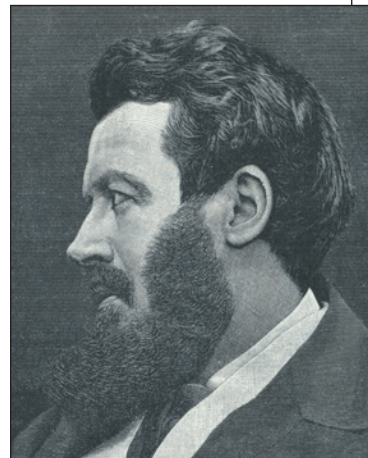
Building upon Thornton's earlier work (although never once citing him, for which I have no explanation), Bagehot added four propositions of his own.

First, the LLR, when quelling panics, should lend to all sound borrowers — nonbanks as well as banks — offering good security, namely assets that would be deemed creditworthy and valuable in ordinary or normal times if not in panics.

Second, the LLR has no duty to bail out unsound borrowers, no matter how big or interconnected. Such bailouts produce moral hazard: They encourage other banks to take excessive risks under the expectation that they too will be rescued if their risks turn sour. To Bagehot, lender-borrower interconnectedness and the purported associated danger of systemic failure constitute no good reason to bail out insolvent banks. Better to let bad banks fail and prevent their failure from spreading to the sound banks of the system. And the best way to do this is to pre-commit to pour liquidity without stint into the market in a crisis.

Here it would be remiss not to note that even on the moral hazard issue, Thornton had scooped Bagehot 70 years before the latter published *Lombard Street*. In a prescient footnote on page 188 of his 1802 book *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*, Thornton wrote that it was not up to the central bank "to relieve every distress which the rashness of country banks bring upon themselves." Relief instead should go to protect "the general interests" and not "those who misconduct their business." The latter must be left to suffer "the natural consequences of their fault." Thornton noted that unsound banks "no matter how ruinous their state" would nevertheless plead that rescuing them was necessary to save the general interest.

Bagehot's third point was that the LLR should charge above-market or penalty rates of interest on its accommodation. This is the famous Bagehot Rule: Lend freely but at a high rate. The high rate does several things. It discourages unnecessary resort to the discount window. It encourages would-be borrowers to exhaust all market sources of liquidity and even to develop new sources before applying to the central bank. It discourages overcautious hoarding of scarce cash. It attracts gold from abroad and encourages gold's retention at home, thus protecting Bagehot's cherished gold standard while bolstering the monetary base. A high rate also rations liquidity to its highest-valued uses. It serves as a partial test of borrower soundness since only solvent banks can afford to pay the penalty rate, even though unsound banks facing credit risk premia in excess of the penalty



Walter Bagehot (1826-1877)

rate-market rate differential may be tempted to try. It also appeals to distributive justice on the grounds that it is only fair that banks pay handsomely for the security and protection provided by the LLR. And it encourages prompt repayment of LLR loans — and removal and extinguishment of money used to pay them — at panic’s end, thus eliminating inflationary monetary overhang.

Fourth, not only must the LLR act promptly, vigorously, and decisively so as to erase all doubt of its determination to end current panics. It must also pre-announce its commitment to lend freely in all future panics. Such credible pre-commitment dispels uncertainty and promotes full confidence in the LLR’s willingness to act. It generates a pattern of stabilizing expectations that ease the LLR’s task. Confident that the LLR will deliver on its commitment, the public will not run on the banks, perhaps obviating the need for emergency liquidity in the first place.

The Thornton-Bagehot precepts served England well. After 1866, the nation suffered no bank runs until 2007. By contrast, in the United States, the Federal Reserve honored the classical doctrine as much in the breach as in the observance, and the nation suffered dearly for it. The Fed disregarded the classical advice altogether in the 1930s and so failed to stop a massive monetary contraction that contributed mightily to the Great Depression. Most recently, however, the Fed seems to have absorbed some, but not all, of the classical wisdom. In the recent financial crisis, the Fed followed the Thornton-Bagehot prescription regarding liquidity provision while departing from other of its precepts.

