

Daniel K Tarullo: Financial stability regulation

Speech by Mr Daniel K Tarullo, Member of the Board of Governors of the Federal Reserve System, at the Distinguished Jurist Lecture, University of Pennsylvania Law School, Philadelphia, Pennsylvania, 10 October 2012.

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As one would expect of a piece of legislation that has sixteen titles and runs 849 pages in the Statutes at Large, the Dodd-Frank Wall Street Reform and Consumer Protection Act ranges widely in addressing problems both directly and indirectly associated with the financial crisis. Taken as a whole, though, the primary aim of those 849 pages can fairly be read as a reorientation of financial regulation towards safeguarding “financial stability” through the containment of “systemic risk,” phrases that both recur dozens of times throughout the statute. The law, explicitly in many provisions and implicitly in many others, directs the bank regulatory agencies to broaden their focus beyond the soundness of individual banking institutions, and the market regulatory agencies to move beyond their traditional focus on transaction-based investor protection.

This emphasis on financial stability and systemic risk is hardly surprising in light of the damage done by the financial crisis and the ensuing Great Recession, from which we continue to recover only slowly. Indeed, concern about financial stability and systemic risk has at times been a crucial impetus for financial reform in the United States. Much of the New Deal legislation that defined the financial regulatory structure for more than 40 years was in direct response to what we would today call systemic concerns, including banking panics and excessive leverage in equity markets. Twenty years before the New Deal, the creation of the Federal Reserve had been intended at least as much as a financial stability measure as an instrument of monetary policy.

But seen in the light of more recent history, Dodd-Frank represents something of an about-face for financial regulation, which had largely neglected systemic concerns in the decades preceding the crisis. Even the Sarbanes-Oxley Act of 2002, while far-reaching in many respects, was very much a traditional piece of securities legislation insofar as it focused on investor protection. Banking law reforms enacted after the 1980s savings and loan debacle had traces of concern with financial stability, but the emphasis was still on the regulation of individual depository institutions. Most other banking law changes of the 1980s and 1990s, culminating in the Gramm-Leach-Bliley Act in 1999, were essentially deregulatory.¹ These laws, along with the administrative actions that both preceded and implemented them, removed many restrictions on activities, affiliations, and the geographic reach of commercial banks without substituting new regulatory mechanisms to control the institution-specific risks that could arise from the growth of financial services conglomerates, much less the systemic risks created by the rapid integration of capital markets and traditional lending activities.² The major regulatory initiative of this period was the Basel II package of changes to capital requirements, an exercise whose shortcomings included an enhancement, rather than diminution, of regulatory incentive for procyclicality in bank lending, and thus could arguably *increase* systemic risk.

¹ For example, the Garn-St. Germain Act of 1982, P.L. 97–320; 96 Stat. 1469, authorized banks to offer a deposit account with deregulated interest rates, and the Riegle-Neal Interstate Banking & Branching Efficiency Act of 1994, P.L. 103–328; 108 Stat. 2338, substantially liberalized restrictions on interstate banking.

² Section 108 of Gramm-Leach-Bliley did mention financial stability, but in the context of requiring a study of potential subordinated debt requirements for large insured depository institutions and bank holding companies whose failure could adversely affect financial stability.

By the time financial stress began rising rapidly in the second half of 2007, systemic risk and financial instability had come to seem more theoretical than real to many regulators, academics, and financial market participants. There had been little in the way of Congressional discussion of systemic risk issues, and little in the way of well-developed recommendations. To be sure, some academics – mostly finance professors – and a few intrepid, heterodox voices among central bank research staffs identified risks that might be building and, in general terms, the need for macroprudential regulation to complement traditional microprudential oversight. But even they tended more to diagnosis and warning than to prescription. Thus, although major regulatory legislation is often preceded by long periods during which key ideas and proposals are circulated and discussed, Congress was writing on a mostly blank slate in crafting an immediate legislative response to the financial crisis.

The necessarily somewhat extemporized character of Dodd-Frank has had several consequences for the development of financial stability regulation. First, many of the new authorities and requirements of Dodd-Frank require extensive elaboration through administrative rulemaking, often coordinated or agreed among three or more agencies. Second, as I will explain in a moment, the provisions of the law that use the concept of risk to financial stability as a directly applicable legal standard provide only general guidance for regulators in applying that standard. This is not unusual for statutes in new areas of regulation, but it still poses a challenge for regulators, particularly in the early stages of implementation or enforcement. Third, broad as Dodd-Frank is in some respects, it does not grant direct regulatory authority in some areas that academic and agency analysis suggests may pose systemic risk. Finally, the law made important institutional changes, creating novel governmental entities specifically designed to address financial stability, and binding existing agencies more closely together in their rulemaking and supervisory activities. The relationships among existing agencies and the evolving practice of these new entities may in turn pose some novel practical and administrative law issues.

My remarks this afternoon address some aspects of the job of creating a financial stability regulatory system in light of these features of Dodd-Frank and of the fact that theories of financial stability that might inform the fashioning of this system are in many respects still undeveloped or, at the least, contested. I will begin with a brief survey of Dodd-Frank's financial stability provisions before turning to a few examples.

Dodd-Frank as a statutory framework for financial stability regulation

Dodd-Frank creates a legal and institutional framework within which financial stability regulation is to be developed but, with a couple of notable exceptions, it does not delineate the steps that should actually be taken to promote financial stability. A useful point of comparison is the Banking Act of 1933, which did not use the terms “financial stability” or “systemic risk,” but which specified the Glass-Steagall rule separating commercial from investment banking, limited transactions of banks with their affiliates, and established the federal deposit insurance system to prevent banking runs and panics. While statutory modifications and considerable administrative implementation of course followed over the years, the key elements of the regulatory scheme for financial stability were contained within the original legislation itself.

In contrast, there are relatively few Dodd-Frank provisions that more or less directly affect the policy changes intended to reduce risks to financial stability. Even the so-called Volcker Rule, which prohibits proprietary trading by banks, bank holding companies, and their affiliates,³ will require considerable regulatory build-out before its constraints will be clear. Provisions that require only modest administrative interpretation, such as the limit on acquisitions that

³ DFA § 619.

would bring a financial firm's consolidated liabilities to more than 10 percent of the aggregate consolidated liabilities of all financial companies,⁴ are not central elements of the legislation. At the risk of some oversimplification, one can classify most uses of the financial stability concept in Dodd-Frank into four categories: (1) as a goal for a new regulatory authority, (2) as an instruction for ongoing analysis and monitoring, (3) as a direct legal standard, and (4) as a factor for consideration in decisions on applications for various proposed actions subject to regulatory approval.

