

## Daniel K Tarullo: Financial regulation in the wake of the crisis

Speech by Mr Daniel K Tarullo, Member of the Board of Governors of the US Federal Reserve System, at the Peterson Institute for International Economics, Washington DC, 8 June 2009.

*The original speech, which contains various links to the documents mentioned, can be found on the US Federal Reserve System's website.*

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As has been widely observed in recent weeks, there are signs that the rapid decline in economic activity of the past few quarters is slowing. The latest data give some reason to hope that we are approaching a bottom in economic activity and that growth will resume later this year. Yet stabilization or improvement would begin from very low levels compared with those that prevailed in recent years. Recovery may be painfully slow, and the economy will remain unusually vulnerable to new shocks. The news remains bad in two areas of direct importance to American families: Unemployment continues to rise and housing prices continue to decline.

One important reason why many observers predict only a gentle slope on the upward side of the recession curve is that, despite some progress, financial markets continue to exhibit signs of strain. Government-provided liquidity and guarantees remain as necessary supports in many areas. Because the collapse of these same markets set off the present crisis and the serious recession that has followed, the case for far-reaching reform appears a strong one.

Indeed, the leverage and interconnectedness of firms in the financial services sector, and the critical role that financial intermediaries play in modern economies, mean that a malfunction in the financial industry can immediately and profoundly harm the entire economy. For this reason, governments in the United States and in other countries have provided extensive support for certain financial firms and markets in periods of high distress. As we have seen to our dismay in the last year, even where such support is forthcoming, the resulting damage inflicted on the real economy by the financial sector can still be extensive, and the potential costs to taxpayers can still be high.

If we have learned anything from the present crisis, it is that systemic risk was very much built into our financial system. One element of systemic risk, the too-big-to-fail phenomenon, was as significant as had been argued by the likes of Gary Stern, my colleague on the Federal Open Market Committee, who warned in 2004 that the too-big-to-fail problem was "real, costly, and becoming more severe."<sup>1</sup> Moreover, as evidenced by government intervention when Bear Stearns and AIG were failing, and by the fallout from the failure of Lehman Brothers, the universe of firms that appeared too-big-to-fail during periods of stress included more than insured depository institutions and extended beyond the perimeter of traditional safety and soundness regulation.

A major reorientation of our regulatory and supervisory system is needed to address head-on the problem of systemic risk. My subject today is how we should understand and undertake the improvement of microprudential regulation and the development of macroprudential regulation. The theme I want to highlight is how, to a considerable extent, the integration of traditional lending, trading activities, and capital markets defines both of these tasks.<sup>2</sup>

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<sup>1</sup> Gary Stern & Ron Feldman (2004), *Too Big to Fail*.

<sup>2</sup> The views presented here are my own and not necessarily those of other members of the Board of Governors or the Federal Open Market Committee.

## **A recent history of financial regulation**

Systemic crises typically reveal failures across the financial system. The present situation is no exception, with fundamental problems apparent in both the private and public sectors. There was a massive breakdown of risk management and a suspension of simple common sense within many financial firms. We also witnessed serious shortcomings in government regulation of financial institutions and markets as, for example, with respect to subprime mortgages, certain securitization practices, and some uses of credit default swaps. These weaknesses were revealed as rapid and unsustainable appreciation of some asset prices – especially in residential real estate – continued for a considerable time.

But, while these failings of recent years – and the global macroeconomic imbalances within which these failings were nurtured – surely ignited and exacerbated the current crisis, the breadth and depth of the financial breakdown suggest that it has much deeper roots. In many respects, this crisis is the culmination of changes in both the organization and regulation of financial markets that began in the 1970s.

Following the banking crisis of the early 1930s, and the famous bank holiday declared by President Roosevelt soon after his inauguration, Congress enacted dramatic new measures that would define financial regulation for decades. Most important for commercial banking were creation of the Federal Deposit Insurance Corporation (FDIC) and the Glass-Steagall Act. Glass-Steagall sharply limited both the securities business of commercial banks and their affiliations with securities firms. Creation of the FDIC addressed the problem of runs and panics by insuring the bank accounts of the vast majority of Americans. With the new insurance, retail deposits became a highly stable source of relatively attractive financing for banks, supported by the 1933 statutory prohibition of interest payments on demand deposits and the Fed's Regulation Q upper limit on interest rates paid on savings deposits, which together suppressed competition for deposits among banks.

