

THE PRUDENTIAL REGULATION OF FINANCIAL INSTITUTIONS: WHY REGULATORY RESPONSES TO THE CRISIS MIGHT NOT PROVE SUFFICIENT*

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SUMMARY

It is now six years since a devastating financial and economic crisis rocked the global economy. Supported strongly by the G20 process, international regulators led by the Financial Stability Board have been working hard ever since to develop new regulatory standards designed to prevent a recurrence of these events. These international standards are intended to provide guidance for the drawing up of national legislation and regulation, and have already had a pervasive influence around the world.

This paper surveys recent international developments concerning the prudential regulation of financial institutions: banks, the shadow banking system and insurance companies. It concludes that, while substantial progress has been made, the global economy nevertheless remains vulnerable to possible future financial instability. This possibility reflects three sets of concerns. First, measures taken to manage the crisis to date have actually made the prevention of future crises more difficult. Second, the continuing active debate over virtually every aspect of the new regulatory guidelines indicates that the analytical foundations of what is being proposed remain highly contestable. Third, implementation of the new proposals could suffer from different practices across regions.

Looking forward, the financial sector will undoubtedly continue to innovate in response to competitive pressures and in an attempt to circumvent whatever regulations do come into effect. If we view the financial sector as a complex adaptive system, continuous innovation would only be expected. This perspective also provides a number of insights as to how regulators should respond in turn. Not least, it suggests that attempts to reduce complexity would not be misguided and that complex behaviour need not necessarily be accompanied by still more complex regulation. Removing impediments to more effective self discipline and market discipline in the financial sector would also seem recommended.

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LES RÈGLES DE PRUDENCE DES INSTITUTIONS FINANCIÈRES: POURQUOI UNE RÉPONSE RÉGLEMENTAIRE À LA CRISE POURRAIT NE PAS SUFFIRE*

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RÉSUMÉ

Il y a de cela six ans maintenant, une crise financière et économique dévastatrice secouait la planète. Largement soutenus par le processus du G20, les organismes internationaux de réglementation dirigés par le Conseil de stabilité financière ont travaillé dur, depuis, pour mettre au point de nouvelles normes réglementaires visant à empêcher que de tels événements ne se reproduisent. Ces normes internationales ont pour fonction de guider la mise en place de lois et de règlements nationaux et déjà, elles ont une forte influence partout dans le monde.

Cet article propose un survol des récents développements internationaux concernant les règles de prudence des institutions financières : les banques, le système bancaire parallèle et les compagnies d'assurance. Il conclut qu'en dépit des progrès substantiels réalisés, l'économie internationale ne demeure pas moins vulnérable à une instabilité financière potentielle dans l'avenir. Cette possibilité donne lieu à trois groupes de préoccupations. Premièrement, les mesures adoptées à ce jour pour gérer la crise ont en fait rendu la prévention des crises futures plus difficile. Deuxièmement, le débat ininterrompu sur chaque aspect, ou presque, des nouvelles lignes directrices en matière de réglementation indique que les fondements analytiques des mesures proposées demeurent largement contestables. Troisièmement, la mise en œuvre des nouvelles propositions pourrait pâtir des différences entre les pratiques mises en place dans chaque région.

Dans l'avenir, le secteur financier continuera certainement d'innover pour répondre aux pressions concurrentielles et pour contourner n'importe quelle réglementation susceptible d'entrer en vigueur. Si nous considérons le secteur financier comme un système complexe qui sait s'adapter, il est à prévoir qu'il innovera en permanence. Cette approche propose, dans la foulée, certaines pistes de réflexion sur la façon dont les organes de réglementation devraient réagir à leur tour. Selon l'une d'elles, et non la moindre, il serait judicieux d'adopter des moyens pour réduire la complexité des mesures; les comportements complexes ne doivent pas nécessairement s'accompagner d'une réglementation encore plus sibylline. Il serait également recommandé d'éliminer les freins à l'autodiscipline et à la discipline de marché dans le secteur financier.

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INTRODUCTION

This paper provides an overview of recent international developments affecting the prudential regulation of financial institutions. The purpose is to see if there are any lessons that might be drawn for Canadian regulators. A skeptic might suggest three reasons for doubting the usefulness of this exercise. First, financial regulation is by no means a science. This implies that best practice for different countries might well be different. Second, the international review of regulatory practice, sparked by the financial crisis that began in 2007, is still very much a work in progress. This might imply that it is too early to draw lessons for Canadian regulation. Third, since the Canadian financial sector had such a “good” crisis, this might imply that Canadian regulators have little to learn from others.

The counter-argument to the first point is that countries might well differ in some respects, but the underlying analytical issues and problems to be faced have definite similarities. As for the second point, regulation is constantly evolving. To wait for the process to end would be to wait forever. As for the apparent relative strength of Canadian financial regulation, it might be that the Canadian financial sector has benefited as much from luck as from judgment. Indeed, some worry that the Canadian financial sector has not yet been tested by a credit-fuelled “boom and bust” similar to those that have recently affected many other countries.¹ Recent developments in the housing sector in Canada imply that such a test might yet be forthcoming. In sum, this paper might still have some potential to be useful.

The objective sought by, and the rationale for, prudential regulation

It has always been recognized that the financial sector has vital functions: facilitating payments, providing liquidity, pooling savings and risk-sharing, and credit intermediation between savers and investors. These functions (“financial stability”) contribute materially to our economic well-being. Similarly, their absence (“financial instability”) imposes great costs. The objective of prudential financial regulation is to ensure that these vital functions are maintained.

The traditional approach of prudential regulators has been to focus on the safety and soundness of individual financial institutions; a bottom-up perspective to the working of the system as a whole. In practice, this approach remains dominant. However, in response to recurring financial crises over recent decades,² a top down approach to prudential regulation (focused on “systemic stability”) has also begun to attract attention. While “systemic stability” has numerous

¹ The most recent OECD economic surveys for Canada, the Nordic countries, Australia and many other countries indicate worryingly high household-debt ratios and often record high property prices. In each case, following the onset of the crisis, banks continued to grant mortgage loans in large volumes in response to strong demand spurred by low global interest rates. The share of residential mortgages in total Canadian dollar assets of Canadian banks rose from 35 per cent in 2007 to 45 percent by the end of 2011. See: OECD, “Economic Survey of Canada,” Economic and Development Review Committee, April 2012.

² M. Bordo et al. (“Financial Crises: Lessons from the Last 150 Years,” *Economic Policy* (April 2001)) document the increase in financial crises in recent decades and link them to the trend to deregulation of the financial system. A. Admati and M. Hellwig (*The Banker’s New Clothes*, (Princeton, N.J.: Princeton University Press, 2013)) suggest, rather, that rising macroeconomic volatility from the 1970s onward was largely to blame. Perhaps both causes, and their interactions, were in play.

definitions,³ a new focus on systemic properties would recognize that the financial system is a complex adaptive system, with many interdependencies among agents who are constantly responding to the activities of other agents.⁴ Such systems, while generally highly efficient, can sometimes break down catastrophically. Since all complex adaptive systems seem to share basic properties,⁵ a first lesson might well be that financial regulators could learn significantly from those charged with regulating other complex systems⁶ with a view to maintaining their stability.