First, financial stability is used as a stated goal motivating a new regulatory or supervisory authority without itself being the standard used in the realization of that authority. For example, Dodd-Frank reverses the restrictions that Gramm-Leach-Bliley placed on the powers of the Federal Reserve Board to examine subsidiaries of bank holding companies regulated by other agencies by referring explicitly to the Board's need to be informed of risks within the subsidiaries that may "pose a threat to . . . the stability of the financial system of the United States."⁵ Another example is section 165, which requires that the Federal Reserve establish a special set of prudential requirements for bank holding companies with more than \$50 billion in assets in order to "prevent or mitigate risks to the financial stability of the United States that could arise from the material financial distress or failure, or ongoing activities of large, international financial institutions." Similarly, the far-reaching requirement in Title VII that five federal financial regulators establish margin requirements for uncleared swaps written by swap dealers and other major market participants is intended to "offset the greater risk to the [dealers] and the financial system arising from the use of [uncleared] swaps."⁶

Second, Dodd-Frank takes a number of steps to enhance the capacity of the government to monitor and analyze threats to financial stability. Most prominent among these are the creation of the Financial Stability Oversight Council (FSOC) and the Office of Financial Research (OFR).⁷ The FSOC is composed of ten voting and five nonvoting members – the heads of relevant federal offices and regulatory agencies, and three representatives of state financial regulators.⁸ As I will discuss in a moment, the FSOC as a collective entity has a limited, though important, direct regulatory role. Much of its time, however, will be spent fulfilling its mandate from Congress to assess risks to financial stability, including – where appropriate – making recommendations for action to agencies under existing regulatory authority or to Congress to fill gaps in existing authority in response to identified systemic risks.⁹ The stated purpose of OFR is to support the FSOC and its member agencies through research, the collection and standardization of data, the development of tools for measuring

⁴ DFA § 622, adding Section 14 to the Bank Holding Company Act of 1956 (12 U.S.C. 1841 et seq.).

⁵ DFA §604(b), amending §5(c)(2) of the Banking Holding Company Act.

⁶ Section 731, amending Commodities Exchange Act by adding new Section 4s – this is §4s(e)(3)(A).

⁷ Others include the authority granted the SEC to require reporting of certain information by hedge funds (§ 404) and the creation of a new Federal Insurance Office, which is charged with "identifying issues or gaps in the regulation of insurance that could contribute to a systemic crisis in the insurance industry or the United States financial system." 31 USC 313 (c)(1)(A), as added by DFA §502.

⁸ There are ten voting members and five non-voting members. The voting members are the Secretary of the Treasury, who serves as the Chairperson of the FSOC; the Chairman of the Board of Governors of the Federal Reserve System; the Comptroller of the Currency; the Director of the Consumer Financial Protection Bureau; the Chairman of the Securities and Exchange Commission; the Chairperson of the Federal Deposit Insurance Corporation; the Chairperson of the Commodity Futures Trading Commission; the Director of the Federal Housing Finance Agency; the Chairman of the National Credit Union Administration Board; and an independent member with insurance expertise. The non-voting members are the Director of the OFR, the Director of the Federal Insurance Office, a state insurance commissioner selected by the state insurance commissioners, a state banking supervisor chosen by the state banking supervisors, and a state securities commissioner designated by the state securities supervisors.

⁹ DFA §120. The FSOC is also required to issue an annual report to Congress assessing the impact of market and regulatory developments on, and threats to, the financial stability of the United States. DFA§ 112(a)(2)(N).

and monitoring risk, and related activities.¹⁰ FSOC and OFR are each also required to make an annual report to Congress on financial stability.¹¹

The third use of financial stability in Dodd-Frank is as a direct legal standard for the exercise of a regulatory authority, as opposed to my first category of Dodd-Frank provisions, which simply cite financial stability concerns as a motivation for a regulatory or supervisory program. To date, the most conspicuous of this type of provision have been the authorities granted the FSOC to designate nonbank financial companies and financial market utilities as “systemically important.” The first of these authorities is directed at financial firms that are not bank holding companies, and thus not subject to capital requirements and other parts of the holding company regulatory regime. This authority is a direct response to experience in the financial crisis. During 2008, serious problems at AIG and the five so-called “free-standing” investment banks – that is, firms not part of a bank holding company – contributed substantially to the severe stress in the financial system, with the failure of Lehman Brothers in September igniting the most acute phase of the crisis.

The standard to be applied by the FSOC is whether “material financial distress at the U.S. nonbank financial company, or the nature, scope, size, scale, concentration, interconnectedness, or mix of the activities of the U.S. nonbank financial company, could pose a threat to the financial stability of the United States.”¹² There follows a lengthy list of “considerations” to be taken into account by the FSOC. However, particularly insofar as the last of these is “any other risk-related factors that the Council deems appropriate,”¹³ the list does not provide extensive guidance for the FSOC in applying the basic standard. Any companies so designated by the FSOC will be subject to supervision by the Federal Reserve, as well as to the special Section 165 prudential standards I mentioned earlier. To date, no firms have been designated, though the FSOC is actively considering possible designees. Of course, the five previously free-standing investment banks have either been dismantled (Lehman), converted into bank holding companies (Goldman Sachs and Morgan Stanley), or absorbed into a bank holding company (Bear Stearns and Merrill Lynch).

The other designation authority granted the FSOC is for financial market utilities, defined as multilateral transfer, clearing, or settlement systems for payments, securities, or other financial transactions among financial institutions.¹⁴ Once designated as systemically important,¹⁵ financial market utilities are subject to prudential standards established by the Federal Reserve, the Securities and Exchange Commission, and the Commodities Futures Trading Commission for the purpose of reducing systemic risk and supporting financial stability.¹⁶ Here, in addition to providing considerations for the FSOC in making its determination, the statute elaborates the standard of “systemically important” a bit, defining that term to mean a situation “where the failure of or a disruption to the functioning of a financial market utility or the conduct of a payment, clearing or settlement activity could create, or increase, the risk of significant liquidity or credit problems spreading among financial institutions or markets and thereby threaten the stability of the financial system of

¹⁰ DFA §153 (a).

¹¹ DFA §111(2)(N) and §153(d).

¹² DFA §113(C)(1).

¹³ DFA § 113(a)(2)(K).

¹⁴ DFA §803 (6).

¹⁵ For financial market utilities, unlike nonbank financial firms, the likelihood of becoming systemically important is enough to authorize designation. DFA §804 (a)(1). This same provision allows designation of “payment, clearing, or settlement activities,” presumably regardless of who conducts those activities.

