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X. Central banking for the 21st century: an American perspective

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Central banks are peculiar institutions with one foot in the private sector and one foot in the government.² In the United States, in particular, the central bank stands out as the extra-constitutional fourth branch of the federal government. It has considerable power which it can exercise without any significant formal review or interference from Congress, the President or any elected officials.

Indeed, modern thinking about central banking gives enormous emphasis to the notion of central banking independence. Only a central bank that is independent of the political sphere will be able to maintain a consistent anti-inflationary policy stance. So, central bankers should not be subject to regular political review or oversight and should hold office for a long period of time. Some central banks were set up with this independent quasi-governmental status, such as the Federal Reserve System.³ Some evolved in that direction, such as the Bank of England, which was a private institution until it was

nationalized by the post-war Labour government and then was not granted its policy independence until 1997.⁴

Towards the end of the 20th century, it seemed to many observers that a consensus view had emerged regarding the proper functions of a central bank. However, as is often the case, just when this happens something comes along to upset the consensus. And, the recent financial crisis has thrown the issue wide open once again. A fresh examination of the history of central banks shows that our understanding of the role of central banks has always been changing.⁵ Most importantly, at present the long shadow of the financial crisis has left large elements of uncertainty regarding the proper role of central banks. In this essay I categorize the historical roles of central banks, in an effort to determine what the 21st century role of central banks should be.⁶

Central bank functions fall into three areas: monetary policy, the supervision and regulation of individual financial institutions, and systemic regulation of the financial sector as a whole. This latter function includes both the traditional concern for the functioning of the payments system and a new set of concerns about system-wide (or macro-prudential) risk arising from the increased complexity and interconnectedness of financial institutions and markets. We will argue here that the relationships among these three areas have been widely underappreciated. The predominant view in the 20th century was to deal with the first two functions independently and the third not at all. Central banking in the 21st century will have to develop ways of dealing with all three functions simultaneously.

Monetary policy

Very few would argue with the idea that monetary policy aimed at economic stabilization should rest in the hands of an independent central bank. Economists have shown that independent central banks achieve lower and less volatile inflation rates than those that are beholden to governments in power, and that they do so at no long-run cost to economic output.

In the United States, the Federal Reserve has a dual mandate to maintain stable prices and full employment. Many other central banks -- the ECB is a notable example -- have price stability as their primary mandate. A central bank uses its policy tools to influence interest rates and the growth of money and credit in order to attain its specified goals. An independent central bank can pursue these goals without concern for an election cycle that might tempt elected policy makers to pursue short-term goals such as unsustainably high employment and real growth with little concern for longer-run inflationary implications.

Some argue that the function of a central bank should begin and end with the macro objectives of monetary policy, and that any other obligation would distract the central bank from achieving its primary goal of economic stabilization (or specifically, price stability).

However, this approach ignores important links between monetary policy-making, financial regulation, and prudential supervision that favour a wider role for a modern central bank. In addition to its macroeconomic effects, monetary policy can affect the behaviour of financial institutions and may create weaknesses in the financial system.

A good example of this is the monetary policy pursued by the Federal Reserve in the early 2000s. The Fed began reducing its target for the funds rate even before the economy started contracting and it fell rapidly from 6% to 1.75% during 2001. Although the expansion began in November 2001, the funds rate target was reduced again at the end of 2002 and in mid-2003. It reached a record (at that time) low of 1% in June 2003 and was held at that level for 12 months. Thus, the first increase in the funds rate target occurred 29 months after the end of the recession. By one measure the real Fed funds rate was negative for 5½ years.⁷

It is interesting to read the Federal Reserve Board's (2003) own description of its thought processes and considerations around the time that the funds rate target reached its lowest value:

“To provide more specific guidance about its views, the FOMC included in its [May 2003] announcement separate assessments of the risks to the outlook for economic growth and inflation.... The Committee viewed the upside and downside risks to economic growth as balanced, but it perceived a higher probability of an unwelcome substantial fall in inflation than of a pickup in inflation from its current low level. That said, members concluded that there was only a remote possibility that resource utilization would remain so low that the disinflation process would cumulate to produce a declining overall price level for an extended period.