Along with preexisting strictures included in the National Banking Act and state laws, Glass-Steagall established a regulatory system that largely confined commercial banks to traditional lending activities and because of controls on branching and interstate acquisitions, to a relatively narrow geographic area. Like the later Bank Holding Company Act, Glass-Steagall was intended to help insulate banks from risks that could be transmitted from securities and other non-banking activities. This regulatory approach fostered a banking system that was, for the better part of 40 years, quite stable and reasonably profitable, though not particularly innovative in meeting the needs of depositors and borrowers.

Like much of the economy, commercial banking was buffeted by the turbulent macroeconomic developments of the 1970s, which saw the demise of the Bretton Woods exchange rate system, a serious recession, and then high levels of inflation. These forces, along with technological and business innovations, helped produce an increasingly tight squeeze on the traditional commercial banking business model. The squeeze came from both the liability side, in the form of more attractive savings vehicles such as money market funds, and from the asset side, with the growth of public capital markets and international competition.

Some banks responded to this predicament by looking for higher returns from their traditional activities through lending to new and often less creditworthy borrowers at higher interest rates – a strategy that yielded at best mixed results. Other banks responded by borrowing short and lending long – a poor strategy in a rising interest rate environment. A more common industry response was to seek removal or relaxation of the regulations that confined the activities, affiliations, and geographic reach of banks. While they differed with banks on some important particulars, supervisors were sympathetic to this industry request, in part because of the potential threat to the viability of the traditional commercial banking system.

The period of relative legal and industry stability that had followed the 1933 legislation thus gave way, beginning in the 1970s, to a nearly 30-year period during which many prevailing restrictions on banks were relaxed. A good number were loosened through administrative

action by the banking agencies, but there were regular and important statutory measures heading in the same direction. This legislative trend culminated in the Gramm-Leach-Bliley Act of 1999, which consolidated and extended the administrative changes that had allowed more extensive affiliations of commercial banks with investment banks, broker-dealers, merchant banks, and other financial firms.

By the turn of the century, then, the Depression-era cluster of restrictions on commercial banks had been substantially loosened. Banks could operate nationally, had few practical restrictions on their ability to pay competitive deposit rates, could conduct a much broader range of activities within their own operations, and could affiliate with virtually any kind of financial firm. Meanwhile, of course, financial engineering had been rapidly changing the character of the financial services sector as a whole. Securitization and associated derivative instruments were merging capital markets and traditional lending activities, fueling the growth of what has become known as the shadow banking system. As a result, both the asset mix and sources of funding of many banks were shifting, sometimes dramatically. Various larger banks were also becoming involved, either directly or through their affiliates, in the full range of activities associated with securitization – including sponsoring and administering special purpose vehicles used in the securitization process.

Perhaps because the removal of activities and affiliation restrictions occurred in stages, rather than in a single legislative or administrative action, there was no announced new regulatory emphasis to address the changed industry. In practice, however, regulators relied increasingly on capital requirements, accounting rules, and to a lesser extent, limits on bank transactions with their corporate affiliates, to promote the safety and soundness of banking organizations.

Although they had long used bank capital ratios as a supervisory tool, U.S. bank regulators did not impose explicit minimum capital requirements until the 1980s. In the ensuing quarter century, the attention of banking regulators has been heavily oriented toward elaborating capital requirements to reflect more precisely the particular risks faced by a financial institution – first through the Basel I process and more recently through the lengthier and more complex Basel II process. The emphasis on capital measures was reinforced when, following the savings and loan calamity, Congress instructed federal banking agencies to use declining capital ratios as the trigger for "prompt, corrective" remedial action that was intended to constrain regulatory forbearance.