¹⁶ DFA §805.

the United States.”¹⁷ In July, the FSOC designated eight financial market utilities as systemically important and they are now subject to special risk-management standards.¹⁸

In addition to these designation authorities, Dodd-Frank grants the FSOC very broad scope for dealing with a large bank holding company or designated nonbank financial company that “poses a grave threat to the financial stability of the United States.”¹⁹ Upon the recommendation of the Board of Governors, the FSOC may limit mergers, products, or activities of the firm. If these actions are inadequate to mitigate the grave risk, the FSOC may require the firm to divest assets or off-balance sheet items.

The fourth use of financial stability in Dodd-Frank is as a factor to be taken into account in various regulatory determinations. So, for example, the list of considerations in the International Banking Act for the Federal Reserve in determining whether to permit the establishment of a foreign bank office, or to terminate an existing such office, was augmented with a financial stability factor – specifically, whether the home country of a bank that presents a risk to the stability of the U.S. financial system has taken, or is taking, appropriate regulatory steps to mitigate that risk.²⁰

Similarly, Dodd-Frank added “risk to the stability of the U.S. banking or financial system” to the non-exhaustive lists of factors set forth in the Bank Merger Act and the Bank Holding Company Act for consideration by banking regulators in evaluating a proposed merger or acquisition by a bank or bank holding company. There are actually three statutory provisions governing these transactions – Section 3(c) of the Bank Holding Company Act for bank acquisitions by holding companies, Section 4(j) of the Bank Holding Company Act for nonbank acquisitions by holding companies, and the Bank Merger Act for mergers by banks. The statutory standards, and thus the import of the factors, are somewhat different.²¹ In all three instances, however, the financial stability factor is not in itself dispositive, in contrast to the statutory provisions covering designation of systemically important institutions or special actions to address grave threats to financial stability.

This brief review shows how ubiquitous the concepts of financial stability and systemic risk are in Dodd-Frank. The law creates or strengthens numerous forms of regulatory authority that can be used to control numerous practices or circumstances associated with financial instability. Yet the statute itself provides only limited guidance to regulators on how to implement financial stability where it is established as a standard, or how to weigh it against economic growth and other considerations where it is used as an informing concept for a regulatory exercise or a factor to be considered in regulatory approvals. Moreover, one does not really find in the statute or in its legislative history an implicit theory of financial stability from which to infer answers to the regulatory questions just noted. Instead, Dodd-Frank directs regulation at a number of perceived vulnerabilities created by large financial firms in

¹⁷ DFA §803 (9).

¹⁸ U.S. Department of the Treasury (2012). “Financial Stability Oversight Council Makes First Designations in Effort to Protect Against Future Financial Crises,” press release, July 18.

¹⁹ DFA §121(a).

²⁰ DFA §173.

²¹ The two dealing with the acquisition of merger of banks simply require that each factor be “taken into consideration,” whereas the provision for acquisition of nonbanks requires consideration of the factors in the context of a determination of whether the proposed transaction “can reasonably be expected to produce benefits to the public that outweigh possible adverse effects.”¹² USC 1843(j)(2)(A). Somewhat confusingly, and a bit unaccountably, the wording of the financial stability factor also differs. In the Bank Holding Company §4(j)(2)(A) and Bank Merger Act lists, the new factor is simply “risk to the stability of the United States banking or financial system.” In the Bank Holding Company Act §3(c) list, the factor is “greater or more concentrated risks to the stability of the United States banking or financial system.” While the import of this different wording does not seem great, it is unclear why it was chosen in this provision and not in the Bank Merger Act, which also covers bank acquisitions.

particular, and to some degree in the financial system as a whole. To the extent one can fairly induce an underlying principle, it is that the moral hazard associated with too-big-to-fail institutions should be counteracted in a variety of ways.

The emphasis on too-big-to-fail institutions is both understandable and appropriate in light of the experiences of 2008, including the major injections of government capital to stabilize some of the nation's largest firms. And the absence of an informing, grand unified theory of financial stability is hardly surprising in light of the history to which I alluded earlier. Indeed, two years after passage of Dodd-Frank, there is not really an officially embraced consensus theory of how financial stability is undermined. The first report of the new Office of Financial Research – one of the more useful analyses of financial stability issued by the official sector – does not attempt a theory of financial stability. It defines financial stability descriptively rather than analytically, “that the financial system is operating sufficiently to provide its basic functions for the economy even under stress,”²² and pragmatically tries to identify risks and vulnerabilities.

Yet much of the theoretical work on financial stability of the last several years has suggested that financial instability is, in important ways, endogenous to the financial system, or at least the kind of financial system that has developed in recent decades. The Office of Financial Research report just cited went on to note that the financial crisis had “served as a painful reminder that the financial system is prone to internal instability.”²³ Contributions to the literature by academics such as Markus Brunnermeier, Gary Gorton, Perry Mehrling, Andrew Metrick, Hyun Song Shin, Andrei Shleifer, and Jean Tirole,²⁴ although differing in some important specifics, all paint a picture of a financial system prone to instability for reasons in addition to, and quite independent of, classic too-big-to-fail concerns. Their various analyses suggest the possibility of destabilization even in a financial world with no dominant firms, but many medium-sized entities.

This perspective focuses on one of the most important effects of the progressive integration of capital markets and conventional lending activities, something now popularly known as “shadow banking” – that is, credit intermediation involving maturity transformation, and often significant leverage, that is wholly or partly outside the traditional banking system. This intermediation depends critically on the creation of instruments that are thought to be safe and liquid, and as such, “cash equivalents” similar in function to insured deposits in the commercial banking system. These instruments, much desired by certain kinds of investors, are short-term liabilities of the shadow banking intermediary, which backs them with a portfolio of longer-term assets that, because of some combination of high diversification and low-default risk, are expected to perform very well under nearly all circumstances, but carry significant tail risks that are not fully appreciated ex ante.

A now notorious example of a shadow banking intermediary was a special investment vehicle (SIV) sponsored by a financial firm. A SIV bought tranches of securitized mortgages with AAA credit ratings, which it financed through the issuance of short-term instruments that

²² Office of Financial Research, U.S. Department of the Treasury, 2012 Annual Report (PDF) (Washington: Office of Financial Research), p. 1.

²³ Office of Financial Research, 2012 Annual Report, p. 16.