[At the June meeting][w]ith inflation already low and inflation expectations subdued, the Committee judged that it would be prudent to add further support for economic expansion, and it lowered the target for the federal funds rate 25 basis points, to 1 percent. The FOMC continued to view the risks to economic growth as balanced and

again noted that the minor probability of substantial further disinflation exceeded the probability of a pickup in inflation from its current low level. But because of the considerable amount of economic slack prevailing and the economy's ability to expand without putting upward pressure on prices, the Committee indicated that the small chance of an unwelcome substantial decline in the inflation rate was likely to remain its predominant concern for the foreseeable future.”

The Fed funds rate was kept very low for a very long period because of concerns about deflation and weakness of a recovery that was almost two years old. The report does indicate an awareness of issues that became more important in later years – mortgage refinancing, accounting practices at the GSEs and ‘buoyant’ growth of M2. Policy seems to carefully weight the upside and downside risks regarding both macro goals but (easily said in retrospect) seems blithely unaware of any longer-term implications for behaviour in credit markets or by financial institutions.

A particular macro policy, like that in 2003, is not necessarily going to imply that systemic problems will arise but the emphasis on macro conditions and policy meant that no one within the Fed or elsewhere was even asking whether monetary policy might have such systemic consequences. Experience in the intervening years has surely shown that 21st century central banking should avoid this disconnect between macro monetary policy and its other functions.

Supervision and regulation

It is important to remember that central banks started as banks with important lending activities, both on a regular basis and as the lender of last resort. The monetary policy function of central banks grew out of their lending activities as early central banks

discovered that their lending influenced credit availability, interest rates and gold flows even before macroeconomic policy became an acknowledged role. As a regular lender to the financial system and sometimes lender of last resort when special liquidity problems threatened the operation of the banking system, the central bank had a clear interest in knowing the viability of its customers. It is only logical that such a lender should have sufficient information about borrowers to be able to make sound loans. Thus, it is no accident that the lender of last resort also played a role with bank regulatory and supervisory functions. However, the supervisory function of the central bank is only significant if it maintains an active lending role.⁸

The regular lending activities of the Federal Reserve System became less significant in the late 20th century as the threat of banking panics retreated once deposit insurance was introduced and as other means to obtain liquidity developed. Some economists suggested that the lender of last resort role for central banks is obsolete. In the modern world, well-developed financial markets with liquid securities markets and an active interbank market, there should be no such thing as an illiquid but solvent firm and no need for central bank lending functions. Solvent firms should always be able to arrange financing on the interbank market or the repo market.

Anna Schwartz (1992) examined the history of discount lending by the Federal Reserve and concluded that it had moved irreparably away from Bagehot's conception. She argued that the distinction between lending to provide liquidity and lending to prop up insolvent institutions had become unclear although the Fed never acknowledged as much. Further, she was concerned (perhaps with prescience) with the use of central bank funds to provide capital loans to non-banks. Her recommendation was that the Fed's

discount window be abolished. She argued that any systemic liquidity needs could always be satisfied with open market operations. The need for targeted lending responses when failing institutions can create a systemic problem was simply not entertained.

The discount window was not closed down although it virtually disappeared in the late 20th century. However, central bank lending came back with vengeance in 2008 when the Fed utilized emergency lending powers that were hardly known and little understood because they had not been used after the 1930s.

The Fed had extensive lending powers under the 1932 amendment of the Federal Reserve Act (section 13(3)) and revised later on (see Fetting, 2002) to lend to non-banks in 'unusual and exigent' circumstances. On several earlier occasions there were suggestions that the Fed use these lending powers to provide funds to non-banks, such as at the time of the Chrysler bankruptcy in 1970, the New York City bankruptcy in 1975 and when the US airlines faced serious problems after 9/11. However, the Fed resisted such suggestions (although there was a short loan to the FDIC bank insurance fund in 1991) until March 2008. It reversed precedent when it arranged the sale of Bear Stearns to Morgan Chase. By the end of that year 2008, there were USD 600 billion in section 13(3) loans outstanding. From August to December, the Fed's balance sheet increased by more than 2½ times. The Fed quickly adapted its lending activity to cope with the crisis. Nevertheless, there was considerable public backlash against the Fed's lending, which was characterized as a bailout of Wall Street firms. As a result, the Dodd-Frank financial reform bill passed in 2010 circumscribes the Fed's ability to use emergency lending powers to assist individual institutions.

