

# How Can Central Banks Deliver Credible Commitment and Be “Emergency Institutions”?

*Paul Tucker*

Central banks perform two apparently quite different functions. On the one hand, they are expected to operate monetary policy in a *systematic* manner in order to smooth fluctuations in economic activity without jeopardizing the economy’s nominal anchor. On the other hand, in their role as the lender of last resort, they are expected to operate with the *flexibility* of the economy’s equivalent of the US cavalry.

Both those propositions invite dissent and are unquestionably contested. On monetary policy, there are those, perhaps not here in Stanford, who will want to shout that monetary policy cannot be tied to rules but must be free to meet circumstances that are hard to fathom in advance. On lender-of-last-resort (LOLR) policy, meanwhile, there are those who stress with no less vehemence that a more rule-like regime is needed in order to keep central banks from straying too far into fiscal territory: liquidity support should be distinct from a solvency bailout.

Nevertheless, I suggest that the dominant views are as I initially expressed them, and not without reason.

Society gives the monetary reins to unelected technocrats in order to mitigate problems of credible commitment. A necessary precondition for delivering on that promise is that policy be

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systematic. Big picture, this is an institution designed for normal circumstances. Having, separately, allowed fractional-reserve banking, society also wants the monetary authority to provide liquidity re-insurance to banks in order to protect it from the social costs consequent upon the private banking system's liquidity-insurance services being abruptly withdrawn. That, by contrast with regular monetary policy, is an institution for economic and financial emergencies.

If a central bank succeeds in building a reputation for operating a systematic monetary policy, is that reputation jeopardized when it reveals its normally hidden innovative side during a crisis? Conversely, might a reputation for rule-like behavior in normal times sap confidence in its ability to ride to the rescue in a crisis? In other words, do central banks need to sustain a rich, multipurpose reputation that faces in two directions?

That is the subject of these remarks. Note that my title is not “*Can* central banks deliver credible commitment and be ‘emergency institutions’?” It is “*How* can central banks [do so]?” In other words, I am positing that there is no choice other than to house these two functions, two missions, in a single institution and, further, one that is highly insulated from day-to-day politics: an independent central bank.

It is striking, therefore, that debates about the design of monetary-policy regimes and, when they have occurred at all, debates about the LOLR's role in crisis management have largely existed in parallel universes. The silos might be comfortable, but they hardly help society design and oversee the central banks into which they have placed so much trust.

Signs of this are apparent in current debates about the Federal Reserve and its advanced-economy peers. The “Audit the Fed” and “Taylor Rule” bills in Congress are framed as being about monetary policy, which of course they are. Quite separately, the Dodd-Frank Act materially changed the scope and autonomy of

the Fed as a lender of last resort, and fresh proposals have recently been launched in the Senate. My point here is not on the merits or demerits of those or any other substantive provisions, nor is it that all reforms should come via a single piece of jumbo legislation. Rather, the point is that we might do better to think about central bank functions in the round, in terms of one joined-up regime for preserving *monetary stability broadly defined*.

If that is right, we need to step back a bit to think more carefully about what we are dealing with here. As I attempt to do so, we shall bump into some fairly deep questions about the distribution of power in democracies. We will also see the monetary policy/LOLR dichotomy dissolve, but only for it to be replaced by a deeper challenge for the design of robust, legitimate central banks: how to proceed when the fiscal constitution is not pinned down.

### **What do central banks do? Delegated managers of the consolidated state balance sheet**

One way into this is to think of the central bank as conducting financial operations that change the liability structure and, potentially, the asset structure of the consolidated balance sheet of the state. If they buy (or lend against) only government paper, the consolidated balance sheet's liability structure is altered. If they purchase or lend against private-sector paper, the state's balance sheet is enlarged, its asset portfolio changed, and its risk exposures affected. Net losses flow to the central treasury in the form of reduced seigniorage income, entailing either higher taxes or lower spending in the longer run (and conversely for net profits).

The state's risks, taken in the round, might not necessarily increase with such operations. If purchasing private-sector assets helped to revive spending in the economy that might, in principle, reduce the probability of the state paying out larger aggregate welfare benefits and receiving lower taxes later. But the form of the

risk would change and, because the driver was central bank operations, the decision-taker on the state's exposures would switch from elected fiscal policymakers to unelected central bankers.

Seen in that light, the question is what *degrees of freedom* central banks should be granted, and to what ends, to change the state's balance sheet.

A *minimalist conception*, advanced by Marvin Goodfriend, among others, would restrict the proper scope of central bank interventions to open market operations that exchange monetary liabilities for short-term Treasury bills (in order to steer the overnight money-market rate of interest). On this model, the LOLR function is conceived of as being to accommodate shocks to the aggregate demand for base money and plays no role in offsetting temporary problems in the distribution of reserves among banks.

Arguably, this would get close to abolishing the LOLR function as traditionally executed. As a governor of the Bank of England said of the 1820s crisis, when the function was first emerging, "we lent in modes that we had never adopted before . . . by every possible means consistent with the safety of the Bank."<sup>1</sup>

Perhaps more profoundly, at the zero lower bound the only instrument available to the central bank would be to talk down expectations of the future path of the policy rate ("forward guidance"). All other interventions to stimulate aggregate demand—for example, quantitative and credit easing—would fall to the "fiscal arm" of government. And that, not a judgment on the merits of the minimal conception, is my point: what is not within the realm of the central bank falls to elected policymakers, with the attendant problems of credible commitment and time-inconsistency.

At the other, *maximalist* end of the spectrum, the central bank would be given free rein to manage the consolidated balance sheet, even including writing state-contingent options with different

1. Quoted in David Kynaston, "The City of London," chapter 4, one-volume edition (London: Vintage, 2011).

groups of households and firms. That would get very close to *being* the fiscal authority, and cannot be squared with any mainstream ideas of central banking competencies in democracies.

So in one direction, the state's overall capabilities shrivel; and in the other, its functions are effectively seized by unelected central bankers.

We could try to resolve the question of boundaries through positive economics on the effectiveness of different instruments in responding to the shocks hitting a monetary economy. While that work is obviously essential, it is not the approach I take here, partly because answers are likely to be hedged about with uncertainty; but, more fundamentally, because that approach does not speak to which arm of the state should be delegated which tools. The problem appears to be that we don't know where the welfare advantages of credible commitment are outweighed by the disadvantages of the loss of majoritarian control, because that looks like a trade-off between incommensurable values.

I am going to approach the question of boundaries, therefore, by asking first what purposes a central bank serves and then what constraints are appropriate for independent agencies to have legitimacy in a democratic republic. As we proceed, the tension between commitment technologies and majoritarian legitimacy will resolve itself.

### **A money-credit constitution**

Central banks are the fulcrum of the monetary system: the pivot, as Francis Baring put it two centuries ago when coining the term "dernier resort."

It is usual to think of their independence as being warranted by a problem of credible commitment. That is a necessary condition, but it is not a sufficient condition once wider issues than economic welfare are weighed, such as the loss of democratic control.

The imperative of central bank independence is, I think, political, almost constitutional.

In order to maintain the separation of powers between the executive government and the legislature, the fiscal tool of the inflation tax cannot lie in the hands of an executive striving to stay in power. Otherwise it could avoid, or at least delay, requesting “supply” from the assembly by inflating away the burden of any outstanding state debt or, more generally, by printing money to finance its needs and increase seigniorage income. That society chooses to delegate to an agency rather than rely on tying itself to a commodity standard to meet this problem is, I believe, down to modern full-franchise democracies being unprepared to live with the volatility in jobs and output associated with the nineteenth-century gold standard.

On this view, in a fiat money system the independence of the monetary authority is a corollary of the higher-order, constitutional separation of powers. For the delegation actually to deliver credible commitment, the reputation of the central bank and its policymakers must be strapped to their success in maintaining price stability. That is one reason transparency is so important.

The setup unavoidably becomes richer, however, once we acknowledge that society has chosen, rightly or wrongly, to allow fractional-reserve banking, which brings the social benefits of liquidity insurance for households and firms bundled together with the risks from its inherent fragility and the social costs of systemic crises.

The LOLR function is called into existence to reduce both the probability and the impact of those risks crystallizing. That takes the central bank to the scene of almost any meaningful socially costly financial disaster, whether sourced in economic problems or operational malfunction, as when the Fed lent hugely to the Bank of New York to keep the payments system going in the mid-1980s. In consequence, central banks have a keen interest in the adequacy

of regulatory and supervisory regimes, in order to contain the moral hazard costs entailed.

In other words, once private banking (in the economic sense) is permitted, central banks cannot avoid being de facto multiple-mission agencies intimately interested and involved in the functioning of the credit system, since most of the economy's money is the credit-money created by the banking system (broad rather than narrow money). As Paul Volcker said with tragic foresight in his 1989 valedictory Per Jacobsson lecture, "I insist that neither monetary policy nor the financial system will be well-served if a central bank loses interest in, or influence over, the financial system."<sup>2</sup>

Since unelected power needs framing carefully in democracies, the de facto position I have outlined should be recognized de jure.

If that sounds ridiculously banal, remember that the Federal Reserve does not have an overall statutory objective to help preserve the stability of the financial system but only objectives tied to specific powers: for example, safety and soundness for the generality of banks and, since Dodd-Frank, stability for its powers over "systemically important financial institutions." In the United Kingdom, only since 2012 has the Bank of England had macroprudential and microregulatory functions framed in terms of an objective of stability.