If it is broadly agreed that the objective sought is to avoid “financial instability,” there is less agreement on the role of prudential regulation in achieving such an objective. Perhaps the dominant view is that regulation is required to offset market failures⁷ of various sorts: the failure of people operating in the system to appreciate the externalities associated with their behaviour, excessive short-termism and ignoring of risks, the influence of safety nets and moral hazard, etc. Without regulation, these market failures (or others) would eventually result in some degree of financial instability and associated output losses.

At the same time, regulation also has downsides. First, the costs implicit in the regulations chosen — lower static and dynamic efficiency of the financial system — have to be less than the expected costs of financial instability. Second, there is always the danger that regulation creates distortions and further market failures leading to the “need” for still more regulation. In effect, regulations increase the complexity of the financial system and the likelihood of instability. Third, regulations that force many financial agents to behave in the same way can easily exacerbate systemic problems. Finally, in complex adaptive systems, all policy actions have unintended and potentially undesirable consequences.

³ For an overview of a number of different definitions, see: P. M. Liedtke, “The Lack of an Appropriate Definition of Systemic Risk,” *Insurance and Finance* 6, the Geneva Association (July 6, 2010).

⁴ For a useful description, see: C. Taylor, “Macro prudential Regulation and Evolution: Looking at the Financial System Through Darwin’s Glasses” (prepared for the Macro Prudential Regulatory Policies Conference sponsored by the Federal Reserve Bank of Chicago and the IMF, World Scientific Studies, Singapore, September 23–24, 2010).

⁵ These include: (1) the inevitability of crises, with magnitude and frequency being linked by a power law, (2) the impossibility of forecasting, (3) the absence of any relationship between the trigger for a systemic breakdown and its size, and (4) the inevitability of unforeseen consequences of all policy actions. See: P. Ball, *Why Society is a Complex Matter* (Berlin: Springer, 2012); M. Buchanan, *Ubiquity* (New York: Crown Publishers, 2000); and E.D. Beinhocker, *The Origin of Wealth* (Boston, Mass.: Harvard Business School Press, 2006) for popular introductions to this literature.

⁶ Transportation, information and communication, forest management, food security and the spread of infectious diseases immediately come to mind.

⁷ See: D. Llewellyn, “The Economic Rational for Financial Regulation,” Financial Services Authority, Occasional Papers Series 1, April 1999; and S. Cecchetti, “The Future of Financial Intermediation and Regulation” (remarks prepared for the Second Conference of the European System of Central Banks, Macro Prudential Research Network, Frankfurt, October 30, 2012).

Partly in response to these perceived downsides of regulation, others have suggested that market failures are better addressed at source.⁸ In particular, what laws, regulations or policies might lead to market failures and could they be removed? A common suggestion is that much more transparency about the functioning of financial institutions would go a long way to improving market discipline. Others suggest that incentive systems that encourage imprudent behaviour could be changed, thus encouraging more self-discipline. Restoring a sense of “fiduciary responsibility” for client welfare, reducing pay incentives that encourage near-sighted investment strategies, and stronger legal sanctions for imprudent risk-taking would all help.⁹ Perhaps most importantly, removing features of the financial safety net would imply that financial agents would no longer be able to gamble for huge gains, knowing that losses would largely be borne by taxpayers.¹⁰ All of these measures to increase market discipline and self-discipline would reduce the need for regulatory discipline. Perhaps, in the end, recourse to all these approaches will be needed to achieve the objective of financial stability. Whether they would collectively prove sufficient is another issue.

Changes in emphasis over the years

Going back to the beginning of the last century, there have been long swings in financial regulatory practice, from less restrictive to more restrictive regimes and then back again to less restrictive. The current crisis has been the catalyst for another swing to tighter regulation. Underlying these swings has been fundamental changes in beliefs¹¹ about how efficiently a market-based financial system would manage itself. Similarly, these changing beliefs about the efficiency of private markets also lie behind long swings in fashion about how best to conduct monetary policy.¹² The complementary nature of these regulatory- and monetary-regime changes had important implications for the real economy in that reliance on market processes encouraged credit booms that eventually turned to bust. This experience then provided the motivation for the next regime change in turn.¹³

⁸ The origins of this way of thinking go back at least to the pre-war Austrian School. See: S. C. Littlechild, *The Fallacy of the Mixed Economy* (London: Institute for Economic Affairs, 1976), for a short introduction. George Benston and George Kaufman have also been pursuing this line of thought for many decades. For a recent set of similar suggestions, see: Institute for Economic Affairs, “Financial Regulation: the Need for a Revolution,” *Journal of the Institute for Economic Affairs* 32, 3 (October 2012).

⁹ Considering the magnitude of this latest crisis, it is remarkable how few financial agents have been prosecuted in the advanced market economies. This stands in sharp contrast, for example, with the many prosecutions that followed the Savings and Loan crisis in the United States. See: N. Ferguson, *The Great Degeneration* (London: Penguin Books, 2012): 75.

¹⁰ Mervyn King, then-governor of the Bank of England, gave priority to the safety-net issue to the point of calling bankers’ bonuses a “distraction.” See: B. Chu, “EU Cap on Bankers’ Bonuses is Unhelpful Distraction says King,” *The Independent*, March 7, 2013. For a further analysis of this safety net issue, see: W. R. White, “Are Changes in Financial Structure Increasing the Role of Safety Nets?” Bank for International Settlements, 2004.

¹¹ One is reminded of Keynes’ famous quote “The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood.”

¹² W. White, “Is Monetary Policy a Science? The Interaction of Theory and Practice Over the Last 50 Years,” in *SUERF: 50 years of Money and Finance: Lessons and Challenges*, ed. Morten Balling and Ernest Gnan (Vienna: Larcier, November 2013).

¹³ See: Bordo et al., “Financial Crises.”

There was little regulation prior to the 1930s. However, the belief that banking excesses had contributed to the Great Depression, especially in the United States, led to a significant tightening of financial regulation. This tightening of regulation was also thought justified by the introduction of deposit insurance in the U.S. in 1933. Whatever the cause, there were subsequently far fewer bank failures and systemic crises in advanced market economies through the 1950s, 1960s and 1970s than had been experienced in the pre-war period. However, there can also be little doubt that this came at the cost of some static inefficiency and a reduction in innovation in the financial sector as well.

With time, as the rising economic costs of the regulations themselves became better appreciated, there was a gradual swing back to a more deregulated financial environment. This swing was abetted by the growing belief, noted above, that some combination of self-interest and market discipline would suffice to prevent imprudent behaviour. The trend to financial-market liberalization began in North America in the 1960s, but proceeded only somewhat later in Europe and Japan, with the 1986 “Big Bang” legislation in the United Kingdom being of particular importance. The regulatory treatment of international capital flows also seems to have had a similar set of cycles.¹⁴

Regulatory liberalization, along with technological developments, contributed to three important structural developments which profoundly changed the financial landscape from the 1970s onwards. First, traditional “relationship” banking (on balance sheet) was increasingly complemented by “transactional” banking (largely off balance sheet) based on securitization of traditional bank assets financed through wholesale funding. A long chain of intermediaries thus developed (the “shadow banking” system) to link ultimate borrowers and ultimate lenders. Second, the financial system became increasingly globalized. Not only did gross international capital flows increase enormously,¹⁵ but banks from the advanced market economies increasingly established a local presence in other countries. Third, there was a significant degree of consolidation, with large financial firms not only gaining relative share, but also expanding the range of activities in which they were involved.