The crisis experience demonstrated the continuing 21st century relevance of central bank lending capabilities. As long as lending of last resort continues to be an important central banking role, it is crucial that the lender be able to obtain timely information about any potential borrower. This is a key ground of the argument that the central bank should have a role in bank supervision and regulation. The central bank needs to know its customers.

Conceivably, the supervision and regulation of individual banking institutions need not be a central bank function. In some countries, it is housed in other government agencies. We already noted that in the United Kingdom all bank supervision was moved from the Bank of England to the FSA. The ECB has no direct role in bank supervision, which is done at the national level. And in the United States the Fed has always shared these functions with state and national agencies responsible for chartering banks, as well as with the deposit insurance agency

One might argue that the real issue is effective communication between the central bank and any other agencies with supervisory authority. In practice, however, instances where the role of supervisor and lender of last resort have been separated – such as in the United Kingdom, where the Bank of England acts as lender of last resort and the Financial Supervisory Authority oversees the potential borrowers – have highlighted how difficult it is to communicate effectively in a crisis. As a result, the Conservative Party in the UK has proposed eliminating the Financial Supervisory Authority and returning bank supervision to the Bank of England.

The benefits of linking the lender of last resort and the role of supervision go beyond the advantages of rapid communication. The skills and expertise developed in the course

of regulation and supervision may help the lender of last resort to innovate when necessary in a liquidity crisis. For example, the rapid introduction of new Fed lending facilities during the crisis under conditions of extreme stress would have been difficult in the absence of extensive hands-on experience in the financial system on the part of Fed. Similarly, experience in regulation and supervision may be critical for the development of effective systemic risk regulation, which we will discuss below.

Thus, the thrust of our argument is that the central bank should have a role in the supervision, regulation and examination of financial institutions so that it is well informed about its potential borrowers. Further, the knowledge gathered in the regulatory process leaves the lender of last resort prepared to respond when crises emerge. We have not discussed here the parameters of supervision that keep the regulator well informed. Perhaps most important is the regular examination of banks and the setting of accounting and valuation standards. In addition, the determination and enforcement of capital adequacy and liquidity standards is essential to prevent individual institutions from becoming insolvent.

The scope of bank regulatory activities is well known. A more complex issue is determining which types of organizations should be supervised. The lender of last resort role probably is of greatest relevance in dealing with institutions whose instability would pose a direct threat to the financial system as a whole. The experience of the recent crisis suggests that large, complex financial institutions (LCFIs) are more likely to be sources of systemic disruption. For this reason, there would appear to be a stronger case for linking the lender of last resort to the supervision of LCFIs than to the supervision of other financial institutions.

Nevertheless, it is possible for a wide array of small financial institutions to pose such a systemic threat if they face a common exposure that makes them collectively vulnerable. In the US, the thrift crisis of the early 1980s is the usual example although it really did not present the truly systemic risks that we faced in 2008-09. The best known problems in the recent crisis were the LCFIs such as Lehman and AIG. However, the most dangerous aspects of the crisis were the meltdown of the commercial paper market and the run on money market funds, both examples where common shocks to many small entities had systemic implications.

The set of institutions that can present systemic risks includes financial institutions other than banks. The fact the Fed had little connection to the shadow banking system was a contributory factor to the panic that occurred at the height of the crisis. The legal authority to support lending to non-banks was at times unclear and lack of knowledge of their activities made intervention to lend or support shadow banks in both the US and Europe uncertain.