The proximate reason for the move towards capital requirements in the early 1980s was regulator concern about the decline in capital ratios of the largest banks – a concern reinforced by Congress, as it saw some of those large banks facing enormous losses on their loans to foreign countries. At the same time, however, regulators were coming to regard capital requirements as a supple prudential tool. As activity and, eventually, affiliation restrictions were loosened, capital requirements seemed a promising way to provide a buffer against bank losses from *any* activities in which the bank or its affiliates might engage. Support also developed for the proposition that minimum capital levels could, by maintaining a material equity value for the bank, serve as a disincentive for excessive risk-taking by management and shareholders.

As the activities and affiliations of banks became increasingly complex, regulators also relied more on focused supervisory attention to the specific risks of each institution. Similarly, they demanded that banks enhance their own internal risk-management systems. As with capital requirements, regulators reasoned that a good risk-management system could effectively promote bank stability in the face of quickly changing bank activities. The two regulatory trends – seeking greater risk-sensitivity in capital requirements and greater effectiveness of internal risk-management systems – came together in Basel II's advanced internal ratings-based approach to capital regulation.

Thus, at the onset of the current crisis, the financial regulatory system had accommodated the growth of capital market alternatives to traditional financing by relaxing some restrictions

on bank activities and virtually all restrictions on affiliations between banks and non-bank financial firms. In place of the superseded restrictions were capital requirements focused on credit and market risk, along with a greater emphasis on supervision and risk management, especially at larger firms. These legal changes facilitated a wave of mergers and acquisitions that created a number of very large, highly complex financial holding companies centered on a large commercial bank. These were subject to prudential regulation. At the same time, there was a group of very large, significantly leveraged "free-standing" investment banks whose market practices were regulated by securities laws, but were not subject to prudential regulation.

### **The imperative of regulatory reorientation**

There were, of course, many ways in which this financial regulatory system fell short of the objectives of maintaining stability in the financial system. Any one explanation inevitably oversimplifies what was a complex and long-developing set of vulnerabilities. However, as I have earlier suggested, I believe an analysis can be profitably organized around the premise that the regulatory system did not come close to adequately accounting for the impact of trading and capital market activities on both traditional banking and systemic risk. This basic point was manifest in three important deficiencies of the prevailing regime: the shortcomings of microprudential regulation, the "boundary" problem, and the relatively undeveloped nature of a macroprudential complement to conventional financial regulation.

At the microprudential level, although an intense focus on refining capital requirements for credit risk had certainly led to the increased risk-sensitivity of those requirements and, more recently, to advances in internal risk management, it came at the expense of attention to other risks. In particular, there was insufficient appreciation of the implications of the growth of the shadow banking system for the balance sheets of commercial banks, not to mention other financial firms. Capital requirements for asset-backed securities were clearly inadequate, based as they were on a 10-day trading horizon and with insufficient attention to the credit risks inherent in these traded instruments. On the other side of the balance sheet, insufficient action was taken to address the considerable liquidity risks for the many firms that depended on the wholesale funding provided by securitization, commercial paper issuance, and other sources – funding that was often poorly matched to the maturity of the firm's assets.

More generally, bank holding company supervision was principally focused on protecting the commercial bank within the holding company. There was probably too little attention to the risks faced, and created, by the entire holding company, including the affiliates principally involved in trading and other capital market activities. This weakness may be explained in part by the supervisory approach embedded in the Gramm-Leach-Bliley Act. By dividing supervisory authority for holding company affiliates among a number of supervisors based on their charter or activity, that law elevated the concept of "functional regulation" to the potential detriment of a more effective form of consolidated supervision. But it was also the case that not enough supervisory scrutiny was given to the risks associated with securitization, the common exposures of different affiliates, and the implications of the massive growth of off-balance-sheet assets for safety and soundness. Indeed, supervisors sometimes seemed themselves to underappreciate the importance of reputational risk, which to some degree undermined the entire concept of an off-balance-sheet asset.

