

How is this workable? Simple, the engineers must honor the interfaces between the missile subsystems – the connectors, electrical signals, mass properties, and bolt patterns. The result is a Minuteman III that remains a highly reliable and credible deterrent as demonstrated in ground and flight testing. There is no technical reason why Minuteman III extension cannot continue indefinitely.

As the Air Force embraces its renewed focus on the nuclear enterprise—as the Obama administration reaches out to build an enduring peace—the Minuteman can serve as a highly credible deterrent that is stabilizing, secure, responsive, flexible, and highly affordable.

It will continue to deter potential enemies, dissuade potential nuclear states and assure allies that our nuclear capabilities are credible.

And what about the future?

President Obama now enunciates the same goal that Ronald Reagan once proclaimed—a desire to rid the earth of all weapons of mass destruction. I don't know if a verifiable, global deal to zero is possible. If it is, this is a

piece of business we would all be glad to lose.

If I may again quote Secretary Gates, I will let him have the final word.

Robert Gates said that he worked for three Cold War presidents—Jimmy Carter, Ronald Reagan, and George H.W. Bush—who all genuinely wanted to eliminate all nuclear weapons.

“More recently,” Secretary Gates noted, “George Shultz, William Perry, Henry Kissinger, and Sam Nunn echoed that sentiment in *The Wall Street Journal*. But all have come up against the reality that as long as others have nuclear weapons, we must maintain some level of these weapons ourselves: to deter potential adversaries and to reassure over two dozen allies and partners who rely on our nuclear umbrella for our security—making it unnecessary for them to develop their own.”

I am hopeful that there will one day be no nuclear weapons.

Until that day comes, however, we have the Minuteman III as the means to ensure that the world continues to head in the right direction. ♦

Improving Financial Stability

WE MUST RELY ON SOUND POLICYMAKING

Address by CHARLES I. PLOSSER, President and CEO, Federal Reserve Bank of Philadelphia

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It is a pleasure to be back in Chicago, where I spent a great deal of time long ago learning the value of economics as a central framework for analyzing both business and public policy issues. Today I want to discuss several principles that I believe are essential for sound and effective central banking. In particular, I will outline how these principles provide guidance for some of the key regulatory and supervisory challenges that we must address in the wake of the financial turmoil over the last 18 months.

► Principles for Sound Central Banking

The four principles I will stress today recognize the importance of expectations in understanding economic behavior. This has been one of the most significant developments in economic theory during the last four decades, and much of this work was pioneered here at the University of Chicago. In particular, research has shown that expectations about future actions by policymakers play an important role in the economic decisions of a wide array of decisions made by businesses and households. Will Congress raise or lower taxes in the future? Will these taxes be on investment returns or labor income? Will the Federal Reserve ensure that inflation remains low and stable? Expectations about such future policies influence the decisions households and firms

make today. Moreover, actions policymakers take today inform the public about the likelihood of future policies.

The recognition of the interaction between policies and expectations is the basis of four principles for sound central banking.

- First, policymakers should set clear objectives that are realistic and feasible. Policymakers and the public must have a clear understanding about what policy can and cannot do. We must take care to set reasonable expectations, because overpromising can erode the credibility of a central bank's commitment to meet any of its goals.
- Second, policymakers must make a credible commitment to conducting policy in a systematic way over time, even when it seems expedient to do otherwise. Acting in a consistent way reinforces the public's expectations and earns credibility; failing to do so risks having expectations become unanchored and creating unnecessary economic volatility.
- Third, policymakers must transparently communicate their policies and actions to the public. In a democratic society, it is important that institutions with the delegated authority to act in the public interest be as clear and as transparent as possible

regarding their actions. This transparency increases the policymakers' accountability to the public.

- Fourth, the central bank must be able to pursue its policies independently from the political process and fiscal authority. Independence, however, does not mean that central bankers or other policymakers are not accountable to the public.

Many of you may be familiar with these principles in the context of making sound monetary policy. For example, these principles lead one to take seriously the establishment of a clear objective for inflation; to limit discretion by making credible commitments to conduct policy in a systematic way, such as using a Taylor-like rule; and to be as transparent as possible about the objectives and policy decisions.