²⁴ Some representative examples include: Markus Brunnermeier, Andrew Crocket, Charles Goodhart, Avinash D. Persaud, and Hyun Shin (2009), “The Fundamental Principles of Financial Regulation,” Geneva Reports on the World Economy 11 (Geneva, Switzerland: International Center for Monetary and Banking Studies, June); Gary Gorton and Andrew Metrick (2010), “Regulating the Shadow Banking System,” Brookings Papers on Economic Activity (Washington, DC: Brookings Institution, Fall), pp. 261–297; Nicola Gennaioli, Andrei Shleifer, and Robert W. Vishny (2012), “Neglected Risks, Financial Innovation, and Financial Fragility,” *Journal of Financial Economics*, vol. 104, issue 3, pp. 452–468; Perry Mehrling (2011), *The New Lombard Street* (Princeton, NJ: Princeton University Press); Jean Tirole (2011), “Illiquidity and All Its Friends,” *Journal of Economic Literature*, vol. 49, issue 2, pp. 287–325

were regarded by investors as essentially a cash equivalent. But during the crisis, when tail risk materialized, investors came to understand that even the upper tranches of subprime and other mortgage securitizations might not be spared significant losses because of the dramatic fall in housing prices and the equally dramatic rise in defaults. At the same time, questions arose about the continued willingness and ability of sponsors to provide support to the SIVs, despite a history of their having done so on both contractual and discretionary bases. A kind of run ensued, as investors realized that their instruments were not truly “equivalent” to cash and refused to roll over their short-term funding of the shadow banking intermediary. Such SIVs are gone, but other forms of shadow banking continue in such well-established forms as money market funds and repo markets.

The vulnerability of shadow banking to runs, as investors rapidly withdraw funding, can lead to systemic problems as consequential as those associated with classic runs on traditional banks. If shadow banking intermediaries must rapidly liquidate longer-term assets that they can no longer fund, the impact extends across the financial system. The resulting declines in asset prices trigger margin calls on other investors, who may then need to delever by selling their own holdings, accelerating the fire sale of these, and potentially other, assets. In the worst case, the result can be the kind of generalized asset price decline and liquidity freeze observed at the height of the financial crisis.

Dodd-Frank does include some significant provisions that, when implemented, could mitigate some of the risks associated with the shadow banking system and the potential for fire sales more generally. Among these are the requirements for margining of over-the-counter derivatives, increased use of central clearing facilities for derivatives, and higher prudential standards for systemically important financial market utilities. But Dodd-Frank does not fashion a far-reaching system of regulatory authority for the shadow banking system to parallel the one it creates for systemically important institutions, or even to address fully the significant connections – through implicit support and other channels – between the shadow banking system and systemically important institutions. This is particularly noteworthy, as there is clearly some potential for enhanced capital, liquidity, and other prudential requirements for bank holding companies to cause more activity to migrate to the shadow banking system.

With this background, I turn now to a closer look at a few instances of the challenges both in elaborating the financial stability standards of Dodd-Frank with respect to systemically important institutions and in addressing the shadow banking system.

Evaluating financial stability concerns associated with large institutions

As a prelude to this discussion, let me acknowledge that this is hardly the first time Congress has enacted intentionally protean statutory standards in response to a serious economic problem, and then relied on some combination of administrative regulation, law enforcement, and the courts to develop and adapt those standards as learning and experience grow. The antitrust laws provide a good example. The clause “contract, combination, or conspiracy in restraint of trade”²⁵ that is so familiar to us today posed its own major challenge of interpretation immediately after passage of the Sherman Act in 1890. Indeed, in the first cases brought under Section 1, both the Justice Department and the Supreme Court came close to reasoning that a very broad range of contracts by definition restrained some trade and thus might be illegal.²⁶ These interpretations were soon abandoned, but they stand as an admonition that early decisions under a new law can, in retrospect, look to have been somewhat makeshift.

²⁵ 15 U.S.C. §1.

²⁶ See, e.g., *United States v. Trans-Missouri Freight Assn.*, 166 U.S. 290 (1897).

Systemic Risk Capital Surcharges

My first example is drawn from the Federal Reserve Board's experience in developing enhanced capital standards for bank holding companies with more than \$50 billion in assets, as required by Section 165 of Dodd-Frank. As I noted a few moments ago, this is one of the Dodd-Frank provisions that establishes financial stability as its aim, but not as a direct statutory standard. Section 165 requires that the standards intended to prevent risks to financial stability increase in stringency, based on the same non-exhaustive list of factors used for the designation of nonbank systemically important financial firms,²⁷ but provides no further guidance.

In undertaking this task, we began with the premise that a financial stability motivation for capital requirements is necessarily somewhat different from the institution-centered approach of traditional capital standards, as embodied in the various Basel capital frameworks. Firm-centered requirements are informed by asking what level of capital would be necessary to allow the firm to remain a viable financial intermediary even after absorbing losses that, within a fairly high level of confidence, might be encountered over some relevant timeframe. The financial stability approach begins from the fact that there would be very large negative externalities associated with the disorderly failure of any systemically important financial institution, distinct from the costs incurred by the firm and its stakeholders.

The failure of such a firm, especially in a period of stress, significantly increases the chances that other financial firms will themselves experience great stress, for two reasons. First, direct counterparty impacts can lead to a classic domino effect. Second, because losses in a tail event are much more likely to be correlated for firms deeply engaged in trading, structured products, and other capital market instruments, all such firms are vulnerable to accelerating losses as troubled firms sell their assets into a declining market. Enhanced capital requirements should take into account these costs that a systemically important firm's failure will inflict on the rest of the financial system, not the amount of loss its shareholders and creditors will incur. Thus, the aim of financial stability capital standards is to reduce further the probability that the firm might fail under stress through holding additional capital. These additional capital requirements can also help offset any funding advantage derived from the perceived status of such institutions as too-big-to-fail.

In acting on this rationale for capital standards to mitigate risks to financial stability, we first sought to ensure that there would be an international initiative to develop financial stability capital standards for global systemically important financial institutions, since the severe distress or failure of a foreign banking institution of broad scope and global reach could have effects on the U.S. financial system comparable to those caused by failure of a similar domestic firm. The Basel Committee agreed to take up this agenda and is well on its way to completing a framework covering more than two dozen large financial firms from around the world. Our intention has been to make our enhanced capital standards under Section 165 congruent with the Basel Committee's framework.

The task of determining how much additional capital is needed to reduce the probability of a systemically important firm's failure to more acceptable levels is not a straightforward one. Conceptually, there is a good starting point, in what has been termed the "expected impact" approach, which calls for additional capital to reduce the probability of the firm's failure sufficiently to equalize the expected impact on the financial system of the failure of a systemically important firm and the failure of a banking firm just outside systemic status.²⁸ But

²⁷ Section 165 (b)(3) adds two additional considerations: 1) whether the firm owns an insured depository institution and 2) the nonfinancial activities and affiliations of the firm.