The boundary problem is simply stated: Systemic risk concerns, including too-big-to-fail issues, extended beyond bank holding companies to firms that were unregulated, at least for safety and soundness purposes. Indeed, a dramatic development of the crisis was the series of runs on nondepository financial institutions. A combination of leverage, extensive counterparty relationships, and dependence upon asset sales for liquidity made such institutions both vulnerable to a wholesale funding run and a threat to the entire system.

One of the many striking consequences of the crisis for the U.S. financial system is that none of the five large, free-standing investment banks that existed in 2007 remains so today. Lehman, of course, declared bankruptcy. Two have been absorbed into existing bank holding companies, and the remaining two have been converted into new bank holding companies, which made them eligible for emergency government liquidity and guaranty assistance. In effect, then, government assistance has been available ex post to protect the counterparties of four of the five firms. Yet none was subject to a statutory ex ante framework for prudential regulation.

Solving the boundary problem alone will not counterbalance contemporary sources of systemic risk. The rapid development of market-based financial intermediation has also highlighted the need for a macroprudential regulatory approach to complement more conventional prudential supervision. Of course, systemic risk and the associated problem of too-big-to-fail have long concerned financial regulators. Traditionally, though, systemic risk was thought to rest in the potential for the failure of one bank to produce depositor panic that infected other, solvent banks, or for the failure of one large bank to bring down counterparties that were dependent upon payments from the first institution. Federal deposit insurance addressed the first source of systemic risk. The second risk was offset by regulations designed to ensure the solvency of each bank and by the potential availability of liquidity from the Federal Reserve in its role as lender of last resort.

The metaphor frequently invoked in thinking about systemic risk was a row of dominoes. If one bank fell – either becoming illiquid because of a deposit run, or insolvent because of severe losses – then the whole row might be toppled. A limited version of this dynamic occurred in the mid-1980s when Continental Illinois Bank, systemically important because so many other banks held deposits in it, had to be rescued by the FDIC after a foreign depositor run that followed heavy losses. For the last quarter century, however, the near misses in our financial system have originated not from this classic pattern, but from outside the commercial banking system.

The new market-based liquidity problems arose from sudden sharp movements in asset prices that led to enormous market uncertainty concerning the values of those assets. As now liquidity-strained institutions made increasingly distressed asset sales, they placed further downward pressure on asset prices, leading to margin calls for leveraged actors and mark-to-market losses for all holders of the assets. Since multiple firms were relying on similar marketable assets as a ready source of liquidity, extreme price declines could ensue, engendering a negative feedback loop that, if unchecked, would threaten the solvency of firms operating on the assumption of liquidity through asset sales or borrowings secured by such assets.

In the cases of the 1987 stock market crash and the 1998 implosion of Long Term Capital Management, the damage was contained by quick emergency actions initiated by the Federal Reserve. By 2007, unfortunately, the now familiar perils of poorly underwritten asset-backed securities, liquidity strategies based on asset prices, and high leverage had pervaded the financial system. Systemic risk arose not because the illiquidity or insolvency of one firm would directly bring down another, but because of parallel hedging or funding strategies practiced by highly leveraged firms with substantial short-term liabilities that threatened large segments of the market.

This "interplay of complexity and tight coupling"<sup>3</sup> in funding practices poses a fundamentally different set of hazards from those conjured up by the image of a row of dominoes. The more apt metaphor is of a dense network whose connections are often obscure to many participants, in which the risk is not simply of counterparty exposure, but of the potential for liquidity problems at a firm with which they have no relationship to affect their own balance

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<sup>3</sup> Richard Bookstaber (2007), *Demon of Our Own Design* at 145.

sheets and liquidity positions. The characteristics of this market-based liquidity system have been explicated by commentators writing from both biographical<sup>4</sup> and theoretical<sup>5</sup> perspectives. Although some regulatory attention was devoted to these risks following the earlier-mentioned market events, there is clearly the need for a comprehensive approach to analyzing and, where appropriate, taking action to address them.