The world I am describing requires not a "monetary constitution" of the kind advocated by James Buchanan but a *money-credit constitution*. By that I mean rules of the game for both banking and central banking designed to ensure broad monetary stability, understood as having two components: stability in the value of central bank money in terms of goods and services, and also stability of private-banking-system deposit money in terms of central bank money.

2. Paul Volcker, "The Triumph of Central Banking?" Per Jacobsson Lecture, 1989. The question mark in the title was underlined during the Q&A.

The idea would have been familiar to our nineteenth-century predecessors. Their money-credit constitution comprised the gold standard plus a reserves requirement for private banks (an indirect claim on the central bank's gold pool) plus the lender-of-last-resort function celebrated by Walter Bagehot. That package was deficient insofar as it did not cater explicitly for solvency—as opposed to liquidity—crises. Worse, as our economies moved to embrace fiat money during the twentieth century, policymakers fatally relaxed the connection between the nominal anchor and the binding constraint on bank balance sheets—to the point where, on the eve of the 2007 crisis, they were over-leveraged and horribly illiquid.

At a schematic level, a money-credit constitution for today might have five components: inflation targeting plus a reserves requirement that increased with a bank's leverage plus a liquidity-reinsurance regime plus a resolution regime for bankrupt banks plus constraints on how the central bank is free to pursue its mandate.

Compared with the nineteenth century, all five components of that schema would need fleshing out. Much of the past quarter century has been spent on the first—the nominal anchor—and even that work turns out to be incomplete. But other parts of the money-credit constitution are even more difficult to design. We have learned that regulatory arbitrage is endemic in finance, so that any regime for the economic activity of banking would need to cover “shadow banks”—not only *de jure* banks—and it would need to be richer and more adaptable than could be delivered solely by a leverage-driven reserves requirement. Nevertheless, that simple conception serves as a useful benchmark and a reminder that constraints on, and supervision of, banking soundness are integral to an economy's money-credit constitution.

To pursue the regulation of banking would be too big a detour from the parts of the money-credit constitution that most concern

me here: what central banks must do (their mandate), what they may do, and the constraints on them.

Some of the necessary constraints on central banks are implicit in my earlier derivation of their independence from constitutional principles. Most obviously, rather than simply making the definitional statement that any independent agency must be in control of its instruments, it is specifically important that an independent central bank should be barred from lending to government on the government's direction. (Only the legislature should be able to sanction such lending, and through regular legislation, as with any tax.)

That provides one vitally important element of an answer to our question of where the line should be drawn around the capacity of the central bank to reshape the state's consolidated balance sheet. The outline of other components of the answer emerges from considering the legitimacy of central banks as very powerful, unelected institutions.

### **Constraints and principles for independent agencies**

My broad answer to the general question of conditions for the legitimacy of independent agencies in a democratic, liberal republic comes in three parts.

First, a policy function should not be delegated to an independent agency unless: society has settled preferences; the objective is capable of being framed in a reasonably clear way; delegation would materially mitigate a problem of credible commitment; and the policymaker would not have to make first-order distributional *choices*. Whether those conditions are satisfied in any particular field is properly a matter for public debate and for determination by elected legislators.

Second, the way the delegation is framed should meet five design precepts: (1) the agency's purposes, objectives, and powers should

be set clearly by legislators; (2) its decision-making procedures should be set largely by legislators; (3) the agency itself, in this case the central bank, should publish the operating principles that will guide its exercise of discretion within the delegated domain; (4) there should be transparency sufficient to permit accountability for the central bank's stewardship of the regime and, separately, for politicians' framing of the regime; and, (5), crucially for the problem I posed, it should be clear *ex ante* what (if anything) happens, procedurally and/or substantively, when the edges of the regime are reached but the central bank could do more to avert or contain a crisis.

Third, multiple missions should be delegated to a single agency only if: they are inextricably linked, and in particular rely on seamless flows of information; and decisions are taken by separate policy committees, with overlapping membership but each with a majority of dedicated members.

With the exception of the emergency-powers precept, I shall not defend those principles for delegation here.<sup>3</sup> They might seem innocuous. But, in fact, they pack a punch. For example, few—too few—independent agencies have clear objectives, so that high policy (decisions on values) is effectively delegated. My immediate purpose, however, is to draw out some of the implications for multiple-mission central banks.

For monetary regimes, some of the package is, of course, familiar. Most obviously, the principles for delegation support instrument-independence rather than goal-independence (a test not met

3. A preliminary explanation was given in Tucker, "Independent Agencies in Democracies: Legitimacy and Boundaries for the New Central Banks," the 2014 Gordon Lecture, Harvard Kennedy School, May 1, 2014. A fuller explication is forthcoming. Various of the principles draw on the work of Alberto Alesina and Guido Tabellini on whether to delegate to technocrats, of Paul Milgrom and Bengt Holmstrom on the incentive problems of multiple-mission agents, and of Philip Pettit on forging the people's purposes and on contestability. Among other things, the multiple-policy committee structure is incorporated in the Bank of England's post-crisis architecture.

everywhere), and also the importance of not making monetary policy decisions in order to pursue some distributional goal (as opposed to policy having distributional effects broadly foreseen by legislators). The apparent incommensurability between majoritarian control and commitment technologies turns out to be no more than a specter. Democracy comes first, and can choose commitment technologies for improving aggregate welfare if it wishes. Democratic legitimacy requires that the people's representatives determine whether the country should be tied to the mast of stability, what that mast looks like (the standards in the money-credit constitution), and that distributional *choices* are not handed over since the winners and, more important, the losers would not have representatives at the central bankers' policy table. The outlines of some constraints on central banks are starting to emerge.

Going further, three of the requirements for legitimate delegation help to open up, and perhaps dissolve, the distinctions and potential tensions between the monetary policy regime and the LOLR function that seemed, at first sight, so problematic.

They are the first, third, and fifth design precepts requiring, respectively, the central bank's powers and objectives to be set by legislators; the central bank to state the operating principles that guide its exercise of discretion; and the need for *ex ante* clarity around what happens when a central bank reaches the boundaries of a domain it has been delegated.

### The need for regimes

At root, the principles for delegation require delegated responsibilities and powers to be framed as *regimes*. While that is familiar in the field of monetary policy, it is not so obvious that LOLR (or other central bank) functions have been laid down so carefully and clearly over the past century or more.

## Operating principles for monetary policy: the Taylor rule debate

Even within monetary policy (narrowly understood), there remain outstanding design questions. One of them preoccupies this country's legislature right now: whether to mandate *in legislation* a benchmark rule for the central bank's routine policy instrument, the short-term interest rate.

Rather than offering a firm view on whether or not the Taylor rule should be adopted by the Fed, I shall limit myself to observing that the debate can be thought of as being about how to implement the design precept that an independent agency should enunciate operating principles. For myself, that that be done by the agency is more important than that any particular set of principles or any particular instrument-rule be entrenched in a law that is justiciable via the courts.

In other words, the principles for delegation require that more be said than has, perhaps, been said about the constraints in "constrained discretion." Whether that should be pursued by moving to a lexicographic objective or by *ex post facto* publication of research on the "rule" best approximating past policy or by also publishing explanations of deviations from past patterns raises a rich set of issues that is being debated afresh. I will not go into it here, other than to say that, in order to avoid undue concentrations of power, we should prefer solutions that strengthen the role of individual committee members to those that would embed a single view. In that sense, there might be a trade-off between the clarity with which the reaction function is articulated and the degree to which power is dispersed.

## Defining the LOLR regime

If debates about monetary regimes continue, rather more is needed in many jurisdictions to articulate and explain a regime for the LOLR liquidity reinsurance function.<sup>4</sup> Prerequisites for any such regime are that its terms should mitigate the inherent problems of adverse selection and moral hazard; be time-consistent; and provide clarity about the amount and nature of “fiscal risk” that the central bank is permitted to take on the state’s behalf.

Compared with things prior to the 2007 phase of the crisis, some questions seem to be settled; for example, nearly all central banks now accept and have announced publicly, without legislative override, that they stand ready to lend against a wide range of collateral, including portfolios of illiquid loans to households and firms. I think it is also now conventional wisdom, as it should be, that excess collateral should be taken to leave the central bank’s expected loss no greater than if it had bought Treasury bills, as under the minimal conception.

Other questions remain outstanding in many jurisdictions: for example, whether there are any circumstances in which the central bank should be permitted and, if so authorized, would be prepared to lend to non-banks or to act as a market-maker of last resort. Any reflection on those issues reveals the difficulty of making credible claims that the authorities will *never* undertake such operations. If that is correct, it would be as well to concentrate on designing a regime for them to do so under appropriate constraints.

Of those, surely the most important is that the central bank, a body of unelected officials, should not knowingly lend to a firm that is irretrievably and fundamentally insolvent. If “no monetary financing” is the golden rule for a credible nominal anchor, so “no

4. What follows is expanded upon in Paul Tucker, “The Lender of Last Resort and Modern Central Banking: Principles and Reconstruction,” *Re-thinking the Lender of Last Resort*, BIS Paper No. 79, Bank for International Settlements, September 2014.

lending to irretrievably insolvent borrowers” should be the golden rule for the *liquidity* reinsurer. That “liquidity support” has become, for many people, synonymous with “solvency bailout” is a tragedy of the first order that saps away the legitimacy of central banks.

How a central bank lender makes those assessments of solvency, and how it values collateral, should be publicly understood in broad terms *ex ante* and, with appropriate lags, be capable of being assessed *ex post*.