Classicals on Fed Crisis-Management Policy

What would the classical have thought about the Fed’s handling of the crisis? Certainly they would have applauded the Fed’s filling the market with liquidity. Likewise, they would have approved of the Fed’s expansion of its balance sheet and of the monetary base. These things were precisely what the classical prescription called for — expanding the monetary base to match corresponding increases in the public’s and bankers’ demand for money.

At the same time, classicals might have noted that the Fed’s expansion of the monetary base, while sufficient to offset the panic-induced fall in the multiplier relationship between base and bank money in a fractional reserve system, was insufficient to counter falls in velocity caused by the public’s flight to money as the safest liquid asset. The result of this increased money demand (or fall in velocity) was a shortfall of the supply of broad money below the demand for it, leading to a prolonged fall of spending, output, and employment below their pre-crisis paths. [Editor’s Note: For

elaboration on this view and those that follow, see Readings.]

Likewise, the classicals would have approved of the Fed’s Bagehot-like actions to lend to a wide variety of borrowers on a wide array of assets. But they would have looked askance at the Fed’s acceptance of opaque, dubious, hard-to-value collateral that arguably would have been deemed questionable even in normal times. The same holds for the Fed’s direct purchase of tainted assets.

Most important, Thornton and Bagehot would have condemned both the Fed’s bailout of arguably insolvent, too-big-to-fail firms such as American International Group Inc. and Citigroup and its charging of subsidy rather than penalty rates for its assistance.

And they would have scolded the Fed for extending its loan deadlines beyond very short-term (week- or at most month-long) intervals, for its failure to pre-commit to ending all future crises, and for not spelling out the conditions and indicators that would trigger its actions in future crises.

Thornton, who sharply distinguished between the monetary and credit rationales of LLR policy, would have disagreed with the Fed’s credit-market rationale. To Thornton, the LLR’s purpose was to protect the money stock from contraction and to expand it to offset falls in velocity. This was in sharp contrast to the Fed’s stated LLR rationale, which was to free up credit markets, shrink panic-widened yield spreads, and get banks lending again. Thornton would have shunned the Fed’s credit-market rationale even though it achieved much the same result as his monetary one.

Finally, classicals might have opposed the Fed’s payment of positive interest on excess reserves. The Fed implemented this measure in 2008 to prevent its credit interventions from resulting in monetary expansion. And it retained the interest-on-excess-reserves measure even when it later shifted to a policy of monetary expansion. Such payments, which boost demand for idle reserves and keep them immobilized in reserve accounts rather than getting them lent out into active circulation in the form of bank deposit money, would be inconsistent with the classical’s goal of expanding or maintaining the stock of broad money as required to keep economic activity at its pre-panic level. Bankers’ demands for reserves already are extraordinarily elevated during crises. Paying interest on excess reserves only raises those demands further.

Despite claims to the contrary, the Fed never acted as an unmitigated classical LLR in the recent financial crisis. Instead, it adhered to parts of the classical prescription while deviating from others. So when you hear the Fed described, often by Fed policymakers themselves, as a classical LLR, be skeptical. **EF**

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Last-Resort Lending for the 21st Century

Why the continued interest in Henry Thornton and Walter Bagehot so long after their time? They were two of the first to navigate what today's central bankers accept as a fundamental trade-off of crisis policy: the need to limit panics today without encouraging greater risk-taking in the future.

Their broad principles for striking this balance were to supply ample liquidity in crises but in a way that is sufficiently painful to borrowers — lending only to worthy borrowers at high interest rates and against sound collateral — that they'll want to take measures to avoid vulnerability in the future.

In the middle of a crisis, that can be harder to achieve than one might think. Here are some of the issues that central banks face.

Illiquidity vs. Insolvency

Most central bankers would prefer never to bail out insolvent firms. But crises unfold quickly and it can be unclear who is solvent and who is not. So how can central banks distinguish firms experiencing a temporary liquidity shock from those that are fundamentally insolvent?