### **Framing a post-crisis regulatory program**

How, then, should we respond to the shortcomings of the current financial regulatory system, shortcomings so plainly highlighted by the most serious financial crisis experienced by our country since the Depression? Let me state at the outset that I do not believe the answer lies in an effort to recreate the regulatory system of the 1960s. Capital market developments of the last several decades are not going to be fundamentally reversed, nor should we want them to be. Reform by nostalgia is not usually an effective approach, since it tends to forget the problems of the past and deny how much has changed. The task is to refashion a regulatory structure so as to encourage the efficient allocation of capital to productive uses, while protecting the financial system from the defects and excesses that are inherent in financial markets.

For those of us at the regulatory agencies, I believe there should be a three-part response:

- first, the agencies should adjust their policies and practices in light of the lessons learned from examination of past shortcomings or of new problems revealed by the crisis;
- second, we should contribute to the discussion of possible Congressional initiatives that could provide useful new legislative authorities to help contain systemic risk and the problem posed by institutions that are too-big-to-fail; and
- third, we should be developing ideas and proposals that are not appropriate for adoption now – and, indeed, may never be – but are worthy of consideration to inform the debate on policy alternatives.

As to internal policies and practices under existing authority, before I arrived at the Board, the Federal Reserve had undertaken a systematic review of supervisory practices in the pre-crisis period. That process is yielding a variety of lessons, which will be implemented to improve the process of consolidated supervision. At the same time, because even the highest quality supervision has its limits, particularly in the oversight of large, complex institutions, it is important to attend to other regulatory tools. The three pillars of rules, supervision, and market discipline laid out in the Basel II capital framework should be the foundation for regulation of financial institutions more generally.

With respect to applicable rules, a parallel Board process of examining current regulations has already led to numerous initiatives, many in conjunction with our fellow American regulators and the foreign regulators in the Basel Committee on Banking Supervision. Some of the more important of these initiatives include upgrading the quality of capital held by regulated institutions, overhauling the capital requirements applicable to market risk, and assessing the various ways in which regulation has had an undesirable pro-cyclical effect. While it is clear that improved capital regulation alone would not have prevented the financial crisis, it is equally clear that large financial institutions should have been required to hold higher levels of capital in the pre-crisis period.

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<sup>4</sup> Bookstaber, op cit.

<sup>5</sup> Stephen Morris & Hyun Song Shin (2008), "Financial Regulation in a System Context," *Brookings Papers on Economy Activity*; Markus Brunnermeier et al. (2009), *The Fundamental Principles of Financial Regulation*.

There is one further point that is important to make on the topic of minimum capital requirements and indeed of all rules in prudential regulation. A rule that looks on paper to be a good approach to a regulatory concern can sometimes turn out not to be so in practice. Rules will not serve their purpose if they cannot be implemented correctly by firms or monitored and enforced adequately by regulators.

The central role of liquidity problems in fomenting the crisis also suggests the need for considerable attention to ensuring that firms have adequate liquidity risk-management practices. While the most serious liquidity problems occurred outside traditional commercial bank lending and borrowing activities, the crisis revealed significant fragilities in financial institutions' extensive use of short-term repurchase agreements and reverse repurchase agreements to finance large portions of dealer inventory and trading positions. The resulting pressures in the tri-party repo market reveal why liquidity concerns must be addressed at both the firm-specific and system levels.

Market discipline has at times been proposed as the principal means either to ensure the stability of financial institutions or to counter too-big-to-fail concerns. This has always seemed to me an interesting intellectual position, but a quite impractical one. The opaqueness of complex financial institutions is unlikely ever to be fully penetrated, and market analysts can share misperceptions of risk with those inside financial institutions. As the U.K. Financial Services Authority has pointed out, credit risk spreads for major financial institutions in the spring of 2007 suggested that bank riskiness was at historically low levels, despite the imminence of major problems.<sup>6</sup>

Yet one need not subscribe to an exaggerated view of the potential of market discipline in order to believe that there is considerable room for progress in enhancing the transparency of financial firm operations so as to permit better market monitoring. Indeed, the relatively short shrift given to disclosure requirements in the Basel II process reminds us how supervisors can at times place excessive trust in their own capacities to identify risks and evaluate risk-management capacities.