These structural developments were initially welcomed as improvements to the efficiency of the global financial system, though a few commentators did note important downsides.¹⁶ Some worried that securitization and the spread of shadow banking was an inherently fragile business model in that it depended on very short term financing of much longer-term assets.¹⁷

¹⁴ Capital controls were accepted as an essential requirement for the proper functioning of the Bretton Woods system. The doctrine of the “Impossible Trinity” held that a country could not have a fixed exchange rate, and an autonomous monetary policy, given free (and highly elastic) international capital flows. Subsequently, controls were gradually lifted, culminating in efforts made by the International Monetary Fund in the late 1990s to change its Articles of Agreement to force countries to remove such controls. More recently, in light of the recent crisis, the Fund has swung back to the conclusion that capital controls can, at times, serve a useful purpose. See: International Monetary Fund, “The Liberalisation and Management of Capital Flows: an Institutional View,” November 14, 2012.

¹⁵ For some documentation, see: M. Obstfeld, “Expanding Gross Asset Positions and the International Monetary System” (prepared for the “Macroeconomic Challenges: The Decade Ahead” symposium, organized by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 2010).

¹⁶ Successive annual reports of the Bank for International Settlements and associated research papers raised a number of “unfashionable” concerns about all of these developments.

¹⁷ T. Adrian and H.S. Shin, “Liquidity and Financial Cycles,” Bank for International Settlements Working Paper 256, July 2008, among others.

Globalization was also said to increase the likelihood of destabilizing international capital flows, threatening borrowers but perhaps even lenders.¹⁸ Finally, consolidation raised the issues of “too big to fail” or even “too big to save,” with all the associated concerns about ever increasing moral hazard. Attesting to the validity of such concerns, there were also a rising number of bank failures and other crises from the 1970s onwards. Among these were the emerging-market debt crisis of the early 1980s, banking crises in the Nordic countries and Japan in the early 1990s, a severe financial crisis in South East Asia beginning in 1997, and the events surrounding the failure of LTCM (an American firm) in 1998.

In eventual response to these developments, a number of central banks began to publish financial stability reports, as did some supervisory authorities. The Financial Stability Forum was established in 1998 and, shortly thereafter, it proposed a set of 12 “standards” to improve the stability of the financial system. However, consistent with the then-current belief system, these problems were not initially thought sufficient cause for a fundamental reassessment of the costs and benefits of a liberalized financial sector in the largest advanced-market economies (AMEs). The crises observed were largely in emerging-market economies (EMEs), or in AMEs in the process of financial deregulation, and thus deemed “special.” It took the severity of the financial and economic crisis beginning in 2007 to lead to a more fundamental re-evaluation.

This is not to say that all of the developments between the 1960s and 2007 were moving in a liberalizing direction. While this was generally the case at the national level, at the international level there was increasing concern about the growing role of internationally active banks and the need for a “level playing field.” The catalyst for these concerns was the international expansion of Japanese banks in the 1980s. This provided a significant threat to American and other western banks, which had been weakened by bad loans made to EMEs in an attempt to “recycle petrol dollars” after the oil crises of the 1970s.¹⁹

The Basel Accord of 1988 (now known as Basel I) was the initial response to these concerns. Promulgated by the Basel Committee on Banking Supervision, and subsequently ratified by national legislators, the Basel Accord was an early example of international “soft law” now seen on a much wider scale.²⁰ Basel I also adopted the concept of risk-weighted capital requirements, which some jurisdictions had already introduced. Assets of banks were allocated into “buckets,” with different capital requirements imposed depending on the relative riskiness of the assets concerned. As for the overall level of capital demanded, there was no attempt made either to assess why capital was needed or its optimal level.²¹ Rather, to aid compliance, the level set was designed to be only slightly higher than what the banks were already holding.

¹⁸ For a review of the literature motivated by the Asian crisis, see: W. R. White, “Recent Initiatives to Improve the Regulation and Supervision of Private Capital Flows,” Bank for International Settlements Working Paper 92, 2000. More recently, see: V. Bruno and H.S. Shin, “Global Factors in Capital Flows and Credit Growth” VoxEu.org, June 11, 2013.

¹⁹ W. L. Silber (*Volcker* (New York: Bloomsbury Press, 2012)) provides a fascinating description of these developments and the particular role played by Paul Volcker

²⁰ “Soft law” does not have the force of an international treaty. Rather it refers to international agreements — generally brokered by committees made up of national experts — that have subsequently to be given the power of law by national legislation.

²¹ See: C. A. E. Goodhart, “The Basel Committee on Banking Supervision”. p195.

As the number of bank failures and economic and financial crises continued to rise, the Basel committee began work on a significant refinement of Basel I, now known as Basel II. It was designed, not just to ensure a level playing field, but also to make the capital requirements much more sensitive to risk with a view to reducing regulatory arbitrage. The agreement fundamentally rested on three reinforcing “pillars.” The first pillar set out required capital holdings, and set out various ways in which these capital requirements could be calculated.²² In effect, this was both an appeal to self-discipline to control risk-taking (“skin in the game”) and the application of a regulatory rule. The second pillar laid out understandings about supervisory oversight and the scope for judgment, a second source of discipline. The third pillar had to do with transparency and reporting, with a view to the market exercising more discipline. It should be noted that the development of Solvency II standards for insurance companies in Europe also rests on three similar pillars but, as will be discussed below, there are in fact significant differences in the regulatory regimes proposed for banks and insurance companies.

Even before the promulgation of Basel II, a number of critics²³ had suggested that these measures might in fact increase rather than decrease financial instability. One important reason was that the “risk weights,” while distinguishing properly between more and less risky assets at a moment in time, might also fall all at the same time in cyclical upswings and rise all together in cyclical downswings. This would increase the inherent tendency to “procyclicality” in lending practices (explained in more detail below). Moreover, the emphasis in Basel II continued to be on improving the safety and resilience of individual banks, rather than the behaviour of the system as a whole. Finally, and a still broader failing, stated concerns about financial stability were not always matched by commensurate and concrete action.

For better or worse, the ostensibly tougher Basel II regulatory standards had not generally been implemented when the crisis broke in 2007. However, one important exception was that investment banks in the U.S. were allowed by the SEC, from 2004 onwards, to use Basel II risk weights to calculate their capital requirements. As a result, their required capital plummeted and they subsequently increased their leverage in order to absorb all the capital they actually had. Adrian and Shin²⁴ as well as Admati and Hellwig,²⁵ among others, contend that increased leverage made a material contribution to much of the financial mayhem that followed.