Yet, I believe these principles can also improve the effectiveness of the central bank's policies in promoting financial stability.

Of course, before we set clear and explicit objectives for financial stability, we first must be clear about what we mean by financial stability. Policymakers cannot and should not try to prevent all types of financial instability. Indeed, the economy benefits when financial institutions and markets take on and manage risk. That means inevitably some firms will fail. As my friend the economist Allan Meltzer has said, "Capitalism without failure is like religion without sin. It doesn't work." Our goal should not be to try to prevent every failure, but rather to reduce the systemic risks to the financial system that a failure may create.

For my purposes today, I want to discuss how these principles can help improve policymaking in three areas related to this financial crisis. These areas include managing the central bank's role as lender of last resort, dealing with firms that are too big to fail, and determining the Federal Reserve's future role in promoting financial stability.

► **Lender of Last Resort Policy**

The recent crisis has once again highlighted the important role a central bank can play in promoting financial stability by acting as the lender of last resort. In the 1873 classic *Lombard Street*, Walter Bagehot wrote that central banks could limit systemic risks arising in banking crises by lending freely to solvent banks at a penalty rate against good collateral. The idea was to ensure the availability of liquidity to solvent institutions in a crisis.

I believe that this is still a good principle. Yet, the financial markets look much different today than they did 136 years ago. Today, nonbank financial institutions also play a critical role in financial intermediation and are subject to runs and other forms of systemic risk similar to those that banks face. Yet, neither economists nor policymakers have clearly defined the

dimensions of appropriate lending policies in this more complex environment.

Indeed, to address the systemic risk that has arisen since mid-2007, the Fed has greatly expanded its role as lender of last resort. The Fed has expanded its existing discount window operations and created an alphabet soup of new lending facilities to help the credit markets function more effectively. Some of these actions required the Fed to invoke a special provision of the Federal Reserve Act — referred to as Section 13(3)— that gives the Fed the authority to lend to any individual, partnership, or corporation in "unusual and exigent circumstances." In the case of both discount window and 13(3) lending, the law requires that the Fed lend only against good collateral. This tends to limit our lending to solvent but illiquid institutions and would generally prohibit Fed lending to keep insolvent institutions from failing.

During this financial crisis, we have made loans to primary securities dealers, investment banks, a global insurance company, and to industrial and financial companies that issue commercial paper. These lending arrangements have been for terms of as long as 90 days in general, but even as long as 10 years in the case of the financing provided in the Bear Stearns acquisition. Yet we have not articulated guidelines that govern these decisions.

I believe we must develop much clearer criteria under which the Fed will lend to banks or nonbank financial institutions, because the lack of clarity about the purposes of our lending programs and their criteria has added uncertainty and volatility to the markets. We need to clarify under what circumstances, if any, the Fed would lend to insolvent institutions, how insolvency would be determined, and what types of limits, if any, would apply to such lending.

I believe the Fed also needs to impose some order on the application of its Section 13(3) authority. The mere act of creating the Fed's special lending programs has created moral hazard. Intervening too often or expanding too broadly the set of institutions that have access to the central bank's credit facilities can distort the market mechanism for allocating credit and thereby increase the probability and severity of a future financial crisis. Clarifying the criteria under which we will intervene in markets or extend credit, including defining what constitutes "unusual and exigent" circumstances, will be essential if we are to mitigate the moral hazard we have created.

Clear objectives, a systematic approach, and transparency could improve policymaking and policy outcomes for our lending and credit facilities and reduce uncertainty and volatility in the marketplace.

► **The Problem of Too-Big-to-Fail**

While the lender of last resort function is certainly meant

to support solvent banks in the event of systemic risks, the current crisis has shown that insolvent institutions that have become too big or too interconnected to fail can pose serious problems for financial stability and for regulators. Due to the complexity and interconnectivity of today's financial markets, problems with one financial institution can spill over to a broad array of other major counterparties. Such contagion may severely disrupt other institutions, their customers, and other markets, thereby posing a threat to the integrity of the entire financial system, ultimately leading to a breakdown of borrowing and lending.