A different kind of market, or at least non-government, discipline should be fostered in the internal corporate policies of financial institutions. Adequate management oversight of firm operations and board of director oversight of management are as important to prudential regulatory policy as they are to corporate law. Similarly, compensation systems that incentivize employees to take actions that entail excessive risk in light of expected returns and costs can also have adverse effects on firm safety and soundness. While there is reason to proceed carefully in this area, there is a real need for additional supervisory action to strengthen previous guidance on compensation. The Board is currently developing proposals that will help ensure that compensation systems take appropriate account of the riskiness of the firm's activities as well as the firm's financial performance.

Finally, we are augmenting our supervisory approach for bank holding companies to include a more explicitly systemic perspective. "Horizontal reviews" of risks, risk management, and other practices across multiple financial firms can help identify both common trends and firm-specific weaknesses. The recently completed Supervisory Capital Assessment Program (SCAP) of the nation's 19 largest bank holding companies both confirmed and advanced the utility of this supervisory technique. Use of a uniform set of supervisory stress parameters facilitated more precise identification of institution-specific strengths and weaknesses in both risk and risk-management capacities. Although the SCAP was an unprecedented exercise in an unprecedented situation, some lessons learned from our conduct of the exercise will be incorporated into more routine supervisory practice.

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<sup>6</sup> Financial Services Authority of the United Kingdom (2009), *The Turner Review: A Regulatory Response to the Global Banking Crisis* at 46.

More broadly, a systemic risk perspective requires that the Board conduct more closely coordinated supervision of major bank holding companies. This is the direction in which we will be moving – with more extensive, regular integration of Board staff into the ongoing supervisory activities of Reserve Bank staff, as well as greater emphasis upon common approaches to monitoring and supervising large institutions.

As to a desirable legislative agenda, Chairman Bernanke has recently discussed the Board's views,<sup>7</sup> and I testified on the subject before the Senate Banking Committee in March.<sup>8</sup> So, as important as this second piece of a post-crisis regulatory agenda is, I will not fully discuss it this afternoon. Let me instead review in summary fashion what we regard as the key components of a legislative agenda to contain systemic risk.

First, there should be a statutory requirement for consolidated supervision of all systemically important financial firms – not just those affiliated with an insured bank as provided for under the Bank Holding Company Act of 1956 (BHC Act). A robust, consolidated supervisory framework, like the one embodied in the BHC Act, provides a supervisor with the tools it needs to understand, monitor and, when appropriate, restrain the risks associated with an organization's consolidated or group-wide activities. While the changes in the status of the formerly free-standing investment banks have removed one important set of firms that fell outside the boundary of prudential regulation, there will surely be other such systemically important firms in the future. Moreover, it is important to foreclose the possibility that firms might move into BHC status during periods of financial stress and reverse that status in order to escape regulation in calmer times.

Second, there should be a resolution regime for systemically important non-bank institutions to complement the current regime for banks under the Federal Deposit Insurance Act. In most cases, federal bankruptcy laws provide an appropriate framework for the resolution of nonbank financial institutions. However, this framework does not sufficiently protect the public's strong interest in ensuring the orderly resolution of nondepository financial institutions when a failure would pose substantial systemic risks. The absence of such a regime leaves government authorities without a third alternative to the potentially unattractive options of uncontrolled bankruptcy or broad government assistance. The resolution regime is thus an important piece in an agenda to address the too-big-to-fail problem.

Third, there should be clear authority for special regulatory standards – such as for capital, liquidity, and risk-management practices – applicable to systemically important firms. The contribution of these firms to the aggregate level of risk within the financial system and the huge negative externalities that would be produced by the failure of any one of these firms provide powerful arguments for such standards. If there is more than one consolidated supervisor of the universe of systemically important firms, it would be important to designate a single agency to enact these standards, perhaps after consultation with the others.

Fourth, there should be an explicit statutory requirement for analysis of the stability of the U.S. financial system. Given the difficulties in identifying with precision latent systemic risks, and in distinguishing such risks from more benign market developments, it would seem wise to involve multiple agencies in this analytic and reporting effort, perhaps as a designated subgroup of the President's Working Group on Financial Markets. Congress might also want to require this group to issue periodic reports on the stability of the U.S. financial system, in order to disseminate its own views and elicit the considered views of observers outside the government.