This is not simply about estimating the solvency position of a potential borrower at the moment before any liquidity is provided. If the market is in the grip of a liquidity panic affecting an individual firm(s) or the system as a whole, the provision of liquidity might dispel the panic and restore the firm’s solvency position. Faced with a problem of multiple equilibria, LOLR interventions might be able to get the economy and the distressed firm(s) back onto a healthy path. If, however, the firm is fundamentally bust (has a net assets deficiency) whatever the (realistic) economic outlook, then no amount of central bank lending can provide a cure.

None of that is to say that decisions that are decent *ex ante* would always generate good or satisfactory outturns *ex post*. This is essentially about forecasting: forecasting the effect of unusual liquidity provision on the path of the economy and asset prices and its effects on confidence in the firms in question. Making those forecasts is hard. As with any forecasts, there would be errors, although they should be broadly symmetric over the long run. Since this is, unavoidably, what is going on, it would be better to be clear about it, and for central banks to explain how they make such forecast judgments.

That is part of what would need to be covered in a central bank’s LOLR operating principles. Then the nature and potential effects of LOLR liquidity reinsurance would be better understood in general, and particular decisions to lend (or not to lend) could be evaluated *ex post*.

The legislators' role, meanwhile, would be to set or bless the level of confidence on solvency necessary for liquidity support to be permitted; and to provide a statutory resolution regime for handling irretrievably bankrupt banks so as to make "no" from the LOLR credible.<sup>5</sup>

It is not obvious to me that many, or perhaps any, of those issues featured in the debates that led to the reform of the Fed's liquidity reinsurance functions. In particular, while appeals are made to the importance of central banks not lending to fundamentally insolvent firms, what that means is rarely spelt out and might not be widely understood.

### Regimes have boundaries

What I hope that brief discussion makes clear is that, like monetary policy, the LOLR liquidity-reinsurance function could, and should, be framed as a regime. And as with any regime, it would need to have reasonably well-defined boundaries.

That being so, we have dissolved part of the dichotomy I set up at the outset between systematic monetary-policy regimes and an inherently flexible LOLR function. Like monetary policy, LOLR liquidity reinsurance is capable of being systematic. Admittedly, compared to monetary policy where policy is reset roughly monthly in most jurisdictions, it is much harder for observers to tell whether the central bank is sticking to a systematic LOLR policy because it gets activated relatively rarely. But that does not negate the point that the regime should have edges—that the central bank's discretion should not be unlimited or absolute.

Which, of course, poses the big question of what happens—or, normatively, what *should* happen—when the edges of any of these

5. See Paul Tucker, "The Resolution of Financial Institutions without Taxpayer Solvency Support: Seven Retrospective Clarifications and Elaborations," European Summer Symposium in Economic Theory, Gerzensee, Switzerland, July 3, 2014.

regimes (monetary, LOLR or, indeed, a field I am not covering here, macroprudential) are reached but there is more that the central bank could, in principle, do to shift the shape and size of the state's consolidated balance sheet in ways that would avert or contain a crisis.

What, in other words, is the proper role of unelected central bankers in the exercise of "emergency powers" and is it realistic that central banks can credibly commit to staying within their "proper role," however it is framed? The issues are real: what role should central banks play in decisions about whether to bail out, for example, Lehman, AIG, etc., without specific congressional sanction? They are, moreover, deep. I have encountered a wide range of views on them in the US.

### **Beyond the boundaries: emergency powers and "emergency institutions"**

Outside the normal purview of economic researchers and policymakers, there is an active and contested debate among political theorists and constitutional scholars about the nature, acceptability, and even inevitability of "emergency powers" exercised by the executive branch of government when a nation is faced with an existential crisis. At one end of the spectrum are followers of the early-twentieth-century German writer Carl Schmitt, who maintained that "exceptions" from normal governance are both inevitable and acceptable. On this view, in a crisis constitutional conventions and democratic norms give way to what the executive feels it must do, revealing the true but usually hidden nature of the polity. If economists wonder what this has to do with us—that surely it's to do with national security, war, and terrorism, but not our field—think again. In the years immediately following the 2007–09 stage of the global financial crisis, Chicago and Harvard constitutional

scholars Eric Posner and Adrian Vermeule argued that many of the measures taken by the US Treasury and the Fed fell fair and square within a conception of exceptional executive power.<sup>6</sup>

One elegant response to this line of thinking, articulated by political theorist Nomi Lazar, is that the posited distinction between the “exceptional” and the “normal” is an illusion.<sup>7</sup> First, some crises persist for years, becoming a more or less normal state of affairs. And small crises occur regularly but, nevertheless, sometimes require extraordinary measures: within finance, think of the savings and loan crisis in the United States, the HIH insurance crisis in Australia, or the 1970s secondary banking crisis and the early-1990s small-banks crisis in the United Kingdom.

Further, and profoundly, whether or not one accepts the category of “exceptional” circumstances in which constitutional conventions and rights get more or less junked, democratic accountability does not get thrown out of the window so long as the executive faces the prospect of future elections.

That seems to me to be correct and, more practically, to give us some pointers toward the construction of robust regimes.

First, contingency planning should be embedded in central-banking regimes as far as possible. We should not deny that crises can occur and that they will meet with, among other things, extraordinary liquidity-reinsurance actions, unless tightly binding our hands truly would crush, and I mean crush, the probability of their occurring. Given the ubiquity of regulatory arbitrage in a shape-shifting financial industry, that is hard.

Second, since it is inevitable that any state-contingent contract given to the central bank will eventually prove incomplete, it is

6. Eric A. Posner and Adrian Vermeule, *The Executive Unbound: After the Madisonian Republic* (Oxford, UK: Oxford University Press, 2010).

7. Nomi Claire Lazar, *States of Emergency in Liberal Democracies* (Cambridge, UK: Cambridge University Press, 2009).

necessary to state clearly upfront what happens then. For example, if the basic LOLR regime does not include liquidity reinsurance to shadow banks, should there be provision for that effective ban to be lifted in an emergency? If so, who should decide? The need to answer questions like that is precisely the message of the fifth design precept set out earlier.

But what does it mean? The most important point is that, as a body led by unelected policymakers, the central bank should not *itself* determine where it could reasonably venture beyond previous understandings of its boundaries. That should be sanctioned (or not) by elected representatives of the people, because they will be directly accountable.

Thus, I object less than some to the provision of the Dodd-Frank reforms that requires the Fed to get the permission of the treasury secretary (after consulting the president) to conduct certain liquidity-support operations.<sup>8</sup> In broad equivalence, where the Bank of England wishes to go beyond its published framework for providing liquidity support, it must obtain the permission of the chancellor of the exchequer. (That provides a healthy incentive for the published framework to be as complete as possible, while recognizing that at best it will only ever cater for the kinds of crises that have been experienced, witnessed, or imagined.)

### Emergencies in macroeconomic demand management: credit policy

We have seen that the LOLR function can be framed as a regime but that, since its very purpose is to contain crises, it should be

8. The oddity is that the formal consent comes from the treasury secretary, who is no more elected than the Fed's governors. The democratic benediction comes from the mandatory consultation of the president. I assume that this cumbersome construction is adopted because of the convention that the president cannot be made accountable to Congress other than via impeachment.

clear what happens in “emergencies,” defined as what lies beyond the regime’s normal perimeter. Although, by contrast, monetary-policy regimes are framed mainly for routine use, it is no less true that their boundaries can be reached, too.

Thus, questions confronted by central bankers during recent years included: Can we and should we conduct quantitative easing (QE) against government bonds? Can we and should we buy private-sector instruments to stimulate demand by acting directly on credit premia?

Those questions received different answers in different jurisdictions, in most cases due to constraints in pre-existing laws that had not received much prior “compare and contrast” analysis among central bankers themselves, researchers, or political commentators. In Japan, the answer was: yes, yes. In the UK: yes, broadly no.<sup>9</sup> In the United States: yes, and sort of no. In the euro area: yes (after extensive debate), and we don’t yet know.

Why did I say “sort of no” to whether the Fed could or should buy private sector paper? Legally, the answer was and remains unambiguous: it may not. But *economically* the population of instruments eligible for purchase included the government-backed Fannie Mae– and Freddie Mac–guaranteed mortgage-backed securities, so that the Fed was effectively making allocative decisions, directly subsidizing the supply of credit to households but not to firms. It is arguable that the venture would have sat more comfortably within standard tenets of central banking, and been more compliant with our “no big distributional choices” precept, if the Fed had been able to buy either neither or both of household and business loan portfolios. My point is to illustrate the need for more thinking on the construction of these parts of the regime.

9. The UK position was (and, I believe, is) that de jure the Bank of England was not legally constrained from buying private sector bonds, but that de facto it chose not to do so. Some Monetary Policy Committee members, notably Adam Posen, thought that a mistake.

Broad principles that could guide debates on such regimes might include the following:<sup>10</sup>

- Central bank balance-sheet operations should at all times be as parsimonious as possible consistent with achieving their objectives, in order to aid comprehensibility and accountability.
- Central banks should minimize risk of loss consistent with achieving their statutory objectives.
- In particular, if they are permitted to operate in private-sector paper in order to stimulate aggregate demand, they should operate in as wide a class of paper as possible and the selection of individual instruments should be as formulaic as possible, in order to avoid the central bank making detailed choices about the allocation of credit to borrowers in the real economy.

Where, broadly, the line is drawn should be the subject of political choice after public debate. As with emergency LOLR operations, if the line is moved during a crisis, that too should be determined or blessed by elected politicians.