The economic and financial crisis that began in 2007 had a significant effect on regulatory thinking. Two developments were particularly important. First, the idea that self-interest and market discipline would prevent imprudent behaviour seemed clearly rejected by the facts. There was a need for tougher regulation. Second, there was further support for the belief that the system as a whole could be vulnerable even if the individual parts appeared strong. The

²² The most important distinction is between the standard and advanced methodologies. The former relies more on external ratings to determine credit quality, whereas the latter allows for the greater use of internally developed models. There would be a presumption that more granular and sophisticated internal models would lower the assessed need for capital, but such models would also be expensive to set up and run.

²³ C. A. E. Goodhart, “An Academic Response”; and a variety of publications authored by Bank for International Settlements (BIS) staff. For example, see: C. Borio, “Towards a Macroprudential Framework for Financial Supervision and Regulation,” Bank for International Settlements Working Paper 128, February 2003.

²⁴ Adrian and Shin, “Liquidity and Financial Cycles.”

²⁵ Admati and Hellwig, *The Banker's New Clothes*.

suddenness of the drying up of the inter-bank market and the unexpected collapse of Lehman Brothers both pointed to systemic causes (both often described as “Minsky moments”) and contributed to this intellectual change. These two new insights provide the jumping-off point for the rest of this paper, which tries to evaluate which regulatory initiatives might best help achieve the objective of “financial stability” described above. In practice, these post-crisis initiatives seem to have been driven much more by the need for tighter regulations than the need to address systemic issues.

It is finally worth noting the actions undertaken by regulators (in association with governments and central banks) to manage the crisis as it unfolded. Virtually everywhere, the official sector turned to some combination of forbearance, public injection of funds to troubled institutions, massive extension of “safety net” provisions (deposit insurance and senior credits) and the use of takeovers and mergers and acquisitions to deal with seriously troubled institutions. These measures seemed to be necessary to prevent the crisis from spreading with even more devastating effects. However, there also seems little doubt that these measures have made the challenge of preventing future crises much harder. All of these support measures (“bail out” rather than “bail in”) have generated moral hazard and a further erosion of both internal and market discipline. Further, many institutions are now even bigger and more complex (and thus interdependent) than they were before, implying a clear worsening of the “too big to fail” problem during the crisis. Haldane suggests²⁶ that the implicit government subsidy to large banks has increased markedly since the crisis began. Something similar can also be said about many financial markets, which are now more concentrated than before. In sum, future systemic risks in the financial sector have grown significantly as a result of recent policy actions.

Two other issues pertaining to regulatory actions in the post-crisis period are both important and controversial. The first has to do with something that did not happen, and perhaps should have. The second has to do with something that did happen, and perhaps should not have.

What has *not* happened in any major regulatory jurisdiction has been a comprehensive approach to writing off troubled loans and forcing lending institutions into bankruptcy. In effect, most affected countries (with the U.S. being somewhat of an exception) have chosen a Japanese, rather than a Nordic approach, to resolving the problem of bad credit.²⁷ What *has* happened is that the regulators moved into crisis-prevention mode well before the problems associated with this current crisis had been fully resolved. Not only have regulators everywhere called for a major increase in capital requirements, but national regulators have also been encouraging their financial institutions to retreat behind national borders. Whether or not this

²⁶ A. Haldane, “Have We Solved ‘Too Big to Fail’?” VoxEu.org, December 18, 2003. He notes that, prior to the crisis, the large banks classified as SIFIs (systematically important financial institutions) received a one-notch upgrade from rating agencies on the assumption of state support. Since then, the upgrade has risen to three notches.

²⁷ For an excellent description of these two approaches, see: C. Borio, B. Vale and G. von Peter, “Resolving the Financial Crisis: Are We Heeding the Lessons from the Nordics?” Bank for International Settlements Working Paper 311, June 2010. The Japanese approach was based on the assumption that the losses were small enough that the banking system and the country could grow out of them. This was also the tactic followed by the U.S. in response to the banking losses associated with the emerging-market debt crisis of the 1980s. It worked in the U.S. case, but not in the Japanese case. The fundamental problem is that unrecognized bad loans may inhibit lending to such a point that they prevent the needed economic growth from actually happening. The Nordic approach recognized more clearly the downside risks of this approach, and opted for a more rapid and brutal restructuring. It led to a deeper recession, but one that was soon over.

might threaten the global recovery and the very concept of “financial globalization” going forward²⁸ is discussed further below. The only point to be made here is that important decisions have already been taken, in spite of the fact that the analytical support needed was never anything more than “work in progress.”

Other influences on regulatory changes

In looking at what other countries or even international bodies do in the regulatory area, it is important not to be naive. Regulatory changes are mostly driven by valid economic objectives and the belief that regulatory changes can help achieve them. Nevertheless, other, less noble motives often come into play as well.

First, in complex and unexpected circumstances, there seems to be a natural human tendency to revert to earlier belief systems, whether appropriate or not.²⁹ In Europe, for example, disproportionate efforts have gone into regulating hedge funds and private-equity firms, even though they played only a very limited role in the European financial crisis. Second, there seems to be an equally human tendency to wish to find someone to blame for any undesirable event. This can lead to angry and even punitive measures being taken, often legislated in haste. Many would now consider the Sarbanes-Oxley Act of 2002 to be an example of this, and many worry similarly about the recently passed Dodd-Frank bill in the United States. Third, the influence of lobbyists representing financial-sector interests has increased sharply in recent years, and not just in the United States.³⁰ The financial industry has access to large amounts of money and is obviously prepared to use it in pursuit of its own interests.

The lessons from this are twofold. First, do not assume that regulatory changes made elsewhere have been done for the best of reasons. Second, one must be aware that similar malevolent forces might also exist in Canada and their influence must therefore be guarded against.

REGULATING DIFFERENT KINDS OF FINANCIAL INSTITUTIONS

Prudential regulation has as its objectives the safety of individual institutions and the stability of the financial system as a whole. Traditionally, such regulation has been primarily directed at banks, and initiatives with respect to banks will be the primary focus of the next section below. However, in recent years, a view has emerged that other institutions might also have the potential to generate financial instability. This is considered in the following section, which considers regulation pertaining to the many different types of financial institutions involved in

²⁸ In addition, the retreat into national jurisdictions in the eurozone threatens the very survival of the eurozone itself.

²⁹ See: D. Kahneman, *Thinking, Fast and Slow* (Toronto: Doubleday, 2011).

³⁰ See: N. Häring and N. Douglas, *Economists and the Powerful* (London: Anthem Press, 2012); S. Johnson “The Quiet Coup,” *The Atlantic*, May 1, 2009; and J. R. Wedel, *Shadow Elite* (New York: Basic Books, 2009). M. Taibbi (“How Wall Street Killed Financial Reform,” *Rolling Stone*, May 10, 2012) provides a useful taxonomy of “How Wall Street Killed Financial Reform.” Measures noted include watering down the original act, stalling for time, utilizing many loopholes, bullying the regulators, and appealing repeatedly to the courts.

the “shadow banking” system. Regulation pertaining to insurance companies and pension funds will be dealt with separately in a subsequent section of this paper. To put the size of these industries into some perspective, the Financial Stability Board³¹ has estimated the total assets of the global banking industry at \$130 trillion, the shadow-banking industry at \$67 trillion, and the combined assets of the insurance industry and pension funds at \$43 trillion.