²⁸ For example, if the loss to the financial system from the failure of a systemically important firm would be five times that resulting from failure of the non-systemic firm, then the firm would have to hold additional capital sufficient to make the expected probability of failure one-fifth that of the non-systemic institution.

implementing this concept is complicated by the fact that, despite some very useful metrics that have been developed in the last few years for measuring the systemic risk associated with a particular firm, there is certainly no generally accepted approach.²⁹ Each has its shortcomings as well as its strengths. Thus it is not realistic to think that, at least in the foreseeable future, the concept of a capital surcharge precisely offsetting the systemic risk actually created by that firm can be achieved in practice. Indeed, differences among reasonable assumptions in applying the expected impact approach led to a fairly broad range of potential surcharges. The 1–2 ½ percent amounts negotiated within the Basel Committee are at the low end of that range, reflecting a good deal of caution – frankly, a bit more caution than I think would have been desirable, even given the uncertainties. Moreover, the Basel Committee decided to use “buckets,” grouping banks presenting roughly similar risks, rather than a customized calibration based on a single score. Even though the Basel Committee does have an algorithm that produces such a score, it recognized that there is inevitably imprecision involved, and thus will look for obvious breaks in these scores in order to assign the banks to a limited number of buckets carrying differing capital surcharges.³⁰

Financial stability analysis in merger applications

The second interpretive challenge, which I will address in more detail, arises from the addition of a financial stability factor to the review conducted by the Federal Reserve Board of proposed mergers and acquisitions involving banks and bank holding companies.³¹ In

²⁹ Among the useful efforts along these lines are a measure of Conditional Value-at-Risk (CoVaR) (See Tobias Adrian and Markus Brunnermeier (2011), CoVaR (PDF), Federal Reserve Bank of New York Staff Reports 348 (New York: Federal Reserve Bank of New York, September) and a measure of systemic risk based on each firm’s contribution to the expected capital shortfall of the entire financial system in a crisis (See Christian T. Brownlees and Robert F. Engle (2011), “Volatility, Correlation and Tails for Systemic Risk Measurement,” New York University Working Paper (New York: New York University, June). The concept behind the latter measure is also described in Viral V. Acharya, Christian Brownlees, Farhang Farazmand, and Matthew Richardson, “Measuring Systemic Risk,” in *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance* (Wiley Publishers, 2011), pp. 87–119. Updated systemic risk rankings are maintained by the authors at <http://vlab.stern.nyu.edu>. A helpful review of the efforts to measure systemic risk is Monica Billio, Mila Getmansky, Andrew W. Lo, and Loriana Pelizzon (2010), “Measuring Systemic Risk in the Finance and Insurance Sectors,” MIT Sloan School Working Paper 4774-10 (Cambridge, MA: MIT Sloan School of Management, March).

³⁰ It is worth noting, in this regard, that in developing systemic risk capital requirements one early idea was to construct a continuously varying function for calculating a systemic risk surcharge. That is, a formula for calculating a firm’s “systemic footprint” based on relevant characteristics such as size of assets, liabilities, counterparty exposures, and the like would yield a specific capital surcharge for each firm with more than \$50 billion in assets. While the difficulties with this approach went beyond the false precision that it would have given the surcharge, that was certainly one consideration in declining to adopt this approach.

³¹ Another important provision requiring interpretation of financial stability as a legal standard is the designation of systemically important nonbank institutions by the FSOC. As noted earlier, this is an instance in which an evaluation of financial stability effects is the direct test for action. In implementing this authority the FSOC took a methodical, comparative approach. Details can be found in Financial Stability Oversight Council (2012), “Authority to Require Supervision and Regulation of Certain Nonbank Financial Companies,” Federal Register, vol. 77 (April 11), pp. 21637. In the first stage of the process it has established, the FSOC applies a purely quantitative screen in order to identify nonbank financial companies that merit further consideration. In Stage 2, the Council conducts an in-depth analysis of each firm that has been identified through the Stage 1 screens, based on information that is either publicly available or already in the possession of financial regulators. After this analysis is complete, firms that the Council believes merit further consideration will be moved into Stage 3, during which information will also be collected directly from the firms. On the basis of this review, the Council may vote by the necessary two-thirds majority to designate the firm as systemically important. The Council has also elaborated, in general terms, the conditions under which it would determine that a “threat to financial stability” may exist and the transmission channels through which distress at a firm could affect the broader economy. What is noteworthy for my purposes today – beyond the elaborate nature of this exercise – is that ultimately the FSOC will make each determination on a very company-specific basis, with attention to the particular risks posed by each individual company. Indeed, recognizing that the assessment of different kinds of financial firms may require varying analytic frameworks, the FSOC has

some respects, this process resembles the pre-merger reviews conducted by the antitrust agencies under the Hart-Scott-Rodino Act. But the differences are also instructive. One is that under the Bank Holding Company Act, the impact of a transaction on financial stability is not itself dispositive. The Board could approve an acquisition even if it determined that there was some adverse effect on financial stability if it also determined that the transaction would produce benefits outweighing the financial stability concerns by, for example, increasing competition or efficiencies or public convenience. This balancing requirement contrasts with an antitrust pre-merger review, in which the focus is solely on whether the transaction would substantially lessen competition.³² The statutory formulation appears to reflect a Congressional supposition that, like many social desiderata, the pursuit of financial stability may at times require trade-offs with other desirable aims. This conclusion is reinforced by other parts of Dodd-Frank, such as the earlier-mentioned provision permitting extraordinary measures to be imposed on a firm, but only if it is found to pose a grave threat to financial stability.

Another salient point of difference is that Hart-Scott-Rodino was not enacted until 1976, following more than 60 years of merger analysis by the antitrust agencies and merger jurisprudence by the courts. Indeed, the agencies had already published a set of merger guidelines in 1968. While the Antitrust Division or the Federal Trade Commission could, and did, begin pre-merger reviews with a well-developed analytic framework, there is no legacy of administrative or judicial analysis of the financial stability effects of mergers. We literally have had to start from scratch. Let me describe just a few of the conceptual and practical issues that have already arisen in discussions at the Board on some hypothetical situations that might arise in implementing the required consideration of financial stability.³³

One important issue is raised by the possibility that an acquisition may decrease the chances of material distress at a financial firm while simultaneously increasing the potential negative externality on the financial system as a whole should the firm nonetheless become seriously compromised. To borrow credit risk terminology, the probability of default (PD) may be reduced, but the loss given default (LGD) may increase. You can imagine this circumstance where, for example, an acquisition would demonstrably reduce a firm's dependence on short-term wholesale funding by providing more deposits or other reliable funding sources, but where the firm's increased size and market connections would compound the damage to counterparties, intermediation, and asset markets in the event of unmanageable stress. In such a case, are risks to financial stability increased, unaffected on balance, or actually decreased?