The Federal Reserve and its district Reserve Banks are naturally reluctant to give up their supervisory role over any banks, including smaller ones. Bank regulation is a major activity for the district banks. Ensuring the soundness of banks large and small is viewed as integral to the economic health of the regions they serve. Confidential information obtained in the course of supervising banks can be of use in evaluating monetary policy, especially when it helps policy makers to anticipate demand for and supply of credit. Nevertheless, the case for Fed supervision of smaller banks is less compelling than the case for supervision of large, potentially systemic financial institutions – including non-banks.⁹

Thus, we see that the central bank has a role to play in the regulation and supervision of any potential borrower. It should be party to regulation that monitors risk taking so that financial institutions remain individually solvent and do not need to turn to the lender of last resort. As long as we are thinking of risk taking by individual institutions, the central bank does not have to be principally involved in setting standards and conducting oversight, good communication could be adequate. However, the argument for central bank involvement is compelling when we consider financial institutions that might be part of a systemic failure.

Systemic risk regulator

Although systemic risk is not a new idea, the notion of an explicit systemic-risk regulatory function is new. Addressing systemic threats was an implicit function of the Fed because its lender of last resort facility was the only tool available to respond to systemic risk problems. When clearing failures, Y2K concerns, or the terrorist attacks of 9/11 threatened the operation of the financial system, the Fed's discount window was the tool available to address the problems. The availability of the discount window for emergency lending made it the central bank's tool for responding to systemic risks.

It is often hard to make a clear distinction in advance between lending that might be needed by an individual institution and lending that might be needed to prevent systemic problems. In some instances, support of a single institution (such as the Fed's use of the discount window to ameliorate the effects of operational problems) can prevent systemic problems. In other instances, lending to a specific institution such as AIG or a set of institutions such as the commercial paper market is needed to maintain the functioning of the financial system.

Emergency lending does take the central bank's focus away from monetary control and there are still some who would argue against any other role for central banks. However, the recent crisis demonstrated the importance of having an institution that can respond quickly and broadly to systemic risks.

A tool for responding to systemic risks is not the same thing as a macro-prudential regulator with the authority to monitor systemic risks and take regulatory actions to reduce them before they erupt into crisis. The fact that the central bank has the tools to respond to emergencies does not mean that the central bank must also be the macro-prudential regulator. It is well suited to do so because of its existing connections to the financial system and, as the recent crisis highlights, it is valuable to have one authority unambiguously responsible for responding to systemic risks. Interestingly, the recent financial reform legislation in the US (the 2010 Dodd-Frank bill) partially removes the Fed from that role by setting up an interagency Financial Stability Oversight Council as the systemic regulator.

A systemic-risk regulator should have influence that stretches out in multiple directions. First, the systemic regulator needs to augment the oversight and supervision of institutions that are so large and interconnected that any insolvency would create systemic problems. Second, it must be able to address systemic problems that can arise from smaller institutions facing a common vulnerability. For example, the 2008 run on money market funds, none of which was individually sufficiently large or interconnected to present a systemic risk, threatened the financial system. These funds, part of the so-called shadow banking system, lacked deposit insurance and automatic access to the

lender of last resort were vulnerable because funds can be withdrawn at face value with little or no notice and assets are not always liquid.

Third, the systemic regulator must have authority over the shadow banking system including any new institutions or instruments that may create new systemic risks. An important contributor to the crisis was shadow bank institutions – such as broker-dealers – that are dependent on the collateralized repo market.¹⁰ The systemic regulator should have the authority to regulate such risk-laden market funding practices, in addition to the behaviour of any institution that can generate systemic risks.

Fourth, economic conditions can give rise to systemically risky activity. Rapid credit expansion, the deterioration of credit standards and asset price bubbles are all macro problems that can give rise to systemic weaknesses. For example, the extended period of low interest rates in the early 2000s promoted rapid credit expansion and some of the excesses, particularly in the mortgage markets, that generated the crisis. Thus the phrase macro-prudential regulation arose to reflect the post-crisis realization that monetary policy needs to stay cognizant of the systemic stability implications of policy.

For these reasons, systemic risk and the regulation, supervision and oversight of individual financial institutions are closely linked. The monitoring of each financial institution individually is not sufficient for avoiding systemic problems. Thus, the systemic risk regulator should be a powerful entity. It should have explicit regulatory authority over systemically important institutions (the LCFIs). In addition, it should be able to rein in the systemically risky activities of any financial institution – shadow banks, hedge funds, insurance companies, for example – including ones that are not

otherwise subject to regulatory oversight. If the behaviour of any financial institution creates systemic threats, the regulator has reason to be concerned.