In addition to prudential regulation, most countries have regulations directed to consumer protection. While these will not be addressed in this paper, this is not meant to deny that unethical business practices can also contribute to financial and macroeconomic instability. The rapid growth and subsequent collapse of the sub-prime mortgage market in the U.S. is a case in point. Moreover, the reverse direction of causation is also extremely common, as pointed out by Kindelberger and Aliber.³² Finally, it is worth noting that unethical behaviour can change the climate of public opinion in favour of tighter prudential regulation as well.³³ This may be one welcome side-effect of the recent LIBOR rate-setting scandal and the revelation of massive trading losses at JP Morgan³⁴ incurred by the “London Whale.”

Financial instability has economic costs as described above. One way of looking at prudential regulatory measures is that they are designed to reduce the expected losses³⁵ arising from such instability. This involves measures to reduce the probability of a default/crisis arising, as well as regulatory measures to reduce the size of the losses incurred, should a default/crisis actually happen. In this paper, an important distinction is made between the micro-prudential approach and the macro-prudential approach to the prudential regulation of financial institutions.³⁶ These different approaches imply that the same policy instruments can be used for different purposes. Thus, many of the instruments that could be used for macro-prudential purposes (e.g., time-varying capital requirements as described below) were originally introduced for micro-prudential purposes. This historical legacy creates problems for institutional design going forward.

The *micro-prudential* approach to prudential regulation is the more traditional of the two. It focuses on the health of individual institutions, essentially assuming that, if each institution is healthy, the system will be healthy. Issues of interdependence are given little attention and risks are taken as exogenous. This approach is essentially static in nature. It assumes that defaults could occur at any time and the regulatory response should be to reduce the probability of this happening. Indeed, most of the proposed measures in Basel III are of this nature.

³¹ Financial Stability Board, “Consultative Document: Strengthening Oversight and Regulation of Shadow Banking,” November 18, 2012.

³² C. P. Kindelberger and R. Z. Aliber, *Manias, Panics and Crashes* (New York: Palgrave Macmillan, 2005). Specifically, see Chapter 9 on “Frauds, Swindles and the Credit Cycle.” J. K. Galbraith famously referred to such late-cycle fraudulent behavior as “the bezzle.”

³³ S. Patterson, “How ‘Whale’ Shipwrecked Banks on Dodd Frank,” *The Wall Street Journal*, December 28, 2012.

³⁴ Prior to this incident, JP Morgan was considered to be one of the world’s best-managed firms. If it could suffer such losses, what might happen elsewhere?

³⁵ The “expected loss” is defined as the product of the probability of default/crisis (PC) and the loss incurred should there be such a default/crisis (LGC).

³⁶ For an early discussion, see: Borio, “Towards a Macroprudential.”

The *macro-prudential* approach to prudential regulation rather focuses on the stability of the financial system as a whole, and has both a static (cross-sectional) and a dynamic (time-varying) dimension. The former dimension recognizes the interdependencies in the financial system and the diverse ways in which the actions of individual institutions can feed back on the health of others. It recognizes the fact that “shared shocks” can be dangerous to the system, even if all its components initially seem healthy. Banks that are “too big to fail” also need special attention, as do particular forms of interdependency. This approach does not just focus on reducing the probability of a crisis, but also reducing the size of the economic costs that might be associated with such a crisis.

The macro-prudential approach also has a time dimension. This reflects the assumption that expected losses are not constant, but change over time. This has largely to do with the inherent “procyclicality” of the financial system. To be more specific, the appetite to take on risk, both by lenders and borrowers, seems to be endogenous and tends to increase with the apparent strength of the cyclical upturn. This “boom” process (generally driven by leverage, speculation and rapid credit growth) frequently culminates in a costly “bust.” This process is now well documented historically³⁷ and is increasingly well understood analytically.³⁸ Accordingly, it is suggested that macro-prudential measures might be calibrated to lean against this process. The question of whether monetary policy should also “lean” against a credit bubble also deserves serious attention. This is discussed below. As a corollary, it should also be noted that, in complex adaptive systems, identifying the specific time and character of turning points is essentially impossible.

Prudential regulation of banks

The approach taken below will be to allocate the prudential measures being currently discussed at the international level into the two categories of initiatives defined above. In the case of each, an attempt will be made to assess the reactions to these proposals.

³⁷ Two well-known references are: C. Reinhart and K. Rogoff, *This Time is Different: Eight Centuries of Financial Folly* (Princeton, N.J.: Princeton University Press, 2009); and O. Jorda, M. Schularick and A. M. Taylor, “When Credit Bites Back: Business Cycles and Crises” (paper prepared for “Debt and Credit Growth and Crises” conference, hosted by the World Bank and the Bank of Spain, Madrid, June 18–19, 2012).

³⁸ For a recent overview of this literature, see: C. Borio, “The Financial Cycle and Macroeconomics: What Have We Learnt?” Bank for International Settlements Working Paper 395, December 2012. Also: C. Borio and W. White, “Whither Monetary and Financial Stability: The Implications of Evolving Policy Regimes” (prepared for “Monetary Policy and Uncertainty: Adapting to a Changing Economy” symposium, organized by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 28–30, 2003). Note as well, that government policies also contribute to the tendency to “procyclicality.” The fact that the shareholders of financial institutions have legally limited liability is equivalent to saying that they have a “put” on the value of the firm with the strike price at zero. In effect, they have a limited downside but an unlimited upside which encourages risk taking. Moreover, official safety-net measures worsen this asymmetry.

MICRO-PRUDENTIAL INITIATIVES

In theory, individual financial institutions protect themselves against possible credit losses in three ways. First, they take care to price the loan according to the riskiness of the loan. In a diversified portfolio, occasional losses are offset by the extra revenues from other risky loans that continue to be serviced. Second, when perceptions of risk shift, the lender makes loan-loss provisions to cover this expected loss. Third, institutions hold capital to meet the challenges posed by unexpected losses.

In practice, the regulatory regimes associated with the Basel process have commonly failed to make these distinctions, implying that the analytical underpinnings of the Basel framework could have serious shortcomings. At the least, regulators have failed to ensure that financial institutions have recourse to all three safeguards.

The pricing of risky loans has received surprisingly little attention.³⁹ Indeed, the narrowing of risk spreads between 2004 and 2007 (just before the crisis started) was generally interpreted by regulators and central bankers as a positive sign for the future stability of the system.⁴⁰ Moreover, diversification per se has not been seen as a high priority,⁴¹ even if this argument has been used from time to time to support the existence of “universal” banks. Absent such concerns about diversification, there has been a gradual drift upwards in the proportion of loans against property in the banking systems of many countries. This is particularly worrisome given how commonly property finds itself at the centre of “boom-bust” credit cycles.⁴² Further, excessive reliance might have been put on the low (and assumed constant) correlations observed historically between returns on asset classes in assessing diversification. If those correlations might be expected to rise significantly in crisis situations, then actual diversification might prove to be much less.