"I would say that it's very well near impossible to make that distinction," says Charles Goodhart, an economist at the London School of Economics who has written extensively on lender-of-last-resort policy. "Illiquidity is almost always a function of concern about potential insolvency, even if that concern is misguided."

There's a complicating factor: Are there some cases where insolvent firms should, in fact, be saved — perhaps if their failure would hurt many others? Typically, markets minimize spillover risk by charging premiums to borrowers that are riskier. But economists have modeled scenarios in which firms are not forced to bear the costs of the ways in which their actions would affect others. Such models — many of which describe a far more complex financial system than what existed in 19th century England — suggest the possibility of outcomes where risks become contagious, leading to runs or widespread liquidity crises. The extent to which these characterized the 2007-2008 crisis is still an open question; an alternative view is that a more important component of the crisis was markets adjusting to previously unknown risks emanating from the housing market.

Either way, there is a moral hazard problem to contend with. If central banks routinely prevent systemic losses, firms will choose to become too systemically linked, increasing the likelihood of contagion. That means market failures may be better addressed with regulatory measures than with emergency lending. And for the lending that does take place, it provides a strong argument for making it costly for firms to borrow in a crisis so they'll want to use it as truly a last resort — for example, with penalty rates.

What Constitutes a Penalty Rate?

In principle, penalty rates — often discussed in terms of interest rates — come down to whether the loan from the central bank is cheaper than private alternatives in a crisis. If it is, the lending might encourage excessive risk-taking because investors won't pay the price, so to speak, of financial market turmoil.

Thornton and Bagehot advocated a "high" interest rate but didn't spend much time defining it. Much of Bagehot's case was based on the need to keep the gold standard functioning, and strict usury laws were in place in Thornton's time, notes monetary economist David Laidler, professor emeritus at the University of Western Ontario. But many scholars agree at least in principle that a penalty rate is funding which is costlier than a firm could get in normal times but cheaper than the panic-induced crisis rate (since a central bank offering loans above the latter would find no takers).

But the right penalty rate can be hard to identify in practice. As noted, the essence of a crisis is often that the true values of assets become uncertain after previously unknown risks come to light. Some research suggests that this problem can be exacerbated by so-called "fire sales" that artificially depress asset prices as firms struggle to raise funding.

But erring on the side of high penalty rates would have costs. It would deplete the borrower's capital further, which might worsen the panic. Another concern is that markets know that only the weakest banks will be desperate enough to pay penalty rates. The classical-era Bank of England dealt with this potential problem by providing loans through institutions known as discount houses that kept the borrowers essentially anonymous. In 2007 and 2008, both the Fed and the Bank of England argued that a "stigma" left their traditional discount window facilities underutilized in the early days of the crisis. In the United States, the Fed launched an alternative facility in which firms bid for funds. The winning bid often landed at sub-penalty rates.

A final challenge is that penalty rates simply may not provide the amount of funds that policymakers wish to funnel to markets. For example, one of the Fed's recent crisis programs gave special loans at sub-penalty rates to banks willing to purchase troubled asset-backed commercial paper from money market mutual funds. Fed policymakers argued at the time that charging a penalty rate would not provide the funds necessary to support the economic activity dependent on those markets.

The program seemed to help calm markets, but to some observers, this type of lending is simply a handout to certain sectors, not a lender-of-last-resort function. Richmond Fed President Jeffrey Lacker has argued that there was no unmet funding need in some markets that were supported — only prices that investors didn't want to pay due to the risky environment.

Money vs. Credit

At the broadest level, no one disagrees that the fundamental goal of last-resort lending is to prevent financial market problems from causing recession and job loss. But among modern observers, there are two views on how the central bank should go about it: Should the central bank expand the supply of money to meet the panic-induced demand for safe assets? Or should it extend credit directly to firms to stop failures and panics at the source?

Laidler describes this “money vs. credit” debate as “a swamp from which few return once they enter it.” In other words, the division between the two has not been entirely clean in practice. The 19th century Bank of England, for example, conducted monetary expansion via lending to firms. Today, the Fed conducts monetary policy largely through open market operations that inject liquidity broadly. More recently, the Fed mixed the money and credit functions with “quantitative easing” that expanded its balance sheet — an act of monetary easing — but by purchasing mortgage-backed securities.