In the Greenspan-Bernanke era the Fed's narrow focus on macroeconomic monetary policy led to a policy culture that eschewed any concern about the potential for systemic problems. This is well illustrated by the debate that started in the late 1990s concerning whether asset price bubbles should be a concern of monetary policy (see Wadwhani, 2008). The issue is whether monetary policy should respond to sharp rises in asset prices and take action to prevent the growth (and the burst) of bubbles. Greenspan and Bernanke both argued against any role for asset prices in policy setting. In regard to bubbles, Greenspan (1999) told Congress that policy should 'mitigate the fallout when it occurs'. This has led famously to the notion that the role of the central bank is to mop up after the bubble bursts. Similarly, Bernanke (2002) said "'leaning against the bubble" is unlikely to be productive in practice'. Other central bankers seemed to agree that the policy tightening needed to prick a bubble would have to be large enough to push an economy into recession. The danger of false positives – tightening when there really was not a bubble – was viewed as too great to warrant any concern *ex ante* about bubbles.

In retrospect the debate had important implications that were not adequately appreciated. Monetary policy analysis broadly concerned with asset market conditions would have been paying closer attention to the role of financial institutions and the amounts of leverage. The policy discussions often took too simple a view by asking whether asset prices should be a macroeconomic target. The emphasis on bubbles in asset prices was misplaced because policy makers seemed to argue that asset prices only mattered when a bubble occurred. Bubbles are only identifiable as such when they burst.

To my knowledge, no one articulated the view that policy makers should watch and evaluate asset price movements before a bubble bursts or is even expected because of their potentially important implications for systemic stability.

Central bankers emphasized inflation targeting and chose not to pay attention to potential bubbles. As a consequence, little attention was paid to the implications of asset prices for financial stability. Thus, policy makers paid little attention to significant developments such as increased lending, increasing leverage ratios and weakening financial institutions that are often associated with increasing asset prices. By choosing to ignore asset price inflation, the Fed chose to ignore these other developments as well. The narrow view of macro targets weakened any connection between monetary policy making and the systemic health of financial institutions.

Thus, experience tells us that central banks are well advised to be concerned with systemic stability; however, it is not self-evident how this concern should be expressed. There are two distinct dimensions of macro-prudential regulation. First is the one given the most attention in the recent crisis, crisis management or the ability to respond in a timely and comprehensive manner to systemic problems. The Federal Reserve's use of section 13(3) lending authority and other innovations in the recent crisis are examples and there has been much discussion of whether these crisis response tools should be expanded or circumscribed because they were abused. As long as the central bank has the authority to lend in emergency situations, it should, as we argued above, have a role in the regulation of institutions that might present systemic risks. The second and more challenging aspect of macro-prudential regulation is how to set systemic risk standards

for the financial sector as a whole, macro-prudential policy. Little is known about the tools for measuring systemic risks and the instruments to regulate it.

Central banks do not have a clear idea yet of what are appropriate measures of systemic risk or what they should be targeting in order to conduct macro-prudential risk management. The modestly named BIS Committee on the Global Financial System (CGFS) is addressing the issue. In a recent paper (CGFS, 2010) it acknowledges that its definition of systemic risk is vague because of ‘its dependence on time- and economy-specific circumstances’ (p. 2) and, further, that ‘In most countries, macro prudential policy frameworks are at an early stage of development’ (p. 8). Systemic risk may not be a new idea but systemic risk management is. 21st century central banks need to develop the tools for systemic risk measurement and management that are needed for crisis avoidance.

Experience has taught us how, for example, to set minimum capital requirements for an individual institution operating in a normal environment. We can determine the appropriate capital stock buffers that an institution needs to maintain in order to withstand a negative shock. But we have little experience in determining the buffers that individual institutions and the system as a whole need to maintain in the presence of a systemic shock or crisis.