In a US-type system, that power needs to be either openly delegated to the administration or consciously withheld. Where it is withheld, the legislature itself would have to make any in-crisis decisions on whether to authorize innovative operations, along with whether they were to be conducted by the central bank on its balance sheet under its (newly provided) discretion, or by the central bank as agent for the fiscal authority, or by the Treasury under delegated fiscal authority.

That line of argument seems to be grounded in the deepest principles of representative democracy, but it meets with one very serious, practical objection, an objection that applies to both the

10. An earlier, fuller version was set out in Paul Tucker, "The Only Game in Town? A New Constitution for Money (and Credit) Policy," Myron Scholes lecture, Chicago Booth School of Business, May 22, 2014.

LOLR and monetary policy examples. One could think of it as the Hamiltonian objection, as it amounts to those in power doing everything they can to protect the people.

### The objection

Say the legislature is sclerotic, and simply cannot bring itself either to delegate authority to the executive branch in advance or to make real-time decisions itself in a crisis. And say the public, the American people, are desperately threatened by the crisis, which might even shatter the stability of society. Should not the agencies that can save the people act? Should not the US cavalry ride to the rescue?

Or say that members of the legislature publicly oppose the contemplated action while privately signaling their agreement? Does that license the central bank to act, on the grounds that the legislature has itself vacated the moral high ground vested in it constitutionally?

Or what if the legislature is likely to retaliate, once the dust has settled, by removing some of the central bank's powers, leaving it less equipped to respond to future crises? Should the central bank weigh the net present value of its acting today against the prospective costs of its being less able to act tomorrow? Or should it go ahead irrespective of the prospect of tighter future constraints, on the basis that if future crises are sufficiently grave, it should simply step around them (just as, in our thought experiment, it has stepped around "today's" constraints)?

These difficult questions, which are not utterly fanciful given political currents in the United States, turn on more than "narrow" welfare judgments. They involve weighing the intrinsic merits of democracy, and the risks of eroding support for democracy by violating its deepest principles.

My answer, as set out above, remains unchanged: that the unelected leaders of independent agencies cannot rightly take

that burden onto themselves. If the legislature cannot or will not respond in the face of dire emergency or if it is Janus-faced or if reprisals are in the air, the moral and political burden of choosing must fall on the elected executive. If the question of emergency powers challenges some constitutional conventions but, against Schmitt and with Lazar, it does not undermine our most basic conceptions of democracy, the big choices should be in the hands of the elected executive, not unelected technocrats (just as, in a different sphere, the big decisions do not lie with the military).

So let me twist the knife.

What if it would be counterproductive for the president *openly* to approve an emergency course of action by the central bank? In contrast to the military sphere, it is not so easy to claim that the president has constitutionally ordained duties and powers in the economic sphere of the kind he has as the commander in chief. In that case, have our “welfarist” objectors got a point? Indeed, is their argument overwhelming if not acting might lead to a crisis that would prospectively lead to civil conflict threatening democracy itself? Should the central bank just do what it thinks to be right, regardless, possibly supported *privately* by the president?

I cannot see any clear *deontological* duties here. But nor can I see how a *welfare* assessment will suffice. One almost wants to fall back on old-fashioned Aristotelian ideas of *virtue*: i.e., if they find themselves there, we hope to have virtuous central bank leaders who will weigh the short term against the long term, welfare against majoritarian decision-taking, and so on. One or two truly great men among central bankers from the past fifty years might spring to mind. That feels precious, but also, it must be said, precarious. We seem to be stuck.

But we don't need to resolve our deepest moral dilemmas in order to shape principles for the design of regimes. And, fortunately, a practical prescription does emerge. We must strive to

shrink as far as we possibly can the troublesome space in which there is neither a within-regime contingency plan nor an *ex ante* process with majoritarian credentials for determining in-crisis arrangements. Better to recognize that imperative up front when designing the central banking regime, in line with my fifth design precept for delegating to independent agencies.

### Cooperation and coordination with the executive branch need not negate independence

To recap, then, the big questions for central banking regimes are (a) what powers should the central bank have during “peacetime” to alter the shape of the consolidated state balance sheet; (b) what extra powers, if any, should it be granted *ex ante* to help handle crises, and what should be the trigger for activating them; and (c) should the elected executive branch be empowered, by the legislature or under the constitution, to increase those central bank powers during crises.

More effort has typically gone into (a) than (b) and, in most jurisdictions, almost none has gone into (c).

We find an example of how (b) and, especially, (c) cause confusion in a quirk in the different approaches to the political economy of QE in the US and UK. In the US, there was no coordination between the Fed and the Treasury, on the grounds that that could compromise the Fed’s independence.

In the UK, we took exactly the opposite view. Since we were changing the state’s consolidated balance sheet in ways that carried risk for taxpayers but could also be offset by the Treasury, the Bank of England sought and received from government an up-front indemnity against the financial risk entailed and a public undertaking that it would not change its debt-management strategy. In the US, government debt maturities were lengthened, cutting

across the Fed's stimulus. In the UK, that did not happen. But independence was not compromised as *we* decided, in the Bank's Monetary Policy Committee, how much QE to do and when.

One moral of the story is that independence does not preclude coordination, on the right terms. Another is that obtaining a sanction to innovate need not threaten independence. The challenge is for the central bank to remain the initiator of ideas for the use of its balance sheet.

### **Joined-up regimes under the money-credit constitution**

Summing up so far, three points have run through this analysis. First, for democratic legitimacy delegated powers need to be constructed as regimes based on clear general principles. That applies no less to central banks than to other independent agencies, and applies no less to LOLR and to stability functions more generally than it does to monetary policy.

Second, the components of an economy's money-credit constitution (MCC) should cohere. That is to say, the regimes for the nominal anchor, for the regulation and supervision of fractional-reserve banking, for the state's provision of liquidity reinsurance, and for the constraints on how central banks pursue their functions must be joined up. At a conceptual level, they should be guided by some simple benchmarks, even if the reality cannot be as simple as would be feasible in a world that placed a lower value on freedom.

Third, emergencies should not be fenced off for on-the-spot in-crisis improvisation, but should be catered for, substantively and procedurally, within the overall MCC.

In terms of analogies with the state's most basic functions, the central bank emerges looking like a hybrid of the high judiciary and the military. Like the judiciary, the central bank's insulation must be secure when it comes to deciding the stance of monetary policy. But subject to that constraint, there are circumstances

where, like the military, its crisis-management repertoire can be, and sometimes should be, determined by elected political leaders. How much such coordination is needed turns on the extent to which contingency plans have been coded-in up front. Not easy, but within reach.

There is, however, one important complicating factor that I have kept bracketed away. In terms of the results for society, the effects of any money-credit constitution depend on how fiscal policy-makers conduct themselves. In saying that, I mean more than the elemental point that unsustainable public finances cannot coexist with monetary stability. There can be a particular problem of strategic interaction even where the public finances are sound—in fact, perhaps particularly then.

### **The only game in town: strategic interaction with the fiscal authority**

Over the past eight years, it has become a common refrain that central banks have been the *only game in town*. Quite apart from the discomfort this causes the central bankers themselves as they fret about unwarranted expectations and possibly also about their legitimacy, there are other voices raising the possibility that over-reliance on central banks has led to inferior economic results or has entailed risks of impaired performance down the road.

Those sentiments can be detected in a wide variety of arguments. Of course, some suggest openly that it would have been better to support recovery through public-infrastructure investment, or with tax incentives for private investment, or through debt forgiveness.<sup>11</sup> Others focus more on the costs and risks of monetary stimulus. They suggest that the scale and nature of monetary easing have created risks to stability through fueling a search

11. Those arguments have been advanced by, for example, Larry Summers, Martin Feldstein, and Ken Rogoff.

for yield in domestic financial markets, or through spillovers into foreign, especially emerging-market, economies that could in time “spill back,” or by withdrawing “safe assets” during a period when demand for such assets is unusually strong.<sup>12</sup> Although the point is rarely drawn out, the implication is that those risks would have been smaller if, in countries with fiscal capacity, less of the stimulus had come from monetary policy and more of it via debt-financed fiscal policy, since that would have resulted in an upward-sloping yield curve, a higher exchange rate, and more truly safe assets being in private-sector hands.

To be clear, I am not inviting agreement with any or all of those arguments. My purpose is to illustrate a deeper point about strategic interaction between different arms of macroeconomic policy. In the short run, at least, in countries with undoubted fiscal capacity, reliance on monetary policy looks to have been an attractive option for fiscal authorities as it lets them side-step the awkward party and national politics entailed by *overt* fiscal actions requiring a legislative vote.

The Bank for International Settlements has made the broadly similar point that aggressive monetary easing might have let legislators off the hook of making needed structural economic reforms directed at improving the efficiency of the real economy and raising permanent incomes. That is a concern that not a few commentators would feel is apt in the euro area and in Japan.

But what are central bankers meant to do: set their mandates to one side, sit on their hands, and undertake to resume business only if the politicians fulfill their side of a bargain designed by the monetary technocrats themselves? That would be for our unelected central bankers to elevate themselves to the position of Plato’s guardians—precisely the fear that raises the legitimacy question.

12. Those arguments, although advanced by others too, are often associated with, respectively, Jeremy Stein, Raghuram Rajan, and Ricardo Caballero.