We have also seen that market discipline breaks down when creditors and counterparties believe they are never at risk. The belief that regulators will bail out creditors creates moral hazard that leads to poor risk-taking decisions and undermines the incentives for creditors to monitor these firms. Moreover, it creates incentives for financial firms to become too large or too complex to fail in order to exploit the implicit government guarantees.

At times during the past year, regulators faced the unpalatable choice of either permitting a large financial firm to enter bankruptcy without an adequate resolution mechanism to deal with systemic risks or taking unprecedented actions to preserve the firm to avoid perceived costly disruptions to the financial system. These decisions were complicated by the lack of an up-to-date lending policy that could have allowed the Fed to lend to otherwise solvent counterparties of these failing firms, which might have limited the systemic concerns.

Because the old "rules of the game" were out of date, we had to improvise. Indeed, the financial problems at Bear Stearns, AIG, and Lehman Brothers elicited different responses. But uncertainty about how regulators would handle the next nonbank financial failure added to the stress in the markets.

So what can be done to address the problems posed by insolvent or failing systemically important institutions? I believe we can alleviate much of the uncertainty by following the four principles I've discussed to establish clearer, more predictable procedures for dealing with such situations.

One wrong-headed approach would be to erect a battery of new regulatory restrictions in an attempt to drive the probability of failure to zero. Such an approach would generate large supervisory costs, stifle innovation, and result in regulatory arbitrage as markets worked to evade the regulations. Such regulatory arbitrage was a contributor to the current financial crisis.

So rather than trying to eliminate the risk of failure, the objective should be to reduce the systemic costs of failures, which would enable regulators to allow firms to fail when appropriate. Market participants, believing such failures are possible, would exercise greater market discipline and help prevent financial firms from getting into trouble in the first place.

We must begin with a clear quantifiable definition of systemic risk. Economists have been working on several practical methods for measuring systemic risk.⁸ Our goal should not be to find one all-encompassing measure but to develop a menu of useful indicators to guide regulators' attention to evolving problems.

Once we arrive at a clear definition of systemic risk and agree that the goal is to reduce the costs imposed by systemically important institutions, we must then design policies to achieve that objective. The second principle would then suggest that committing to a systematic approach for resolving failing firms that may pose systemic risk should be a critical aspect of policy. Fortunately, regulators already have a resolution procedure for systemically important commercial banks. The FDIC has the authority under FDICIA (the FDIC Improvement Act) to resolve a large bank failure by operating a bridge bank for up to five years, thereby reducing systemic disruptions as it resolves the bank's problems. The bridge-bank authority requires the FDIC to pursue the least cost resolution once systemic risks have receded. This means that common shareholders lose their investments. Uninsured creditors receive imposed haircuts based on historical recoveries. These payments help mitigate the threat of a run, reduce the costs of failure for the bank's claimants, and impose market discipline.

Thus, a reasonable resolution regime for nonbank financial institutions could easily be modeled on the FDIC's bridge-bank approach. Such a resolution procedure should address some of the shortcomings of existing bankruptcy law, which seeks to maximize the payoffs to the firm's creditors and makes no provisions for systemic considerations. We need a resolution mechanism that explicitly addresses ways to reduce financial disruptions and minimize the costs to taxpayers. As in the FDIC's bridge-bank authority, uninsured creditors could receive expedited payoffs based on historical recoveries, generally less than 100 percent, while shareholders of the failed institution would be wiped out.

This is very different from government actions taken in our current crisis, which have served to provide 100 percent protection for all creditors. While reducing the threat of a run, such a policy reduces the incentives for market discipline and increases moral hazard.

In keeping with the third principle of transparency, the resolution procedure should be communicated clearly to market participants to reduce uncertainty about how regulators will handle troubled firms. Doing so helps commit policymakers to the resolution mechanism, making it harder for them to succumb to the short-run temptation to prevent the failure of an institution deemed too big to fail. A transparent resolution mechanism that ensures an orderly unwinding of systemically important financial firms also reduces the artificial incentive for firms to grow too large and helps reduce systemic problems from

emerging in the first place.

In keeping with the fourth principle of ensuring central bank independence, I do not believe that the Fed is the appropriate institution to run, or fund, such a bridge institution. Doing so may result in serious conflicts of interest between monetary policy and the resolution of a single institution and thereby threaten the Fed's independence.