Monetary authorities in both the US and Europe quickly introduced some efforts at prudential management in the immediate aftermath of the crisis in the form of ‘stress’ tests. These tests postulate a macroeconomic shock and simulate its effect on the balance sheet of financial institutions in order to determine whether the banks have sufficient capital to cope with the hypothesized stress. The Federal Reserve’s initial stress tests

were conducted on the 19 largest bank holding companies in the U.S. The results, announced in May 2009, had a calming effect on financial markets because the capital shortfalls were less than had been feared. The Committee of European Banking Supervisors along with other authorities conducted stress tests on a large number of European banks in both 2009 and 2010.

These stress tests are based on macroeconomic scenarios but are in the end examinations of individual banks rather than tests for systemic weakness. The appropriate systemic risk standards for both capital held by each bank and the aggregate amount of capital in the banking system (and hence overall leverage levels in the financial industry) are yet to be developed. Vice Chair of the Board of Governors Janet Yellin (2010) acknowledges that many of the tools of macro-prudential supervision are the same as those traditionally used for micro-prudential supervision. The standards to be used to measure systemic risks are missing and the responses to be used in the presence of systemic risks need to be defined. Yellin (2010, p. 3) further argues that ‘Monetary policy cannot be a primary instrument for systemic risk management.’ That is, a monetary tightening would not have been the only appropriate response to the developing systemic risks in the US in the years before the crisis. There are a few suggestions of what the appropriate tools might be, such as countercyclical capital requirements and contingent capital arrangements. However, much more needs to be done to develop both the means of measuring the presence of systemic risks and to put in place the tools to respond to it.

Thus, monetary policy, regulation of financial institutions and macro-prudential regulation are tightly linked together. As a result an argument can be made for giving the central bank a role in all three. Even if we view macro policy to be the primary function

of the central bank, it needs to monitor financial institutions because no macro policy can succeed without financial stability. And since economic stability goals cannot be attained without a modicum of financial stability, the macroeconomic and macro-prudential roles are tied together. The micro-regulatory role is tied in as well since large complex institutions as well as panics among smaller institutions can have systemic implications.

These broad roles for the 21st century central bank do not come without risks. The emergency responses to crisis, such as those put in place in 2008-09, may cross the line into fiscal policy and involve political judgments which might compromise the independence of the central bank and its ability to pursue its primary role, macroeconomic monetary policy. Goodfriend (2010) warns that central bank bailouts are politically contentious fiscal decisions that would destroy its independence. The Fed never stepped over this line before and the 2010 Dodd-Frank bill will result in power sharing with other regulators and the Treasury. Broad oversight of the financial system should be a concern of the central bank but also, appropriately, a concern shared with other agencies.

Conclusion

As the 20th century drew to a close there seemed to be a consensus view of central banking. A central bank was a politically independent entity that was responsible for monetary control. Other functions were peripheral at best. For example discount lending was a useful emergency facility but really just a remnant of the central bank's historical banking functions. Bank supervisory activities were also peripheral and could just as soon be located elsewhere. The crisis of 2007-09 changed these views forever by

bringing the prudential and regulatory roles of central banks to the forefront and showing the interdependence of the roles.

I have made, I hope, a reasonably compelling case for a central bank with broad interrelated functions. First, a central bank should be able to conduct monetary policy without political interference. Second, it should serve as the lender of last resort to provide liquidity in emergency situations and third, it should have a role in monitoring systemic risks and responding when they might emerge. That is a rather large remit for one government agency. But it is inevitable due to the connections among these functions.

As a result, central banking is pulled into the realm of politics as the border between monetary policy and fiscal policy becomes blurred. Consider the following. In 2008, the Federal Reserve sold billions of dollars of government securities from its portfolio and used the funds to finance some new corporations – the Maiden Lane corporations (the New York Fed is located on Maiden Lane) which bought assets from Bear Stearns, AIG etc. - and to create new funding facilities such as those used to support the commercial paper market. Is this a proper role for the central bank or has it crossed the line into the realm of fiscal policy, the legislation and appropriation of funds? If Congress wants to buy a bank or nationalize a corporation or bail out GM or funnel funds to the commercial paper market, it has the right to do so. It passes legislation and appropriates funds. The government would have to fund such expenditures and, as you can imagine, it would do so by selling bonds – a fiscal activity. Indeed, buying GM was a fiscal activity by the US government. But, that is exactly what the Fed did when it ‘bailed out’ Wall Street. Has the central bank, in the name of the lender of last resort to the financial sector and the

sceptre of systemic risk, usurped the role of Congress and the President to conduct fiscal policy – decide how much the government will spend, what it will be spent on and how expenditures should be financed? These are hard questions to answer. They deserve more attention from economist and politicians.