As for making provisions against expected losses, this has been resisted firmly for decades by both Treasury officials and by the accounting profession. The former feared tax losses as bank profits were reduced, while the latter feared that the introduction of “subjective” expectations would allow the accounts to be manipulated. Better, they felt, to allow provisions only when loans actually had gone bad or were about to (the “incurred loss” approach). However, this approach might be about to change. Both the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) announced in 2012 their desire to move to an “expected loss” model, though both remain reluctant to embrace full “through-the-cycle” loss experience. Further, technical differences in the FASB and IASB proposals still need to be dealt with. The former prefers to recognize more losses up front, while the latter continues to argue that this could discourage necessary lending.

³⁹ In the late 1980s, the Committee on the Global Financial System at the BIS set up a sub-committee, under the chairmanship of a senior vice-president at the Federal Reserve Bank of New York, to compare ex ante and ex post assessments of risk at large financial firms. The identification of big differences would then have called into question the risk-assessment procedures at the institutions involved. For various reasons, not least the unwillingness of financial institutions to co-operate, this work was not pursued.

⁴⁰ As discussed further below, there seems to be a growing consensus that market-based indicators of increasing risks in the system (such as the Vix index) systematically move in the wrong direction.

⁴¹ In fact, the assumption underlying the calculation of the capital requirements is that each portfolio is perfectly diversified.

⁴² Commercial property prices are generally even more volatile than residential property prices. Looking forward, the value of retail shops (bricks and mortar) might be under particular threat from online shopping. See: *The Economist*, “The Emporium Strikes Back,” July 13-19, 2013. As online banking expands, something similar could affect the property value of branch banks as well.

The principal set of international regulations directed to establishing capital levels at individual banks is now known as Basel III. It has received strong support from the G20 process, having been emphasized in successive G20 communiqués. Moreover, both the Basel committee on Banking Supervision and the Financial Stability Board (upgraded from the Financial Stability Forum) have had their memberships expanded to more closely resemble the G20. The intention is to build greater global “credibility” for the recommendations made by these two bodies.

Basel III lays out new and higher capital requirements than Basel II,⁴³ and also specifies what is to be done when certain requirements are not met. As well, it also significantly tightens the definition of capital, by excluding a number of liabilities that would not actually be loss-absorbing in a crisis. The framework also specifies a series of dates for introduction of various measures. Basel III is intended to apply only to internationally active banks, as was the original intention under Basel I. However, some jurisdictions (e.g., the European Union) are applying it to all banks. This has raised numerous objections, not least to the complexity of calculating the capital requirements and the associated costs of compliance for smaller firms.

The Basel committee on Banking Supervision (BCBS) has also instituted a comprehensive program for assessing whether member countries are complying with the new capital regulations.⁴⁴ Insofar as the timing of intended conformance is concerned, the latest report⁴⁵ indicates that the 27 member countries of the BCBS are well advanced in the adoption of the Basel III capital regulations. Final rules are already being enforced in 11 countries and have been published in three others. In all the remaining countries, draft rules have been published and discussions with the banking industry are ongoing. While delays have been observed in two crucial areas, the United States and the European Union, the relevant authorities have made firm commitments to rapid implementation of Basel III.⁴⁶ That said, worrisome differences in the specifics of the suggested rules in different regions have been identified.⁴⁷ This raises the danger of important countries or regions backsliding on the grounds that some other country or region is not playing “according to the rules.”

⁴³ See: Basel committee on Banking Supervision, “Calibrating Regulatory Minimum Capital Requirements and Capital Buffers: A Top Down Approach,” October 2010. For an excellent overview of all aspects of Basel III, see: P-E. Chabanel, *Basel III Regulations Update*, Moody's Analytics, June 2012.

⁴⁴ This work takes place at three levels and, for the moment, focuses on compliance with respect to capital requirements. Level 1 ensures the timely adoption of Basel III. The last report in April 2013 covers all members of the committee. Level 2 ensures regulatory consistency with Basel III. To date, only four countries have been covered. Level 3 ensures consistency of outcomes. To date, the committee has focused on the calculation of risk weights at the level of individual banks. The results of two initial reports are discussed below.

⁴⁵ Basel Committee on Banking Supervision, “Progress Report on Implementation of the Basel Regulatory Framework,” April 2013.

⁴⁶ Given the complexity of the regulatory structure in the U.S., and the need to get all member countries on side in the EU, some delay might have been anticipated. In Europe, one cause for delay was a vigorous debate as to whether all countries would have to have the same capital requirements, or whether individual countries could opt for still higher capital levels. The European Commission argued for the former, while the U.K. and Sweden (and some others) took the latter position. In the end, a compromise was reached.

⁴⁷ The Level 2 compliance studies completed to date have covered the U.S., the EU and Japan along with Singapore. The U.S. is non-compliant in only one respect. Its regulations eschew all references to rating agencies, while Basel III still relies on them to some extent. The EU is materially non-compliant in two respects, the more important of which is that its definition of capital is broader than Basel III. As actual capital levels rise in European banks, the hope is that the definition of capital will come in line. For an overview, see: N. Veron, “Challenges of Europe’s Fourfold Union” (prepared statement before the U.S. Senate Committee on Foreign Relations: Subcommittee on European Affairs, Washington, August 16, 2012). K. Lanno (“Bonus Compromise Masks Basel Cheese,” *Financial Regulation International*, April 23, 2013) notes worrisome aspects of the Capital Requirements Directive IV, which is the directive to implement Basel III in Europe. He contends that it has been drafted so as to allow significant differences in the application of Basel III across European countries.

The Basel committee has also surveyed the world's largest 101 banks and calculated the amount of supplementary capital they would need if they were to meet the final capital targets (seven per cent of Tier 1 equity by 2019) today. As of June 2012, this shortfall was 176 billion euros versus a shortfall of 386 billion euros only six months earlier. This "progress" has led the committee to conclude that the big banks were likely to meet their requirements some years before they were formally required to do so, and that they could likely do so through retained profits. This said, a number of large banks (particularly in Europe) still seem to face some significant challenges.

In spite of this apparent "progress," two important analytical issues continue to be debated. The first has to do with the timing of the introduction of the capital measures in particular. The Basel committee gave long lead times, specifically to avoid raising capital in the middle of an ongoing recession. Its fear was that higher capital requirements might lead to slower credit growth, which would make the economic weakness more intractable. Needless to say, the banking community echoed these concerns, going even further to suggest that the Basel committee's deadlines were still far too tight.⁴⁸ In contrast, the Swiss National Bank and the European Banking Authority independently mandated much higher and much earlier capital requirements than did the Basel committee. Since the Basel standards lay out minimum requirements, the committee could not object to tighter standards, yet many others continued to question the effect of an earlier imposition of higher capital requirements on the supply of credit. In Europe in particular, credit growth has been very restrained, particularly for small and medium-sized enterprises. It is of course very difficult to distinguish the effects on credit growth of these regulatory developments from the macro-economic effects of the eurozone crisis more generally.⁴⁹

The second analytical issue has to do with the level of the capital requirements imposed by Basel III. What is incontrovertible is that the basic level of capital required under Basel III will rise from two per cent under Basel II to seven per cent of risk-weighted assets,⁵⁰ and that the definition of capital will be much stricter. What needs to be remembered, however, is that the required levels of capital under Basel II were designed to be close to those under Basel I, and the original requirements were close to the levels of capital that banks already held. In short, there was never at any point a rigorous analysis of how much capital banks should hold. Put otherwise, we know capital requirements have risen under Basel III, but we do not know if they have risen enough.