By following the four principles I have outlined, we can work toward creating an environment in which no firm is too big or too interconnected to fail. When a firm does fail, the resolution mechanism would already have been clearly defined and communicated transparently to the market, which would expect it to be systematically followed. The consequences would be to reduce uncertainty and stress in the marketplace.

We also need more systematic policies for handling financial firms whose financial condition is deteriorating. One lesson learned from the savings and loan crisis was that insolvent firms permitted to remain open make poor decisions. The regulatory forbearance that did not close insolvent institutions in a timely manner contributed to the crisis.

As part of FDICIA, regulators are now required to take prompt corrective action based on pre-specified triggers. While not perfect, prompt corrective action (PCA) constrains regulators to behave in a more systematic and predictable fashion as a bank begins to experience stress. This limits the discretionary authority and reduces opportunities for forbearance.

Consistent with the philosophy behind the prompt corrective actions of FDICIA for commercial banks, I believe systemically important nonbank financial firms should face greater regulatory oversight to reduce the probability of insolvency. Regulators could look at a variety of indicators. Information from securities markets, such as correlations among spreads on credit default swaps, can be useful. Regulators might expand the range of available market indicators by encouraging firms to issue to investors new securities designed to aggregate market estimates of systemic risks. For example, academics here at the University of Chicago, and at other institutions, have proposed using contingent capital securities or a market for insurance against capital impairment as possible supplements to regular capital requirements. The market prices of these instruments might provide regulators with useful signals of systemic and financial stress.

Armed with such signals, regulators would be able to react — indeed, should be required to react — in a more timely way to increased stress in markets or institutions, following guidelines similar to that found in FDICIA.

Elevated indicators of systemic stress could first trigger enhanced information collection and regulatory scrutiny. Signs of further stress could lead to regulatory actions, such as increased premiums, increased regulatory capital, or perhaps requirements to better insulate systemically

important segments. In these ways, firms generating systemic risk would be taxed for the externalities generated by their activities. As indicators of systemic risk rose further, they might trigger recapitalizations, as in recent proposals in which banks would be required to sell a certain amount of convertible debt to the market that would be converted into equity under well-specified conditions, providing a quick, transparent method for recapitalization. The holders of convertible debt, who face the threat that their claims would be converted into equity, would also become an additional source of market discipline. Finally, serious danger signals would trigger planning for closure or some other resolution procedure.

Although I have elaborated on the role of regulatory interventions to address systemic risk, I want to emphasize once again that regulation is not a substitute for market discipline. I have noted that regulators should monitor market indicators of stress and that convertible securities might supplement regulatory capital requirements. These are concrete examples of the complementary roles of regulatory discipline and market discipline, but they are only examples of a general approach to regulation. Regulators cannot hope to foresee and control all events. It is important that we design a regulatory structure that enhances the effectiveness of market discipline and doesn't try to replace it. The regulatory structure must recognize the central role of markets in pricing and controlling risks and in allocating credit.

► **The Role of the Fed in Financial Stability**

Finally, I would like to turn to the role of the Federal Reserve in supporting financial stability.

Chairman Bernanke has suggested that the Federal Reserve have a formal mandate to regulate systemically important payments and settlement systems. This aim is consistent with the Fed's existing mandate under the Federal Reserve Act to ensure the integrity, efficiency, and accessibility of the payment system. Of course, as I have already mentioned, determining precisely which systems are systemically important and how to regulate them requires careful consideration.

Others have suggested that the Fed become the macroprudential overseer of the stability of the entire financial system. Here, I think we should proceed with great care. We must avoid giving the Fed a mandate for financial or systemic stability that is too vague or too sweeping. We must set objectives that are both feasible and clearly defined. Otherwise, over-promising puts the central bank's credibility at risk and jeopardizes the Fed's ability to meet its other important objectives: price stability and sustainable economic growth. Instability or volatility in the general level of prices can also be a significant source of financial instability. Consequently, we must make sure that in trying to cure one source of financial instability, we do not sow the seeds of another.