The recent crisis suggests that a broad the role of the central bank that encompasses macro policy, supervision and regulation of banks and systemic risk (or macro-prudential) oversight is warranted. Although everyone agrees that monetary policy is a central bank concern, there are wide differences of opinion regarding the extent to which it should also have responsibility for the supervision and regulation of individual financial institutions and for systemic regulation of the financial sector as a whole. Further, there is wide disagreement regarding the border between appropriate central bank crisis responses and fiscal actions.

The complexity of these issues does not obviate my contention that strong linkages among the three functions of a central bank are sufficiently compelling to warrant giving the central bank broad authority in all three of them. As a consequence, central banks may be more political institutions than before.¹¹ Policy makers were aware that their innovative responses to the crisis increased the political involvement of the central bank. At the height of the crisis, in March 2009, the Fed and the Treasury issued a statement outlining their respective roles and the distinction among them. Goodfriend (2010) suggests that a new ‘accord’ is necessary to formally define the boundaries of Federal Reserve credit or lending policies.

It is fascinating how little attention has been addressed to these issues in the past. It just did not seem to warrant the bother. But, the questions will linger for a long time – the

role of central banks warrants a lot more attention. For sure, the late 20th century view of central banks is gone forever. The notion of an independent agency with the remit of monetary control is much too limited to be realistic. Inevitably, the central bank has other functions which drag it back into the political arena. Exactly how the 21st century central bank ought to be designed is an open question worthy of more attention.

Notes

1. Stern School of Business, New York University. Thanks are due to Stephen Cecchetti, Thomas Cooley, Dubravko Mihaljek, Kermit Schoenholtz, William Silber and Richard Sylla for helpful discussions though the responsibility for all the opinions and errors found here are entirely mine.
2. Perhaps it is only of symbolic importance but only the Board of Governors of the Federal Reserve has a '.gov' web address while the regional Federal Reserve banks are private banking corporations with '.org' addresses.
3. Nevertheless, the Fed did not always maintain an independent approach to policy. Notably, starting in World War II the Treasury essentially set interest rate policy, an arrangement which only ended with the Treasury Accord in 1951.
4. Perhaps Gordon Brown's most triumphant moment as Chancellor of Exchequer was in May 1997 when he granted the Bank its independence. He announced that the chancellor would no longer meet monthly with the Governor of the Bank of England to determine interest rate policy, saying that: 'I want to set in place a long term framework for economic prosperity....'.

5. See Goodhart (2010) identifies three historical eras regarding the role of central banks: the real bills doctrine of the Victorian age, a mid-century period of government control and the market-oriented era that ended with the crisis.
6. The discussion draws on chapter 2 ('The Power of Central Banks and the Future of the Federal Reserve System' by T. Cooley, K. Schoenholtz, G.D. Smith, R. Sylla and P. Wachtel) in Acharya et. al. (2010).
7. The monthly average effective fund rates less the percentage change from a year ago in the seasonally adjusted CPI-U was negative from April 2001 until September 2006.
8. Of course it is also common for legislation to explicitly make the central bank the agency responsible for bank regulation and examination. The Federal Reserve has primary regulatory responsibility for bank holding companies and state chartered members of the Federal Reserve System.
9. Alan Blinder (2010, p. 132) agrees that Fed supervision of small banks is less than compelling and 'peripheral to its core mission'.
10. For an explanation of how the shadow banking system engaged in banking see Gorton (2010).
11. Meltzer (2010) argues that the Fed has always been subject to political influence. The idea of an independent insulated central bank was to some extent a caricature favoured by advocates of mechanical monetary policy rules.

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