⁴⁸ The effects on the global economy of implementing the capital standards as anticipated were investigated by the official community and by the Institute for International Finance, representing the banks. The former concluded that the shorter-term costs of higher capital (and the avoidance of very costly downturns) were minimal, whereas the latter concluded the shorter-term costs would be very heavy indeed. Since none of the models used to support these different conclusions actually included a developed financial sector, there must be a suspicion (at the least) that ad hoc assumptions produced the results desired.

⁴⁹ While loans to small and medium-sized firms have fallen everywhere in the eurozone, the declines have been much greater in the so called "peripheral" countries whose continued membership in the eurozone remains most in doubt.

⁵⁰ The seven per cent comprises a minimum equity requirement plus a "conservation buffer." In addition, Basel III allows for other supplementary capital requirements (especially "counter-cyclical" surcharges and surcharges for SIFIs) that could raise the required ratio to as high as 13 per cent.

This uncertainty sparked a vigorous debate, which continued into 2013. On the one hand, some have contended that the Basel III requirements are already having a significant impact on how banks behave.⁵¹ Reflecting higher risk-weights, banks are withdrawing from riskier activities. As with the timing issue discussed above, representatives of the banking industry also contend that the current higher capital requirements are already raising credit spreads and threatening loan growth. Still-higher requirements would threaten economic recovery even more. Finally, it has been suggested that higher regulatory requirements for capital quickly become treated as absolute minimum requirements by the market. In effect, available capital can no longer be used for the purpose for which it was originally intended: i.e., absorbing unexpected losses.⁵² This argument needs serious attention, since it suggests the possibility of a ratcheting-up of target levels for capital that could have serious economic effects.

On the other hand, a wide variety of commentators have suggested that banks' capital ratios should be much higher.⁵³ They argue that this would not impede growth and would minimize the likelihood of costly crises. A common empirical thread is the observation that banks held much more capital in earlier decades and that there is no evidence that lending and economic growth were materially lower. At the level of theory, Admati and Hellwig⁵⁴ essentially rely on the Modigliani-Miller theorem to suggest that higher capital ratios would not lower the risk-adjusted rate of return on equity in banking. In effect, with a higher equity ratio, banking would be less risky which would allow banks to raise financing much more cheaply.⁵⁵ In contrast, Jackson and Birchler⁵⁶ suggest that there are many reasons why the Modigliani-Miller theorem does not apply in the real world.⁵⁷ Further, there is the question of where the increased equity investment would come from and whether it might not raise capital costs elsewhere, to the broader detriment of fixed capital investment.⁵⁸ Since there does not seem to

⁵¹ See for example: A. Barker and T. Braithwaite, "EU and Fed Clash over US Bank Move," *Financial Times*, April 23, 2013; and *Risk*, "Basel III Starts to Bite," January 3, 2013. In particular, higher capital requirements have made short-term repo financing more expensive, and this market has recently been contracting. It remains to be seen whether this is a welcome or a worrisome development.

⁵² In principle, supervisors might envisage that a higher capital ratio could be ratcheted down, thus evoking ever-stronger supervisory oversight and eventual resolution. This process would, however, be impeded if the markets panicked whenever regulatory capital began to fall, even from high levels.

⁵³ See, for example: Admati and Hellwig, *The Banker's New Clothes*; A. Turner, "Leverage, Maturity Transformation and Financial Stability: Challenges Beyond Basel III," Case Business School, 2011; T. Hoening, "Get Basel III Right and There Will be no Need for Basel IV," *Financial Times*, December 13, 2012; and D. Miles, J. Yang and G. Marcheggiano, "Optimal Bank Capital," Bank of England, External MPC Unit Discussion Paper 31, 2012.

⁵⁴ Admati and Hellwig, *The Banker's New Clothes*.

⁵⁵ Some would contend that this is already happening. Barclays issued a bond in 2012 with a coupon of only 7.5 per cent in spite of a provision that the bond would be written down to nothing if pre-specified minimum capital ratios were breached. In addition, spreads on bank bonds continue to tighten. See: V. Rodriguez and S. Foley, "Bonds Bloom as Banks Rendered Less likely to Fail," *Financial Times*, April 26, 2013.

⁵⁶ P. Jackson and U. Birchler, "The Future of Bank Capital," *Central Banking Journal*, September 24, 2012.

⁵⁷ In particular, banks are subsidized by the state in two ways. First, interest payments are deductible from profits for tax purposes. Second, deposit insurance and other safety-net provisions imply they can attract deposits at lower interest rates than otherwise. It seems odd that the state should subsidize activities whose dangers the state would subsequently decay. The evident way to square the circle would be to remove the subsidies and accept that lending costs would rise somewhat.

⁵⁸ *Financial Times*, "Bank Leverage," Lex Column, April 27, 2013.

be much support from regulators for the basic suggestion of Admati and Hellwig, that an unweighted capital ratio of 15 to 20 per cent should be imposed on all banks, the official sector seems yet to be convinced.⁵⁹

A complicating feature of this debate has to do with the definition of capital. While Basel III narrows the definition when compared to previous practices, it still allows enough flexibility of interpretation to allow quite divergent practices between the United States and Europe. In particular, under the Dodd-Frank bill, contingent capital bonds (CoCos) are not allowed, whereas in Europe, they are. To date, two kinds of these bonds have been issued in Europe. Some are bonds that convert into equity when a bank's capital ratio falls below a certain threshold set by regulators, and some are bonds that are written off entirely. Moreover, it is clear that significant efforts are likely to be made in devising still other variants.⁶⁰ The debate continues on the pros and cons of these types of instruments, with Admati and Hellwig⁶¹ perhaps the most categorical. While contingent liabilities might be preferred by the banking industry, they offer no broader advantage than do higher levels of more narrowly defined capital.

Another feature of Basel III is that, together with its continued reliance on risk-weighted capital requirements, it also imposes an overall (unweighted) leverage ratio as a "backstop." One reason for this seems to have been concerns that banks have been "gaming" the risk weights ever since they were introduced in 1988. Blundell-Wignall et al.⁶² and Slovik⁶³ show how the ratio of weighted to unweighted risk assets in fact has been declining steadily ever since Basel I was introduced. Haldane⁶⁴ also notes that risk weights have many other disadvantages, not least an inherent unreliability.⁶⁵ In effect, he suggests that the problem bankers face is not the evaluation of risks, but Knightian uncertainty. The euro crisis, with its attendant pressures on the ratings and credit spreads of a number of sovereigns, has also called into question whether sovereigns should continue to be assigned zero risk weights,⁶⁶ as at present. Worries about the "procyclicality" of the risk weights chosen by banks have already been referred to above.