In theory, as is done in credit risk modeling to calculate capital needs, one could multiply PD by LGD to yield a single "systemic financial risk" number for both the status quo and the post-acquisition firm, in order to determine – or at least create a presumption of – which outcome is preferable from a financial stability perspective. This would be the financial stability equivalent of the Herfindahl–Hirschman Index (HHI) in antitrust.³⁴ But we are still in

segmented its work. So, for example, it will consider asset managers and hedge funds separately from other forms of financial intermediaries.

³² In fact, of course, the antitrust agencies and the courts have over the years given greater or lesser weight to possible efficiencies resulting from a merger, thereby introducing a consideration other than competition as such.

³³ As noted earlier, the two governing provisions in the Bank Holding Company Act differ somewhat. For the present purpose of discussing financial stability analysis, however, we need not dwell on these differences.

³⁴ The HHI is calculated by squaring the market share of each firm in a particular market and then adding those squared market shares. The antitrust agencies have specified the relative level of scrutiny that can be expected from particular combinations of changes in, and post-merger HHIs, although they are careful to point out that HHI is not a "rigid screen." U.S. Department of Justice, Horizontal Merger Guidelines §5.3 (Aug. 19, 2009).

the relatively early stages of exploring the utility of different approaches to measuring both these variables, and we do not have a single well-established metric for either variable today. As already noted in my discussion of systemic risk surcharges, the quantification of a “systemic loss given default” seems particularly challenging.

A second issue is time contingency. Consider an acquisition that, in calm times, seems pretty clearly to increase the systemic footprint of an already large, interconnected acquiring institution without having a material positive effect on the resilience of that firm during a stress period. That starkly stated circumstance would seem a prototypical case in which a conclusion of an adverse effect on financial stability would be reached. But now suppose that the target firm is already under substantial pressure in an increasingly stressed financial environment and that the potential acquirer appears relatively strong. A case could be made that allowing the acquisition in that circumstance would *support* financial stability by relieving funding and other counterparty pressures, and forestalling distressed asset sales and other problematic developments. Continuing my comparison to antitrust law, this outcome would be an analogue to a failing firm defense.

Of course, this was precisely the rationale in 2008 for the government not only permitting, but encouraging, JP Morgan’s acquisition of Bear Stearns and Washington Mutual, Bank of America’s acquisition of Merrill Lynch and, to some degree, Wells Fargo’s acquisition of Wachovia.³⁵ The result is that the concentration at the top of the U.S. financial services industry is even greater than before the crisis. Allowing the acquisition I have hypothesized here could buy some immediate stabilization, but at the cost of arguably greater moral hazard and risks to financial stability over the medium term. The orderly liquidation authority for systemically important institutions created by Dodd-Frank may provide a third alternative, but even if implemented successfully and as intended, the new Title II would be most effective in containing moral hazard by ensuring that shareholders and management of the failed firm bear heavy costs. It would not necessarily prevent all the damage to the financial system and the broader economy that would attend failure of a large financial firm.

A third kind of issue arises specifically because of the transaction-driven nature of the Bank Holding Company Act merger review provisions. Some of these issues are procedural or practical in nature. For example, in evaluating the impact of a proposed acquisition on financial stability, should a firm get “credit” for recent or planned actions to reduce its systemic footprint through sales of subsidiaries or other assets? This would be an analogue to the divestitures that are often required as a condition of merger approvals by the antitrust agencies. If a similar idea were implemented in the financial stability context, should the package of asset acquisitions and reductions be negotiated beforehand with supervisors and, if so, would that package itself have to be subject to Board approval?

Other issues presented by the focus on specific transactions go deeper. Suppose a large regional bank and a broker-dealer proposed to merge. Standing alone, that transaction might well look to increase risks to financial stability, not only because of the initial combined size of the firms, but because the broker-dealer operation would presumably grow when affiliated with a larger commercial bank, since the merged firm could offer a greater range of services to clients. But would prohibiting that transaction mean that the current small group of very large, integrated financial firms would have their market positions essentially protected by the financial stability considerations? Such an outcome would be ironic indeed. The Federal Reserve could, if it so chose, avail itself of the discretion to balance different effects by allowing the merger on pro-competition grounds. Such a decision would place the Fed in the position of effectively deciding broader questions of industry structure in the context of a

³⁵ In the Wells-Wachovia and JPMorgan-Washington Mutual cases, concerns about the impact of Wachovia’s failure on the Deposit Insurance Fund may also have played a role.

single case. But, then again, a prohibition of the merger would do the same, the only difference being the substantive structure being chosen.

Yet even before this kind of balancing of positive and adverse effects was reached, there would surely be an argument that ensconcing the existing large integrated firms would itself increase risks to financial stability, since these firms that are each the product of prior mergers might be the only ones capable of growing more in key parts of the financial services market. Here again, the absence of a theory of financial stability that informs the law complicates the problem, though it is not altogether clear that convergence around such a theory would solve it.

The foregoing questions underscore the difficulties entailed in anticipating the range of financial issues that may be presented in merger cases and in trying to resolve the issues that have been anticipated solely through consideration of hypotheticals. This conclusion is one of the reasons the Federal Reserve decided not to develop and issue a rule or detailed guidance on the financial stability factor. There simply isn't the accumulation of experience and of thoughtful evaluation of these issues by people both in and out of government to inform something akin to the merger guidelines published by the antitrust agencies.

Accordingly, the Federal Reserve is very much taking a case-by-case approach to these reviews. As described in a recent order, "the Board expects that it will generally find a significant adverse effect if the failure of the resulting firm, or its inability to conduct regular-course-of-business transactions, would likely impair financial intermediation or financial market functioning so as to inflict damage on the broader economy."³⁶ The Board will consider a variety of factors that could indicate the potential for damage, including the size of the resulting firm, the availability of substitute providers for any critical products or services, the interconnectedness of the firm with the banking and financial system, the contribution of the firm to the complexity of the financial system, and the extent of cross-border activities of the firm.³⁷ I would expect that, over time, our discussion of these factors in the context of specific transactions will provide firms, their attorneys, and other members of the public with more guidance as to how a specific case is likely to be analyzed. At some point, we and others in the official sector may become comfortable enough with a particular measure of systemic risk that it will be a starting point for analysis in these cases. But I suspect it will be much longer, if ever, before such a measure could provide the extent of presumptive sorting that HHI does in antitrust analysis today.