So here we have it: given their mandates, central banks have little or no choice—under democratic principles and under the rule of law—to do what they can to restore economic recovery consistent with keeping medium-term inflation expectations anchored. Elected policymakers know that and, further, are under no obligations to act themselves. In other words, the priority of democratic legitimacy for independent central banks can produce a strategic interaction with elected fiscal authorities that leads to what might sometimes (not always) be a flawed monetary/fiscal/reform mix.

In terms of the design of an economy's money-credit constitution, the big point is that in deciding what central banks should be able to do, it matters what incentives fiscal authorities have to use the instruments that they control, and how strategic interactions between different policymakers are framed. In other words, questions about the boundaries to central banking have to be taken together with what lies on the other side.

That should hardly be surprising given our description of the essence of what central banks do. They change the size and shape of the state's consolidated balance sheet in the pursuit of monetary-system stability. It obviously matters, therefore, how the fiscal authority is empowered and chooses to affect the state's balance sheet. The boundary between monetary policy and fiscal policy unavoidably becomes blurred once we move beyond the minimal conception, a setup in which the fiscal authority would take on many tasks typically associated with central banking.

The central bank operates therefore, at least implicitly, within a fiscal carve-out. Better that that be made explicit, with a *fiscal carve-out* being among the terms of the regimes delegated to a central bank under the economy's money-credit constitution. In other words, the MCC is not only about central banking and fractional-reserve banking, but also lies in the shadow of an economy's fiscal regime. Where to draw the lines depends partly on what the

people want their elected representatives in the fiscal authority to decide and control.

What is missing, therefore, is a clearer, well-thought-through fiscal constitution. A cost of central bank independence seems to have been under-investment in thinking about and building fiscal institutions over the past quarter century—just as, more obviously, banking regulation and supervision were neglected.

We need, for example, to be clearer about how the state can commit to debt levels that reflect its role as catastrophe-insurer of last resort; how the public finances should factor in imbalances in productive capacity and the tax base; the role and power of automatic stabilizers; how schemes to subsidize the supply of credit to particular sectors or borrowers fit with the central bank–led money-credit constitution; how a government can commit not to provide solvency bailouts; and more.

Central bankers are hardly alone in having an interest in stimulating debate on those issues. For those who favor the minimal conception of central banking, the work is vital and, surely, urgent. But it is no less important for those who believe in a somewhat more expansive conception of central banking.

Meanwhile, none of that provides a reason for putting off updating and refining central bank regimes in a joined-up way. That must be done if we are to be served by monetary institutions that can combine credible commitment with effective crisis management on terms and in a manner consistent with democratic legitimacy.

## Conclusion

I have been describing principles that can help resolve the apparent tension between systematic policy in normal times and flexibility in crises. My initial statement of the apparent dilemma proved badly flawed. LOLR liquidity reinsurance policy *can* be systematic,

and *should* be framed within a regime. Further, just like the LOLR, monetary policy can reach the edges of its regime in circumstances where it could continue to be useful.

I have wanted to expose the risks of segmenting debates about monetary policy, the LOLR, and other responsibilities such as, increasingly, macroprudential policy; and I have wanted to underline that the question of what happens at a regime's boundaries—*any* regime's boundaries—simply cannot be ducked.

In their core function of money creation, so long as their instrument-independence is not suspended or repealed by the legislature, a central bank's control over its policy must be absolute, constrained only by the goal set for it. But in a crisis, it must cooperate and coordinate with the executive branch, which might (not must) be empowered to authorize emergency extensions of the central bank's powers to achieve stability, *provided* that first-order distributional choices are not delegated. On that basis, coherent central bank regimes can be constructed. These powerful, independent, unelected institutions end up looking like a hybrid of the high judiciary and the military.

Credible commitment or emergency institutions? Both. The solution lies, perhaps unsurprisingly, in the design of regimes: for monetary policy, for LOLR policy, for balance-sheet policy more generally, and also for macroprudential policy. In short, for anything delegated to central banks we need: clear objectives or standards to be set for monetary-system stability; an explicit fiscal carve-out; the central banks themselves to articulate the operating principles that will guide their exercise of discretion; and our elected legislators to determine whether regime boundaries are fixed or whether in a crisis they could be publicly flexed by politicians to give their central bank more degrees of freedom to restore stability. Together with constraints on private banking, those individual regimes must be joined-up, providing a coherent overall

money-credit constitution for our economies, in peacetime and crises.

That is in some ways an optimistic note on which to end. Admittedly, it leaves a lot of choices to be made, a lot of work to be done, a lot of public debate for our elected representatives to foster and resolve. But not more than that . . . other, that is, than to stimulate renewed debate on the design of fiscal constitutions, so that next time our central banks are not the only game in town.

## COMMENTS BY JOHN COCHRANE

Let me start by summarizing, and cheering, Paul's important points.

The standard view says that perhaps monetary policy should follow a rule, but financial-crisis firefighting needs discretion: a big mop to clean up big messes; flexibility to "do what it takes"; "emergency" powers to fight emergencies.

I think Paul is telling us, politely, that this is rubbish. Crisis-response and lender-of-last-resort actions need rules, or "regimes," even more than monetary policy actions need rules.

Any decision is a mapping from states of the world to decisions. Rules constrain this mapping. Rules pre-commit one *ex ante* against actions that one will choose *ex post*, and regret. Monetary policy rules guard against "just this once" inflations. Lender-of-last-resort rules guard against "just this once" bailouts and loans.

But you need rules even more when the system responds to its expectations of your actions. And preventing crises is all about controlling this moral hazard.

To stop runs, our governments guarantee deposits and other loans; they bail out institutions and their creditors; they buy up assets to raise prices; and they lend like crazy. But knowing this, financial institutions take more risk than they would otherwise take and investors lend without monitoring, making crises worse. Institutions that can borrow at last resort don't set up backup lines of credit, don't watch the quality of their collateral, and don't buy expensive put options and other insurance, making crises worse. Investors who know that the Fed will stop "fire sales" don't keep some cash around for "buying opportunities," making fire sales worse. "Big banks are too complex to go through bankruptcy," the mantra repeats. But why do people lend to them, without the protections of bankruptcy? Because they know creditors, if not management and equity, will be protected.

“The world is ending. A crisis is no time to worry about moral hazard,” bankers and government officials told us last time, and will tell us again. But the world does not end, and actions taken in this crisis are exactly the cause of moral hazard for the next one.

This isn’t theory. When the Fed and Treasury bailed out Bear Stearns, and especially its creditors, markets learned, “Oh, Fed and Treasury won’t let an investment bank broker-dealer go under.” Lehman turned down capital offers, and the reserve fund put 40 percent of its assets in Lehman paper.

The severe crisis and recession coincident with Lehman’s failure, together with the massive and improvised response—many flavors of TARP (Troubled Asset Relief Program), auto company bailouts, and so on—have arguably created the “rule” in participants’ minds about what will happen next time.

Plans, self-imposed rules, promises, guidance, and tradition are not enough. Given the power, every one of us will bail out. We won’t risk being the captain of the *Titanic*, and we’ll let the next guy or gal deal with moral hazard. A central banker facing a crisis is like a father holding an ice cream cone, facing a hungry three-year-old. Sure, Mom’s rule says dinner always before dessert. We know what’s happening to that ice cream cone.

The central bank and Treasury must not be able to bail out what they should not bail out, to lend where they should not lend, to protect creditors who should lose money. That’s the only way to stop it. More importantly, it’s the only way to persuade the moral-hazarders that all the fine words in the boom will not melt quickly in the emergency.

Two central quotes summarize the Tucker view, and I entirely agree.

Prerequisites for any such regime are that its terms should mitigate the inherent problems of adverse selection and moral hazard; be time-consistent; and provide clarity about the amount and nature

of “fiscal risk” that the central bank is permitted to take on the state’s behalf.

At a schematic level, a money-credit constitution for today might have five components: inflation targeting plus a reserves requirement that increased with a bank’s leverage plus a liquidity-reinsurance regime plus a resolution regime for bankrupt banks plus constraints on how the central bank is free to pursue its mandate.

Now, let me offer a gentle critique.

How are we doing toward the Tucker regime? Not well.

The Dodd-Frank and Basel “regime” has no serious limits at all. Ask yourself, what institutions are not “systemic” and cannot become so designated? What institutions or creditors won’t be bailed out—can’t be bailed out? What are the securities the Fed or Treasury won’t and can’t buy or lend against? What are the asset prices that they won’t and can’t prop up?

Paul points out the difficulties. Yes, “constraints” are good. But just what constraints? We can channel Bagehot, “against good collateral,” to “illiquid but not insolvent” institutions. Except, as Paul reminds us, what’s good collateral, when no one will take anything but treasuries? How do you tell illiquid from insolvent when prices have tanked and markets are frozen? It’s not so easy.

More deeply, the Bagehot rules are flawed. If it were clear who is illiquid and who is insolvent, there wouldn’t be a crisis. Private lenders would happily support the clearly solvent. And runs happen at institutions that investors fear are insolvent. If you want to stop runs you have to prop up at least the creditors of potentially insolvent institutions. Bagehot’s rules may constrain the central bank; they may be good rules for a prudent investor; they may address moral hazard. But they are not obviously optimal rules to stop crises or to prevent them from occurring in the first place.

Worse, when we figure all this out, how do we write binding laws or regulations that will effectively constrain bailout-hungry

officials? For example, Paul Volcker proposed a fine, clear rule: “Thou shalt not finance proprietary trading with deposits.” Which, six hundred pages and counting later, is utter mush.