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<sup>7</sup> Ben S. Bernanke (2009), "Lessons of the Financial Crisis for Banking Supervision," speech delivered at the Federal Reserve Bank of Chicago Conference on Bank Structure and Competition, Chicago, May 7.

<sup>8</sup> Daniel K. Tarullo (2009), "Modernizing Bank Supervision and Regulation," before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, Washington, D.C., Washington, March 19.



Fifth, additional statutory authority is needed to address the potential for systemic risk in payment and settlement systems. Payment and settlement systems are the foundation of our financial infrastructure. Financial institutions and markets depend upon the smooth functioning of these systems and their ability to manage counterparty and settlement risks effectively. Thus if a system is not well-designed and able to manage the risks arising from participant defaults or operational disruptions, significant liquidity or credit problems could result. Currently, the Federal Reserve relies on a patchwork of authorities, largely derived from our role as a banking supervisor, to help ensure that critical payment and settlement systems have the necessary procedures and controls in place to manage their risks. By contrast, many major central banks around the world have an explicit statutory basis for their oversight of these systems.

While these five elements of a legislative program are by no means the only areas worthy of consideration in the near term, we believe they would provide a sound statutory basis for approaching the task of limiting the frequency and severity of systemic problems. But we must all admit that we cannot know for certain if the regulatory, supervisory, and statutory changes I have already suggested will be an adequate program for containing systemic risk. If, as I believe, it is critical that systemic risk and too-big-to-fail problems be substantially reduced, the test for any regulatory reforms must be whether they accomplish this goal, not simply whether they are useful supplemental measures. Thus the third task for regulatory agencies is to think now about other possibilities, even as we work to implement this well-considered agenda.

Some options relate closely to the direction in which we are already headed. There has already been interesting thinking about developing rules for capital or liquidity requirements that are calibrated to the degree of interconnectedness of an institution to the financial system as a whole. Such a metric, if workably accurate and administratively feasible, would be preferable to, for example, simply imposing a kind of capital requirement surcharge on systemically important institutions.

Other options extend existing regulatory approaches. One example is the proposal, offered by several commentators, for a requirement that financial institutions issue specified amounts of reverse convertible debentures, or similar capital instruments, to serve as a capital buffer in times of stress. Like the long-standing proposals for mandatory subordinated debt, this proposal is one that can be usefully discussed as either a complement to, or partial substitute for, existing capital rules. Another example is the idea that certain short-term wholesale funding channels might be guaranteed, perhaps in connection with specific forms of securitization activities, in exchange for an insurance premium and regulatory requirements.

Finally, there are some options that are considerably more dramatic. Proposals to limit the size (or interconnectedness) of financial institutions would represent a historic break with how we have regulated the financial system.<sup>9</sup> For that reason alone, as well as the potentially enormous consequences of such measures, this is not an idea that should be advanced lightly. However, if one accepts the basic premise that our financial system will remain healthy only if the too-big-to-fail problem is addressed in a muscular way, this kind of idea has at least heuristic value in making us think hard about the degree to which the regulatory path we set for ourselves is leading to the proper destination of greater financial stability.

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<sup>9</sup> The statutory prohibition upon interstate acquisitions that would result in a commercial bank and its affiliates holding more than 10 percent of insured deposits in the United States is the closest instance of this approach in current law. See 12 U.S.C. § 1842(d).

## **Conclusion**

I have noted the observation of a number of thoughtful commentators that, given the continuing difficulties in credit markets, we need not rush to reform our regulatory system. While I certainly agree with the propositions that we are unlikely to see widespread financial excesses in the near term and that we must get reform right, I believe it is essential to move forward now. History shows that opportunities for real reform are often short-lived. Momentum can too easily be lost, and the return of better times too easily leads to complacency. If we are to spare the next generation the pain and loss caused by a financial crisis, we must not only learn lessons. We must act on them.