Moreover, Goodhart expresses doubt that there is sufficient time in a crisis for a central bank to provide money and for that expansion to spread to illiquid but solvent institutions. “People will be thinking, ‘Who is next in line to fail?’ and run from them. You’ve got to stop contagion very, very quickly.” Once again, this interpretation depends on the view that market failures make it impossible for firms to adequately protect themselves from contagion.

Another view turns the complexity of today’s financial markets on its head: Firms have more alternatives to central bank funding than ever before, and will find ways of directing money to sound borrowers if only the perverse incentives provided by the central bank’s backstop would get out of the way. A 1988 article by Marvin Goodfriend, a former research director of the Richmond Fed who is currently at Carnegie Mellon University, and Robert King of Boston University argued for doing away altogether with the Fed’s ability to lend directly to firms. That would leave broad open market operations as its only means of pumping liquidity into the economy.

More recently, Goodfriend has argued against a credit role for central banks on the ground that they face an incentive to err on the side of lending perhaps too broadly. That wasn’t the case for the 19th century Bank of England; it was held by private shareholders, so the profit motive created a natural inclination to lend conservatively. That may be one reason Bagehot felt the need to encourage liberal lending.

Modern central banks, in contrast, lend with public funds. They also face intense political pressure to protect the economy at all costs — whereas central banks in classical times faced no macroeconomic objectives. On balance, modern central banks are naturally likely to overlook the longer-term moral hazard costs and lend too liberally,

according to Goodfriend. The Fed has expanded the scope of its emergency lending since the 1970s, which some observers argue is one reason firms have made themselves so vulnerable to systemic events in the first place.

These issues are far from resolved. For better or for worse, central banks largely chose the credit function in 2007 and 2008. Doing so creates significant long-term challenges, but as Laidler puts it, central banks facing crisis have tended “to swallow hard and get on with it.”

Where Do We Go From Here?

Without a clearly defined crisis policy in advance, “by history and tradition, the central bank has always leaned toward liquidity provision,” Chairman Bernanke noted to his fellow policymakers in 2009. This leaves regulatory reform to clean up the moral hazard repercussions after the crisis has passed.

That is just what Congress attempted to do with the regulatory provisions of the 2010 Dodd-Frank Act. The Act also sought to restrict the Fed’s emergency lending powers. Now the Fed cannot bail out one particular firm; its emergency credit programs must have broad-based eligibility.

Dodd-Frank also required the Fed to get more specific about its crisis procedures. According to an August 2014 letter from a bipartisan group of 15 members of Congress to Fed Chair Janet Yellen, “By directing the Board to establish a clear lender-of-last-resort policy, where both policymakers and the marketplace know the rules of the game beforehand, Congress sought to ensure that banks fully internalized both the risks and rewards of their decisions.” The letter argued that the Board’s first attempt at such a policy did not achieve that end. In response, they requested further crisis rules that sound similar to the methods proposed by the classicals to avoid moral hazard.

Among their requests: for the Fed to establish a clear timeline for a financial institution’s reliance on emergency lending, with concrete limits on the duration of each facility; preset guidelines for winding down lending facilities to ensure they are truly temporary; a broader definition of “insolvent”; a method for ensuring that lending is intended to help financial markets broadly instead of being designed for one specific institution; and a commitment to lend only at penalty rates. (As this issue went to press in the spring of 2015, legislation had been introduced dealing with some of these concerns.)

Plenty of observers have offered broad principles on crisis lending. But no one has definitively figured out how to implement them in practice. To some, that is an argument for central banks erring on the conservative side, lending to as few parties as possible to enhance market discipline. In practice, as Bernanke has said, central banks have tended to err liberally to prevent financial and real losses. The 2007-2008 financial crisis provides the largest modern case study of crisis lending, warts and all, for the pursuit of clearer answers. — RENEE HALTOM