Transparency is also essential to improving financial stability. An important lesson from the recent crisis is that regulators and market participants had inadequate information about large firms' exposures and their counterparties. Lack of this information made it more difficult for regulators to decide whether and how to intervene. The industry itself is already taking some steps to increase transparency. For example, private firms have recently launched data portals providing information to the public on credit default swap (CDS) transactions.

Standardization can also enhance financial stability by improving transparency. The New York Fed and the industry have been working for several years to improve the clearing and settlement arrangements for over-the-counter credit default swaps. Regulators are encouraging the establishment of central counterparty clearinghouses to handle CDS transactions. Clearinghouses and other central counterparties routinely collect information about firms' exposures as part of their monitoring mechanism and impose appropriate participation standards, including initial margin requirements and collateral requirements.

My key concern in considering the Fed's future role in ensuring financial stability involves my fourth principle: how to ensure the Fed's independence to conduct monetary policy. I have already argued that the Fed should not have responsibility for funding or managing the resolution mechanism for failing institutions. Nor should its lending policies stray into the realm of allocating credit across firms or sectors of the economy. The perception that the Federal Reserve is in the business of allocating credit is sure to generate pressure on the Fed from all sorts of interest groups. In my view, if government must intervene in allocating credit, doing so should be the responsibility of the fiscal authority rather than the central bank. That is why I welcomed the joint statement of the Treasury and the Fed on March 23, 2009 that acknowledged that in carrying out its lender of last resort responsibilities, the Fed should avoid both taking credit risk and allocating credit to narrowly defined sectors or classes of borrowers. Instead, the Fed's aim should be to improve financial or credit conditions broadly. The statement said plainly that government decisions to influence the allocation of credit are the province of the fiscal authorities.

Another point of agreement between the Treasury and the Fed in their joint statement was the need to preserve monetary stability. The Fed's lending programs have dramatically altered the types of assets on the Fed's balance sheet as well as its size. When financial markets begin to operate normally and the outlook for the economy improves, our balance sheet must contract if we are to maintain price stability. Some of the new facilities will naturally unwind once they are terminated. For example, the commercial paper lending facility only purchases commercial paper of 90 days or less.

Yet, some of the assets will not go away so quickly. For example, the Fed has begun the process of purchasing more than \$1 trillion in mortgage-backed securities, many of which will not roll off its balance sheet for years unless the Fed sells them in the marketplace. The Fed also plans to purchase a substantial amount of asset-backed securities whose maturity will be about three years and perhaps longer.

Unwinding from these lending and securities programs will not necessarily be easy. Will there be pressure from various interest groups to retain certain assets? Will there be pressure to extend some of these programs by observers who feel terminating the programs might disrupt "fragile" markets or that the economy's "headwinds" are too strong? Such pressures could threaten the Fed's independence to control its balance sheet and monetary policy. We will need to have the fortitude to make some difficult decisions about when our policies must be reversed or unwound.

By setting realistic and feasible objectives, pursuing a systematic approach to its lending policies that avoids credit allocation, and communicating its objectives and actions in a clear and transparent manner, the Fed can operate independently of these types of pressures and resist them when they arise. This will help the Fed better ensure both its ability and its credibility to maintain financial stability as well as its monetary policy objectives.

In sum, the financial crisis has underscored the need for relying on sound principles to guide policymaking. Today I've outlined four principles for sound central bank policymaking that apply not only to monetary policy but also to financial stability and regulatory policy.

In particular, I have applied those principles to three key issues that confront us as we pursue regulatory reform: articulating the central bank's role as lender of last resort, dealing with the issue of firms that are too big to fail, and determining the Federal Reserve's future role in promoting financial stability.

History tells us that crises invariably lead to regulatory reforms, and as we consider the thorny issues such reforms must address, we should beware the risks of rushing in without first agreeing to guiding principles and objectives. We must avoid "quick fixes" that may have unintended consequences, inadvertently hamper market competition or innovation, or create conditions that provide the foundation of the next crisis. Moreover, the financial industry is undergoing significant change, and what the new landscape will look like remains unclear. If we rush too quickly into reforms, we may find them ill suited to the new environment. Nevertheless, we can and should think about ways to strengthen market discipline. And while I am not convinced that simply creating more regulations will guarantee financial stability, it is clear we can have better regulation and greater stability if sound principles guide our policymakers. ♦

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