While the absence of experience and a comprehensive informing theory make detailed guidance infeasible in the foreseeable future, I do think we should be able to elaborate certain categories of presumptive approvals and denials more quickly. Before I suggest how, let me emphasize that here I am speaking for myself only, since the full Board will address these issues only in future orders. We have already suggested a limited presumptive safe harbor where an acquisition involves less than \$2 billion in assets or results in a firm with less than \$25 billion in total assets.³⁸ Personally, I would set the size of the resulting firm higher than \$25 billion, but somewhat lower than the \$50 billion Dodd-Frank threshold over which a firm is subject to special prudential standards.

At the other end of the spectrum, I would urge a strong, though not irrebuttable, presumption of denial for any acquisition by any firm that falls in the higher end of the list of global systemically important banks developed by the Basel Committee for purposes of assessing

³⁶ Board of Governors of the Federal Reserve, Capital One Financial Corporation, McLean, Virginia, Order Approving the Acquisition of a Savings Association and Nonbanking Subsidiaries (PDF), FRB Order No. 2012-2 (Feb. 14, 2012) at p. 28.

³⁷ Board of Governors of the Federal Reserve, Order Approving Acquisition, pp. 28–29.

³⁸ Board of Governors of the Federal Reserve, Order Approving Acquisition, p. 30.

capital surcharges.³⁹ Firms at the lower end of the Basel Committee list, or that U.S. authorities may later designate as domestic systemically important banks under a parallel Basel Committee exercise,⁴⁰ might have a slightly less robust, but still significant presumption against acquisitions. I would not apply the presumption in the case of certain *de minimis* acquisitions or in cases where asset dispositions were judged to offset any increase in systemic risk from the proposed new acquisition.

It is reasonable to ask why these negative presumptions are appropriate, given my general view that the absence of both experience and consensus theory make a case-by-case approach necessary. One answer is that, notwithstanding the fact that analytic tools for assessing a firm's systemic footprint are in a relatively early stage of development, everything we do know suggests that the firms on the Basel Committee list strongly implicate the kinds of systemic considerations mentioned by Congress. Second, it does seem incumbent on us to provide at least some guidance to firms where we can, particularly to inform smaller, less connected firms of the kinds of mergers that are unlikely to raise financial stability concerns and, conversely, to give firms that are already of systemic importance a sense of which mergers will face very close scrutiny.

A third answer is that, once an acquisition is consummated, Dodd-Frank provides only narrow authority to order divestiture on financial stability grounds. Though the Board can recommend action by the FSOC, I have already noted that the test for such action is "grave threat to financial stability," presumably a significantly higher standard than the "risk to financial stability" that can constitute an adverse effect for purposes of Sections 3 and 4 of the Bank Holding Company Act. Unlike Section 7 of the Clayton Act, which permits the antitrust authorities either to restrain a merger beforehand or undo it thereafter, the Federal Reserve's authority under the Bank Holding Company Act to disallow the merger on financial stability grounds appears to lapse after the merger is completed, but for the narrow authority vested in the FSOC. Of course, one motivation for the passage of Hart-Scott-Rodino in 1976 was the perceived reluctance of courts to order potentially disruptive divestitures once companies had completed the merger. In any case, the legal and practical impediments to such action counsel an additional measure of caution by the Federal Reserve in considering acquisitions by firms that can reasonably be expected to raise significant financial stability concerns.

For all the attention paid to financial stability analysis in the last few years, it is still – relatively speaking – a fledgling enterprise. Even if we hypothesize a viable working theory of financial stability that commands a rough consensus, translating that theory into administrable standards and processes is a task that will take years.⁴¹ But while the absence

³⁹ There are eight U.S. banks on this list, as well as many foreign-based firms with significant U.S. operations. However, the buckets to which they will be assigned will not be finalized until more up-to-date data is available and analyzed next year. Once final agreement has been reached by the Basel Committee, ordering the systemically important banks into categories with progressively increasing surcharges, the Federal Reserve Board intends to propose matching provisions for covered U.S. banks under its Section 165 authority. In conducting our annual reviews of the capital levels and planning processes of major U.S. bank holding companies, we have already instructed the eight firms on the Basel Committee list to include their estimated required surcharge in their plan for reaching their ultimate capital requirement.

⁴⁰ The Basel Committee has not yet completed its work on this initiative. Its proposal has been published in Basel Committee on Banking Supervision, Consultative Document on a Framework for Dealing with Domestic Systemically Important Banks (June 2012). The proposal is that national authorities would designate these institutions (as compared to the global systemically important banks, which are to be designated by the Basel Committee itself), and that the nature of the enhanced loss absorbency for any such institutions also be left to national discretion (as compared to the global systemically important banks, for which capital surcharges are to be required and their amounts specified by the Basel Committee).

⁴¹ A paper by Katharina Pistor explains how the regulatory implications of three different theories of financial stability would differ. Katharina Pistor (2012), "On the Theoretical Foundations for Regulating Financial Markets," Columbia Law School Public Law & Legal Theory Working Paper 12-304, June.

of well-established systemic risk measures may counsel caution in approaching merger analysis, and while it has surely already affected the formulation of capital surcharges in the Basel Committee, it may well be leaving a gap in financial stability regulation. One of the difficulties in building out a financial stability analysis is the absence of an upper bound point of reference. There is no statutory basis for identifying a certain systemic footprint above which the risks to financial stability are not worth bearing compared to whatever possible benefits may be associated with the operation of the largest, most interconnected firms.

Similarly, the absence in the financial stability area of the equivalent of the monopolization provision in Sherman Act Section 2 to complement the merger provisions in Clayton Act Section 7 creates an anomalous regulatory feature. It means that the current structure for financial stability regulation permits substantial increases in systemic risk by an institution, so long as it is generated from internal growth. To the extent that a growing systemic footprint increases perceptions of at least some residual too-big-to-fail quality in such a firm, notwithstanding the panoply of measures in Dodd-Frank and our regulations, there may be funding advantages for the firm, which reinforces the impulse to grow. There is, then, a case to be made for specifying an upper bound.

In these circumstances, however, with the potentially important consequences of such an upper bound and of the need to balance different interests and social goals, it would be most appropriate for Congress to legislate on the subject. If it chooses to do so, there would be merit in its adopting a simpler policy instrument, rather than relying on indirect, incomplete policy measures such as administrative calculation of potentially complex financial stability footprints. The idea along these lines that seems to have the most promise would limit the non-deposit liabilities of financial firms to a specified percentage of U.S. gross domestic product, as calculated on a lagged, averaged basis. In addition to the virtue of simplicity, this approach has the advantage of tying the limitation on growth of financial firms to the growth of the national economy and its capacity to absorb losses, as well as to the extent of a firm's dependence on funding from sources other than the stable base of deposits. While Section 622 of Dodd-Frank contains a financial sector concentration limit, it is based on a somewhat awkward and potentially shifting metric of the aggregated consolidated liabilities of all "financial companies."