So here we are, six years after our crisis—or eighty-two years after 1932, or one-hundred-thirteen years after 1907, or, heck, three hundred years after 1720—and as eminent a thinker and practitioner as Paul still needs to invite future thought on what these rules ought to be, let alone just what legal restrictions will actually enforce them and communicate that expectation.

I fear that the next crisis will be upon us long before Paul has figured it out, and a century before he gets the Basel committee, the Fed, European Central Bank, Financial Stability Oversight Council, Congress, Parliament, Securities and Exchange Commission, and so on to go along.

So, I agree with pretty much all Paul has to say. But I infer the opposite message. If this is what it takes to rescue the house of cards, then we need a different house, one not made of cards. We need to stop crises from happening in the first place.

To its credit, that is the other half of our contemporary policy response. This time, finally, the army of regulators and stress-testers will see the crisis coming; with their Talmudic rules and interpretations, and their great discretion, they will stop any “systemically important” financial institution from losing money, despite the moral hazard sirens, and without turning that financial system into something resembling the Italian state telephone company circa 1965. Good luck with that.

Consider an alternative: Suppose banks had to fund risky lending by issuing equity and long-term debt. Suppose mortgage-backed securities were funded by long-only, floating net-asset-value mutual funds, not overnight repurchase agreements. Suppose all fixed-value demandable assets had to be backed 100 percent by our abundant supply of short-term treasuries. Then we really

would not have runs in the first place . . . and a lot of unemployed regulators.

Why do we not have such a world? Originally, because you can't do it with the financial, computational, and communications technology of the 1930s or 1960s. But now we can. More recently, I think, because moral hazard so subsidizes the current fragile system. But now we can change that.

Paul mentioned this possibility, but gave up quickly, conditioning his remarks on a view that society has decided it wants fractional-reserve banking. Well, maybe society needs to rethink that decision.

Really, just why is it so vital to save a financial system soaked in run-prone overnight debt? Even if borrowers might have to pay 50 basis points more (which I doubt), is that worth a continual series of crises, 10 percent or more down-steps in GDP, 10 million losing their jobs in the United States alone, a 40 percent rise in debt to GDP, and the strangling cost of our financial regulations?

A last point: Paul unites financial with monetary and fiscal policy. That's crucial. The last crisis raised US national debt from 60 percent to over 100 percent of GDP. The next one will require more. At some point we can't borrow that much.

But take this thought one step further. The next crisis could well be a sovereign debt crisis, not a repetition of a real estate-induced run. Crises are by definition somewhat unexpected, and come from unexpected sources.

To be concrete, suppose Chinese financial markets blow up—surprise, surprise—discovering a lot of insolvent debt. The stress is too much for the International Monetary Fund and Europe, so Greece goes, followed by Italy, Spain, and Portugal, half of Latin America, and a few American states. Pair that with war in the Middle East—ISIS explodes a dirty bomb, say—requiring several trillion dollars.

Now governments are the ones in trouble. They won't be able to borrow trillions more, bail out banks, or lend of last resort. In a global sovereign debt crisis, even Paul's regime would turn out to be a superb Maginot line. The current regime wouldn't be that strong.

A financial system deeply dependent on the government put would be finished. This is the lesson of Europe. A southern government default would have little consequences if its banks were not so embroiled in government finances.

But a financial system uncoupled from government finances would survive.

In sum, I cheer pretty much everything Paul said. But it's an outline for a plan that will take decades to fill in. And all in the service of keeping the house of overnight debt cards going.

So the lesson I take is that instead, we should finally take seriously the other, centuries-old, simple alternative: equity-funded banking, government-provided interest-paying money, mirroring that great nineteenth-century innovation—government-provided banknotes—and a purge of run-prone assets.

## GENERAL DISCUSSION

MICHAEL BORDO: OK, I had a couple of thoughts while you were talking, Paul. One was about Milton Friedman and Henry Simons's plan for 100 percent reserve banking, which I guess John was getting to. That's what Friedman thought would solve the problem. From his perspective, or Simons's perspective in the 1930s, had the United States had 100 percent reserve banking, the banking panics that caused the Great Depression could have been avoided. And the second one, if Allan Meltzer were here, I'm sure he would have asked, would be about Bagehot's rule. "Isn't that enough? If we have an effective lender of last resort, why do we have to come up with something else?"

PAUL TUCKER: I will start with your question about Bagehot and then come to the Chicago plan on narrow banking.

The Bagehot rule is sometimes misunderstood or, alternatively, needs enriching. I think the former, but that's about history, not the substance. What Bagehot is often thought to have said, and some central banks seem to say, is that provided a central bank lends against good collateral, the operation is OK. In other words, provided the central bank is confident of getting its money back, it's OK. But that is absolutely wrong. Indeed, it can involve what in my country is called fraudulent preference. Imagine an institution that is net-balance-sheet insolvent, indeed irretrievably so. In other words, it does not have enough assets to repay all creditors in full, but imagine it also has some Treasury bonds. This bank suffers a liquidity problem, and the central bank lends to it against the Treasury bonds. Well, the central bank gets its money back because its exposure is covered by Treasury bonds. But the operation fails to revive the institution—inevitably so—because it is truly net-balance-sheet insolvent; liquidity assistance cannot remedy that. So the

firm goes into liquidation, and some people lose money. And here is the rub. Those short-term creditors who ran get away whole, because of the liquidity assistance. But the term unsecured creditors get less money back than they would have done if the firm had gone into liquidation right at the beginning. That is because the central bank took the best assets, the Treasury bonds; the term creditors lose their share of the claim on those assets. Something wrong has happened here. Preconditions for central bank lending are not only the availability of good collateral, but also that the firm is not irretrievably insolvent (taking account of any expected effect of the lending operation on the path of the economy, asset prices, etc.).<sup>13</sup>

Now, so far as I know, Bagehot deals with this only briefly, but he does deal with it. He uses the word “sound” when he describes whom a central bank might lend to. As you will definitely know, Michael, Bagehot was writing in the wake of the Overend and Gurney Crisis in 1866. And the key thing about Overend and Gurney, a massive bill market dealer, was that the Bank of England let it go bust and then provided liquidity assistance to the rest of the system in order to contain the panic and restore stability. As I recall, the bank put in one of its deputy governors or a former governor, and two people from other banks, to have a look at the firm. And they came back and said, “This institution is unsound.”

Meaning: it was bust. And so this comes back to the need to ensure that for central bank LOLR lending, there is a test: Is this firm fundamentally, irretrievably insolvent or not?

Your second point was about the Simons, at one point Friedman, recently Larry Kotlikoff, and now Cochrane plan for narrow banking. The first thing I'd say is that John's version is coherent and serious because it goes beyond saying, “Let's con-

13. Tucker, “The Lender of Last Resort.”

fine the assets of de jure banks to treasuries or central bank reserves.” That formulation, which is the usual one, isn’t coherent or, in my view, serious, because it does not address what happens when somebody reinvents the economic substance of banking somewhere else, in a different legal form. Thus, the aim of the policy as typically framed inevitably gets subverted. John’s version makes it clear that it has to be a policy with universal application, which gets close to saying that all short-term debt should be outlawed. In the same spirit, Larry Kotlikoff advocates all financial intermediation being via mutual funds of various kinds.

The risk with that policy is that you do it, and society says, “Oh, the supply of credit is being constrained, and that’s a really bad thing.” In other words, a debate that starts off being about the riskiness of monetary institutions morphs into a debate about the supply of credit. And here is a strange but striking thing: some of the strongest political advocates of the Chicago plan in the 1930s were focused on credit, not money. As Senator Bronson Cutting put it during the debates on the floor of the Senate about this, “Private financiers are not entitled to any profit on credit.”<sup>14</sup> In other words, some political proponents didn’t say, “Oh, it’s tremendously important to have the creation of money taken out of private hands.” Rather, they said, “We have no business allowing credit to be allocated by profit-making institutions. That needs to be in the hands of the state.” I think, therefore, the political-economy robustness test that Friedman, Simons, Fisher, Cochrane, Kotlikoff need to pass is whether that would be the outcome of their plan; that faced with problems in the supply of credit, the state would be expected to—and would—step in; a world of Fannie and Freddie for everything. I come from a country which, among its other problems, does

14. Ronnie J. Phillips, “The Chicago Plan & New Deal Banking Reform,” Jerome Levy Economics Institute, Working Paper No. 76, 1992.

not have Fannie and Freddie. That would be my challenge to Milton Friedman, Henry Simons, and my friend John, who I doubt believes in the socialization of credit supply.

MICHAEL BORDO: My comment or question is related to what Paul just said. Based on Steve Haber and Charles Calomiris's *Fragile by Design*, it seems that a lot of the things that are wrong with the financial system is that people use the political system to make some gains and to do some things through the financial system that would be harder to directly do. And so you give us hope, and we see that there's variation across countries where some financial systems are more robust than others. But underlying this is that a lot of what went wrong in this crisis was facilitated by the political system.

ROBERT HODRICK: Paul mentioned that there are multiple equilibria in these situations where there is potentially insolvency versus illiquidity. It seems that there is a real need to effectively mark the assets of the bank to market, and I conjecture that is incredibly difficult to do in the financial crisis. So, if we're going to go down that route, we need some way to value the assets. If they're not trading, we have to figure out what they would be worth if they traded, and it seems like a pretty difficult thing to do.