Of course, the difficult question would be the applicable percentage of GDP. The answer would depend on a judgment as to how much of an impact the economy could absorb. It would also entail a judgment as to how large and complex a firm needs to be in order to achieve significant economies of scale and scope that carry social benefit. Depending on the answers to these questions, there may be a need to balance the relevant costs and benefits. There would also be important secondary questions such as whether to exclude from a firm's calculated liabilities only insured deposits and which asset base to use in calculating non-deposit liabilities. And depending on how Congress answered all these questions, there could well be need for defining transition periods and compliance margins. Even good answers to all these questions would produce a policy instrument that could seem excessively blunt to some. But this is a debate well worth having.

Financial stability and the shadow banking system

Having just a few months ago devoted an entire speech to the shadow banking system,⁴² I wanted to spend more time today on the interpretive issues just discussed. However, to give a sense of the complementary regulatory challenges in dealing with the shadow banking

⁴² Daniel K. Tarullo (2012), "Shadow Banking After the Financial Crisis," remarks delivered at the Federal Reserve Bank of San Francisco Conference on Challenges in Global Finance, San Francisco, California, June 12.

system, let me describe one specific, current issue and just briefly mention a much broader concern.

The specific issue is that of money market funds. As many of us in the government have pointed out, money market funds remain a major part of the shadow banking system and a key potential systemic risk even in the post-crisis financial environment. In fact, the industry's survival in its present form is likely due in no small part to the unprecedented interventions by the Treasury and the Federal Reserve in providing insurance and liquidity support, respectively, to the industry in response to the run prompted by the failure of the Reserve Primary Fund in 2008.

The interesting point here is that a regulatory agency, the Securities Exchange Commission (SEC), has ample regulatory authority to address the systemic risk problem. Indeed, the legality of money market funds continuing to publish a fixed net asset value (NAV) of one dollar per share, even as the actual value of the underlying assets varies within a modest range, is itself the consequence of the SEC's Rule 2a-7, which exempts money market mutual funds from the requirement of a floating NAV generally applicable to open-end mutual funds. In amending its rules in 2010, the SEC took some good first steps to improve the resilience of money market funds, but many – including Chairman Schapiro – do not believe these are sufficient to mitigate the run potential in money market funds.

Unfortunately, a majority of the current SEC commissioners has to this point been opposed to moving forward with the reform measures Chairman Schapiro has proposed. The FSOC, meanwhile, has endorsed further reform along these general lines. The question, then, is how the FSOC and its other member agencies should proceed given that the SEC has declined to act. I should note here that, during the debates preceding Dodd-Frank, some versions of proposals for what eventually became the FSOC would have empowered the FSOC to override agency action or inaction within its sphere of authority. Others, including many who favored strong reforms, opposed this power, which would have created a kind of super-agency with veto authority over all the regulators. Instead, the FSOC has the more limited authority to present an agency with recommendations for action and the right to receive an explanation should the agency not accept those recommendations.

As you may have seen, two weeks ago Treasury Secretary Geithner sent a letter to the members of the FSOC in his capacity as its chair, in which he urged the Council to use its authority under Section 120 of Dodd-Frank, and to consider alternative actions to reduce the structural vulnerabilities associate with money market funds “in the event the SEC is unwilling to act in a timely manner.”⁴³ These alternatives could include FSOC designation of money market funds as systemically important and thus subject to the prudential requirements promulgated under Dodd-Frank. They could also include action by FSOC member agencies, such as the bank regulatory agencies imposing restrictions on regulated financial institutions' ability to sponsor, borrow from, invest in, or provide credit to money market funds that do not have structural protections. From my perspective, at least, each of the options open to the FSOC and the rest of its constituent agencies is decidedly a second-best alternative as compared to a change in SEC rules to remove the fixed net asset value exception, to require a capital buffer that would staunch or buffer runs, or measures of similar effect. And, when I say second-best here, I mean to include the funds themselves. The protective tools available to the rest of us do not fit the problem precisely and thus will not regulate at the least cost to the funds while still mitigating financial risk. But that is the legal situation we all confront. My hope, of course, is that recent indications that other SEC commissioners are now willing to move forward with reforms will lead to the SEC adopting first-best measures in the near-term.

⁴³ Treasury Secretary Timothy F. Geithner (2012), letter to members of the Financial Stability Oversight Council, September 27.

The money market fund example is a noteworthy case study in substantial part because of the interesting institutional issues it raises. More generally, though, the capacity of private financial market actors to create what are, at least in normal times, considered cash equivalents raises broader financial stability questions. Specifically, there may be a need for new macroprudential instruments, such as comprehensive authority to impose margins on all cash-like instruments, regardless of whether a firm creating those instruments is a regulated entity such as a bank holding company. Such possibilities obviously carry significant consequences, not just for the liquidity available to the financial system, but also for values such as the concentration of governmental authority. This is a topic on which much further thought is needed.

Conclusion

It may not always be the case that the most interesting time to be involved in a regulatory area is at its early stages, but I am reasonably certain it applies to the formation of a system for the regulation of systemic risk. From the standpoint of a regulator, the key challenge in these early stages is to be neither excessively self-confident about what we know about financial stability so as to produce unfortunate unintended consequences, nor excessively tentative so as to fail to take steps to counter the very real risks that do exist, in keeping with the aims stated by Congress. As I hope was apparent, that effort at balance informed my suggestions as to how we should apply the financial stability factor in our pre-merger reviews under the Bank Holding Company Act.

Before concluding, I want to make one final reference to antitrust law. As you know, the evolution of antitrust in recent decades was heavily influenced by the work of academics – specifically, law professors and industrial organization economists. That was due in part, I think to the practice of the Antitrust Division of the Justice Department and the Competition Bureau of the Federal Trade Commission recruiting so many present and future academics to work in those agencies for a few years. Indeed, quite a few heads of the Antitrust Division and the FTC were themselves academics, often law professors. The result was a cross-pollination of theoretical advances and institutionally grounded knowledge that is unusual, if not unique in regulatory areas. While it may be difficult to replicate this pattern in the nascent field of financial stability regulation, there is ample room – and need – for some version of this cross-pollination. Issues such as those I have discussed today can only profit from an academic perspective, informed by practical and institutional considerations. Obviously, I am standing this afternoon in front of an almost ideal audience to provide that perspective, and I look forward to hearing your lectures in the future.