TUCKER: You're absolutely right. But the key thing is that, at least implicitly, those judgments are already made by central bankers in their monetary policy role. I don't know whether Kevin would want to speak to what I am going to describe as it relates to the Fed, but let me describe things at the Bank of England after autumn 2008. Putting lender of last resort on one side, we are sitting in a monetary policy committee that decides its own forecasts for the economy, and from early on in the crisis that meant asking: What's going to happen to credit conditions? So we have staff presenting to us on the capital adequacy of the banking system, and whether the various policy inter-

ventions, including liquidity provision, would affect the path of the economy, asset prices, the soundness/weakness of the banks and thus their supply of credit. So what I'm saying amounts in practice to, "Hold on. In one room, the monetary policy room, we're doing all that in a fairly systematic way, recognizing massive error bands but having to form a view on the path of bank soundness in order to forecast the economy. So why in another room cannot we more explicitly assess the effect of policy measures on bank soundness when doing lender-of-last-resort policy?" When you lend to these firms, you simply cannot avoid having to decide whether you think it's going to be sound, what you think the collateral is going to be worth, conditional upon the proposed operation. How long do we think we're going to hold it for? Thus, I am arguing that the central banks ought to be much more transparent about how they go about that evaluation. Further, incentives would be changed if they were more transparent about how they go about that kind of evaluation; they would be incentivized to make those assessments more systematically than perhaps they are around the world at the moment. I do not see why a strong, intensive process exists for inputs to monetary policymaking but not for inputs into LOLR decisions. There is massive uncertainty in both, so that cannot be a justification for not having a more systematic approach based on forecasts.

JOHN COCHRANE: I disagree with what you [Hodrick] said about the wonders of mark-to-market. Forcing companies to fail the minute they don't pass the mark-to-market test assumes asset prices are random walks, which they're not. Price declines do revert, so a company that is underwater on a mark-to-market basis may well be able to pay its debts in the future. Marking to market is fine to produce information, but you shouldn't fail companies the minute they don't pass the test. When prices aren't random walks, that rule doesn't work.

That's the other problem with Bagehot's rule. Why only lend against safe collateral? Why is that the optimum that will stop a run? Our government lent against bad collateral because it wanted to stop a run of the depositors. Bagehot's rule is a good one for running a hedge fund, but central banks aren't supposed to only do that.

TUCKER: May I just add to that very quickly, please? My way, another way to make what I think is the same point, is to imagine that the fall in asset values is entirely (100 percent) to do with a liquidity crunch in the asset markets, so there's going to be a massive spike in liquidity premia. Should that be a sufficient condition to put the whole of the banking system into liquidation? Well, if the authorities do nothing, it might end up coming to that because the fall in asset prices will push the economy onto a lower path. But that would be perverse on the assumption that it is a pure liquidity shock. But of course if the shock were not one of liquidity but to a shift in fundamentals or a realization that fundamentals had been misperceived, then the policy options and conclusions are quite different. My point is simply that the authorities unavoidably have to make judgments about whether there is a shift in fundamentals or purely in liquidity premia. If they were more transparent about how those judgments affect policy and about how they make those judgments, e.g., whether they are assuming a random walk or not, then the oversight by Parliament or Congress would be a lot cleaner than it is at the moment.

PETER FISHER: Paul, terrific effort, and I've got all the sympathies in the world for both your and John Cochrane's comments. But I'm haunted that it's not just politics that prevents us from getting rid of fractional-reserve banking. It's that money is the exchangeable claim we accept. And it's not just political leaders who might want to have a money-credit nexus. We all might. The politics is us. Once we start accepting a form of money

that's backed by someone's exchangeable claims, we're off to the races. And so liquidity illusion is not just in the banking system. It's a fundamental feature of the velocity of finance we've come to accept. I have all the sympathy for your objective, but I don't think we get there, given we all can start accepting exchangeable claims backed by credit. Structured investment vehicles and conduits are just a microcosm of that. I think the challenge isn't just that the politicians get it wrong. I think we can get it wrong collectively.

COCHRANE: We accept claims to short-term treasuries happily. The question is, why do investments backed by other assets have to be fixed-value, immediately demandable claims? There is a good parallel in the nineteenth century. Banks issued notes backed by real estate investments. And there were runs because occasionally the investments were worth less than the notes. But the banks said, "Heavens, you can't get rid of bank notes! We won't be able to provide credit anymore if we can't issue notes." Well, we finally got tired of that and said, "You know what? No more bank notes. The Treasury is going to issue all of the currency." And, the world didn't end. Banks were still able to borrow and lend.

FISHER: Did that solve the liquidity illusion problem? We moved it on to a series of others, and that's my challenge. How do you stop moving it on? I grant you, you can specify state bank notes from the state of Alabama from 1872.

COCHRANE: Money and credit don't have to be linked anymore, because we have instant communications technology. You could pay for coffee by bumping an iPhone and selling stocks.

FISHER: I think you have to write a rule that prohibits that; that's persuasive to me. And I'm sympathetic to the endeavor.

COCHRANE: Well, we're here to talk about Paul's paper, not mine.

KEVIN WARSH: Let me just lob into the discussion, with a thought which is a little more responsive to Paul's point. I think Paul

rightly describes the committee dynamics of the Bank of England, where there are duly constituted committees of mixed membership, which have these differing responsibilities. Paul's right, of course; in the US, the power is really all vested in the same committee. It's really the same people at the Fed making the decisions. It's not nineteen people convening around a table. It's the same decision-makers (though not written in the statute) that are having an overwhelming influence at critical moments in time. So at least at the Bank of England, responsibilities are duly designated to subject-matter specific committees, each with its own operating principles. Here, especially in crises, because of the culture of the Federal Reserve, the role of the chairman, we seem to have a much more personality-driven and individual-driven set of decisions based on more of an ad hoc nature of a discussion.

On the question that Paul asked about how the decision is made: in the Federal Reserve's statute, the Board of Governors approves its lender-of-last-resort facilities. The statute is reasonably clear. But, it approves them on the recommendation of the Reserve Bank in which the crisis is manifesting itself. So it's not quite that the board has to come to a judgment. The Reserve Bank has to make its own judgment—no probabilities, no certainties, no confidence intervals—and the board isn't compelled to do anything more than to audit how the Reserve Bank had done its analysis. So the following tends to happen: the Reserve Bank closest to the failing institutions comes to its judgment on the proper response. The Board of Governors would then have to overrule that judgment if the members thought that the process was afoul. So it's an interesting nuance in how the Fed's system works.

On Paul's earlier question about the decision at the time of crisis and the subsequent bailout under the lender of last resort: I'd just make a bit of a distinction. One, is this the failure of

an institution, where the failure is *sui generis*? Or is the problem seemingly endemic to the system? And the crisis that we just experienced was recognized far too late to be a crisis that could be managed at the level of an individual bank. The weaknesses were manifesting themselves across institutions. Hence, the judgment of lender of last resort to which Paul refers is largely about whether the institutions would be solvent absent central bank support. And again, because you're relying in the first instance on the judgment of a Reserve Bank's recommendation, not the Board's recommendation, people put in office by the president and confirmed by the Senate, you can see why the incentives [tend] toward a greater inclination to bending rules to support the firms. So just to put a fine point on that, there have been many books written about Lehman Brothers and whether the Federal Reserve had the authority or whether it had decided this was a moment for showing that moral hazard means something. My experience with the relevant decision-makers suggests that they were prepared to bail out all firms that they could. It was only in that case where the Reserve Bank couldn't plausibly find the story they could tell, they would recommend not coming to the rescue. If they could have found a credible story in which Lehman Brothers had sufficient assets, they would have told the story. But the Reserve Bank was far from being able to find sufficient unencumbered assets, that even the Reserve Bank, whose inclinations were all but perfectly clear to the board and to the general public, found itself incapable of supporting a bailout.

CHARLES PLOSSER: I just want to make one clarification. The ultimate authority to lend to Lehman Brothers did not rest with the Reserve Banks but with the Board of Governors (BOG) under Section 13(3) of the Federal Reserve Act. Reserve Banks could lend against sound collateral to depository institutions through the discount window, but Lehman did not qualify. Indeed,

Reserve Banks were not supposed to lend to failing institutions. The FDIC oftentimes would put pressure on the banks to lend to a failing institution for other reasons, such as during a transition to resolution. Even though the FDIC had the authority to lend to them, they wanted the Fed to do it.

So lending under Section 13(3) to Lehman Brothers, Bear Stearns, or AIG was ultimately a BOG decision, not a Reserve Bank decision, at the end of the day. Granted that a Reserve Bank had to execute the action, which New York did in all those cases. But the decision rights actually rested with the Board of Governors.

Reserve Banks typically have a pretty good idea about the banks in their districts and what conditions they're in. It is with the non-banks and non-depository institutions, which didn't have access to the discount window, where the problem actually made itself much more complicated and difficult, and both Bear Stearns and Lehman Brothers were examples. But Bear Stearns in particular was difficult because the Fed had little knowledge of its financial details.

So I think that part of this question of providing a lender-of-last-resort facility is the challenges of the so-called shadow banking system and who has the knowledge and authority to lend to them when they don't have access to the traditional discount window.

GEORGE SHULTZ: The question of history here, as I understood it from reading, is that there was a very active bailout of Lehman Brothers under way. At the last minute, some British regulatory authorities pulled the rug out from under the process, so it failed. It was a surprise to the market and it was a disappointment to the Fed. Is that incorrect? What you said is a little different from that.

WARSH: Paul and I were in an interesting conversation at the moment that George references. But my recollection of events—Paul, weigh in on this—by the time we found ourselves on that

Sunday morning, my recollection differs in some respects from what I read in various books. By my recollection, the bank regulators in the United Kingdom had given their authority for a large British bank to buy at least some substantial portion of the Lehman assets. The US government was thrilled, quite looking forward to that, and was willing to take back certain enumerated assets that would be “over-collateralized” which would be subject to some form of a Bagehot rule. But, if I recall, the British government, sometime between that Saturday night and that Sunday morning, said something to the effect of: “We will not take the risks associated with this.”

TUCKER: It's not *quite* right, but it's got much of the substance. Mervyn [King] and I were in—I'm not sure this has been said publicly before—were in his office that Saturday morning finalizing a paper we'd been working on for six months to complete an overhaul of the Bank of England's liquidity insurance regime: the biggest changes for a century as we were formalizing and making public a series of facilities. Well, we heard about Lehman's acute difficulties for the first time that Saturday morning. The technical block on the deal, as I recall, was that the regulators, the FSA (Financial Services Authority), a separate institution, did not give Barclays a waiver on the need for them to get shareholder approval. (Peter would have been a director of the FSA at the time.) What motivated that? Well, it was a decision by the FSA, but a decision that both the government and the Bank of England were completely comfortable with. And it actually goes back to the substance of our conversation. So, do these people to whom UK officials are now talking in the US know whether Lehman is solvent or not, fundamentally insolvent or not, know the limits of the problem? No, they seem not to. Are they prepared to provide liquidity to sustain it? No, it appears not. Do they seem to have had a very generous liquidity policy up to now? Yes. Therefore, is it likely that they think

Lehman is insolvent? It seemed like it. If Lehman is insolvent and Barclays buys Lehman, is the British government likely to face the prospect of buying Barclays plus Lehman over the next fortnight or month or so—or week or days? Yeah, that seems like a reasonable prospect. Do we think in those circumstances that the US government would share in the risk-taking? That seems unlikely, given the circumstances. Is this, therefore, a set of circumstances where the UK should contingently provide “capital of last resort” to the US broker-dealer system? No. I think it was one of the easier judgments that the so-called tripartite authorities faced during the whole crisis.

WARSH: And my recollection is consistent with that, in that those decisions were not asked until it got to the level of the chancellor and the leadership of the central bank.

TUCKER: It was very late.

JOHN TAYLOR: Because the logic is: It was obvious what the answer would be. Right?

WARSH: At the level of the regulators below the Bank of England, below the chancellor, those questions were not asked. And the US government’s perspective seemed modeled on the Bear Stearns-JP Morgan deal, where the Federal Reserve would inherit some Maiden Lane-type assets with appropriate collateral. But, in the case of Lehman, there were greater risks—as Paul says—unbounded risks.

TUCKER: Unbounded risks that might realistically end up essentially amounting to a sovereign risk transfer. Can I just pick up on another point, John, if I may, between what Kevin said and what Charlie said? If, as you describe, the decision about firm fundamentals—solvency, insolvency—is made by the Reserve Banks, the Federal Reserve Board effectively has an option whether to make its approval based on the integrity of the Reserve Bank’s procedure or its own view of the substance. I would guess, given what you say, that the statute is consistent

with either. Even if the Board takes the former approach—i.e., “We’re going to check the integrity of the procedure”—I would guess it would be tremendously helpful if the Federal Reserve Board laid out the standard that they wanted the Reserve Banks to follow, so that different Reserve Banks all followed the same standard. Maybe it has.

But the more important point is this very strange thing in this country, where typically accountability to Congress goes only via members of the Board. And I can’t understand, whether or not they’re nominated by the president and confirmed by the Senate, why regional bank presidents can’t be called to testify in front of a congressional committee on their policy decisions.

But my impression is that it doesn’t happen very much. If you’re taking massive decisions, then you have to explain them to the elected representatives of the people. My point is that the current (and recurring) debate about the process for appointing Reserve Bank presidents can be separated from their need to be accountable, as public officials.

SHULTZ: Let me present a less charitable view of what happened. First of all, let me come back to Mike’s comment, which I interpreted as meaning that when the government encouraged what you have to call “stupid lending,” a lot of it occurred, and it managed to suck the private sector in handily so they could then blame the private sector. That’s broadly what happened. Now at the same time that the private sector saw this, the head of Citicorp gets up and says, “As long as the music is playing, you’ve got to get up and dance.” If you were a regulator, wouldn’t your light go on? It didn’t. Nobody did anything. Why? Because the New York financial community owns the New York Fed. They appoint the head of it. Talk about regulatory capture. George Stigler would blush at this.

Then comes Bear Stearns with a big intervention by the Treasury and the Fed, which are glued together in this whole process.

The Fed winds up holding all the toxic assets. As the *Wall Street Journal* put it, Jamie Dimon took them to school and JP Morgan walked off like a bandit. But the authorities transmitted the message that they didn't think the system could be maintained if they let even a little outfit like Bear Stearns go down. What was the head of Bear Stearns, or the former head, doing while all this was going on? He was playing bridge in Chicago. You have to ask yourself what kind of people these are who don't even pay attention to their own business when it's blowing up. Something's seriously wrong.

Then came Lehman Brothers. The expectation was transmitted very strongly that Lehman Brothers would not be allowed to fail. And for reasons you were discussing, in the market's view it suddenly was allowed to fail. When it happened that way, the orderly processes of bankruptcy that were in place didn't hold, so this whole process worked itself into a comedy of errors. There was bad news all around. Then what happened? The secretary of the treasury and the chairman of the Fed went before Congress on bended knee and said, "The sky is falling! We have to have a huge amount of money." To do what? To buy all those toxic assets, which was transparently impossible. It's almost as though they decided to do everything they could to upset the apple cart, to get everybody convinced that everything was unmanageable and out of control. How else could you say, "The sky is falling, we need all this money, and we don't know what to do with it"?

Then what did they do? They decided to give the money to the big banks. They called in a number of them—six, I think—and some of them were in good shape, some were not. So the powers that be thought they knew who was weak and who was strong, but the market wasn't strong enough to figure that out so everybody had to take the money. When one of the bankers said he didn't want to take the money, they said, "We will

regulate the hell out of you unless you take this money.” That is a completely improper use of power and it raises this question: Can you trust these organizations with that much power? The answer is obviously no. On the other hand, the regulatory process has unfolded to give you more power. I’m giving a non-monetary guy’s look at this.

I had the following experience. I had been secretary of labor. Then I became the new director of the Office of Management and Budget, and I found out that a financial organization called Penn Central had mismanaged its affairs badly and was about to go bankrupt.

Arthur Burns, who was chairman of the Fed, was chairman of the Council of Economic Advisers when I was on the staff and he probably had something to do with me becoming secretary of labor. In any case, Arthur was formidable. It wasn’t just that he was a smart economist and all that; he was a giant. Helmut Schmidt, the chancellor of Germany, called him the pope of economics. When he spoke, that was it.

So Arthur thought that if Penn Central went down, it would cause a crisis of the financial system, and he worked out a bailout via the Pentagon somehow. I never could figure out how that was done but when I found out about it, I argued against it. Half of me was saying, “What am I doing here, arguing with Arthur Burns about financial markets?” But I had my views, so I was arguing. At a critical moment, in walks the savviest political counselor in the world, a man named Bryce Harlow. He said, “Mr. President, in its infinite wisdom, the Penn Central has just hired your old law firm to represent them in this matter. Under the circumstances, you can’t touch this with a ten-foot pole.” So there was no bailout. Arthur did a masterful job of flooding the system with liquidity. And guess what? The failure of Penn Central strengthened the financial system because it caused everybody to stop and say, “Wait a minute. We’d better

be careful here.” So instead of a problem, there was a positive result. It wasn’t that anybody had the courage to let it go; it just happened, but it was instructive.

I had the same experience in a different way as secretary of labor. I made lots of speeches when I was a professor at the University of Chicago saying that the Kennedy and Johnson administrations were intervening too much in big labor disputes on the grounds that intervening would avert a national emergency. The result was that the whole process of private bargaining was eroding. That’s moral hazard, and it happens everywhere. I said to a group of lawyers once that if the president hangs out his shingle, he’ll get all the business; you don’t make your best offer until you get to the White House. I thought this was a bad thing. So in October of ’68, the longshoremen on the Gulf and East Coasts went on strike. President Johnson thought this would create a national emergency. Under Taft-Hartley, he enjoined the strike and there was fast-track authority to the Supreme Court. The Supreme Court agreed with the president, so the injunction held. Then it expired around January 18, 1969, and I was sworn in as secretary of labor on January 21. The press said, “OK, Mr. Professor, now you’re secretary of labor. What are you going to do?”

So I went to the president and discussed this with him. I said, “Mr. President, your predecessor was wrong and the Supreme Court was wrong. This dispute will cause a lot of kerfuffle in New York City, and they think that will be a national emergency, but it won’t. You can hang tough for three or four weeks and I’ll get some good mediators going. Once they’re convinced it’s not going to the White House, we can get this settled and then we’ll send a big message.” It worked out that way and we had practically no more Taft-Hartleys. It changed people’s expectations.

I think what you all have to keep in mind is that it isn't just money supply and numbers. It's the way that what you do profoundly affects people's attitudes. In the labor case, it had a profound impact on the way people worked together with each other. And moral hazard happens everywhere. Intervention changes the situation. Many people say, "Hooray, the Fed saved the system," but I'm not so sure. I think a lot of serious mistakes were made.