⁵⁹ Chapters 12 and 13 of Admati and Hellwig (*The Banker's New Clothes*) ask why this might be the case, and suggest the influence of vigorous bank lobbying and the more general (and traditional) problem of regulatory capture. That said, prominent members (or ex-members) of the official community, such as Mervyn King and Paul Volcker, have stated publically that the Basel III requirements are too low.

⁶⁰ See: T. Hartford ("Markets Must Force Banks To Grow Up," *Financial Times*, August 21, 2013) and his reference to equity recourse notes.

⁶¹ Admati and Hellwig, *The Banker's New Clothes*.

⁶² A. Blundell-Wignall, G. Wehinger and P. Slovik, "The Elephant in the Room: the Need to Deal with What Banks Do," *OECD Journal: Financial Market Trends* 2 (2009).

⁶³ P. Slovik, "Systemically Important Banks and Capital Regulation Changes," OECD Economic Working Papers 916, 2011.

⁶⁴ A. Haldane, "The Dog and the Frisbee" (presented at "The Changing Policy Landscape" symposium, sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 31, 2012).

⁶⁵ The related issues of data, modeling and risk measurement are considered further below.

⁶⁶ More broadly, a number of commentators have seen these zero weights as part of a broader trend towards "financial repression," which aims to lower the real borrowing costs of highly indebted sovereigns. See: C. Reinhart and M. B. Sbrancia, "The Liquidation of Government Debt," NBER Working Paper 16893, March 2011.

These identified shortcomings of the risk-weighted approach have led to a spectrum of proposals. As noted, the Basel committee treats the leverage ratio as a backstop to the risk-weighted requirements and there is some evidence that the banking industry would go along.⁶⁷ Haldane⁶⁸ states explicitly that the two ratios should be treated as of equal importance, but the thrust of his argument seems to sympathize more with Hoenig.⁶⁹ Hoenig feels the leverage ratio should have precedence and the risk-weighted ratio should be the backstop. Blundell-Wignall and Atkinson⁷⁰ go one step further and ask whether one needs the risk-weighted requirements at all. They contend that the banks' proven capacity to shift risk outside of the formal banking system implies that the unweighted ratio will always be the binding constraint, and that the weighted ratio can be dispensed with. Further, Blundell-Wignall and Roulet,⁷¹ and Haldane,⁷² also conclude that the unweighted leverage ratio is a much better predictor of default risk than the weighted ratio. Given the very high costs of complying with Basel III, for both banks and supervisors,⁷³ this issue is of great practical importance.

Along with Admati and Hellwig,⁷⁴ Hoenig and others also recommend a leverage ratio that is many multiples of the ratio (three per cent) suggested in Basel III. However, recent statements by U.S. banks that they need only "shuffle assets" to meet higher leverage requirements⁷⁵ must raise doubts about the effectiveness of these unweighted ratios as well. In response to such concerns about "gaming" the ratios, Goodhart,⁷⁶ and Admati and Hellwig,⁷⁷ have suggested regulators should demand increases in the absolute level of capital held by banks. This would have the further advantage of reducing the incentive for banks to cut loans, as a way of meeting capital requirements couched in terms of ratios.

Finally with respect to capital requirements, Basel III continues to rely on rating agencies to set risk weights under the "standardized approach." One problem with this is that the Dodd-Frank Act in the United States explicitly rules out the use of such ratings. Another issue has to do with the poor quality of some ratings. Consider the problems associated with the AAA ratings

⁶⁷ P. Sands, "When it Comes to Banks, Simple is Not Always Best," *Financial Times*, August 27, 2013.

⁶⁸ Haldane, "The Dog and the Frisbee."

⁶⁹ T. Hoenig, "Basel III Capital: A Well-Intentioned Illusion" (remarks to the International Association of Deposit Insurers, Basel, Switzerland, April 9, 2013).

⁷⁰ A. Blundell-Wignall and P. E. Atkinson, "Thinking Beyond Basel III: Necessary Conclusions for Capital and Liquidity," *OECD Journal: Financial Market Trends* 1 (2010).

⁷¹ A. Blundell-Wignall and C. Roulet, "Business Models of Bank Leverage and the Distance to Default," *OECD Journal: Financial Market Trends* 2 (2013).

⁷² Haldane, "The Dog and the Frisbee."

⁷³ See the references in Haldane, "The Dog and the Frisbee," 12.

⁷⁴ Admati and Hellwig, *The Banker's New Clothes*.

⁷⁵ T. Braithwaite and T. Alloway "US Banks Plan to Shuffle Assets to Meet New Rules on Leverage," *Financial Times*, July 11, 2013.

⁷⁶ C. A. E. Goodhart, "From National Towards European/Global Financial Regulation," in *SUERF: 50 years of Money and Finance: Lessons and Challenges*, ed. Morten Balling and Ernest Gnan (Vienna: Larcier, November 2013).

⁷⁷ Admati and Hellwig, *The Banker's New Clothes*.

of structured products, revealed as erroneous by the onset of the global crisis, and the sudden revision of sovereign ratings in the context of the euro crisis. However, whether these specific shortcomings⁷⁸ should call into question the validity of all ratings provided by rating agencies remains very much an open question. Moreover, to the extent banks (and others) rely less on the “opinions” of rating agencies, they must find some alternative. One possibility is that the Bank for International Settlements (or some other institution equally capable of respecting confidentiality) might collect “internal ratings” for all borrowing entities from a wide range of lenders known to carry out such assessments. If the full distribution of such results were to be published, the uncertainties associated with ratings would then become much clearer.

Not surprisingly, given market developments during the crisis, Basel III also lays out new standards concerning liquidity management. These regulations prescribe the need for short-term liquidity requirements (the capacity to sell enough assets to meet a cumulative liquidity shortfall over a 30-day period) and also the need for a stable funding ratio over time. The implication of the latter is that banks should rely much more on stable retail deposits rather than wholesale sources of funding that could dry up at any moment. Both suggestions proved very controversial. The timing of the introduction of the stable-funding requirement has been put off repeatedly, no doubt reflecting the difficulties it would pose for banks (especially European banks) that had become increasingly reliant on wholesale funding in recent years.⁷⁹ In March 2013, the BCBS also agreed to weaken the short-term liquidity requirement (by both lowering the threshold for expected outflows and widening the spectrum of assets judged to be eligible to meet liquidity requirements). While some critics saw this as a capitulation to bank lobbying, Wagner⁸⁰ and others suggested there were valid concerns that implementation of the original proposals would actually prove counterproductive.

Recent discussions about a “banking union” in the eurozone serve to remind us that the regulation and supervision of banks is only one of three features required for a properly functioning banking system. The other two features are a well-designed deposit-insurance scheme and an efficient legal mechanism for resolving banks that are deemed to be insolvent. The latter is a mechanism for offsetting the “moral hazard” generated by the former. Similarly, absent the ultimate threat of insolvency, the regulation of financial institutions is bound to be highly inefficient and market discipline will also not work properly. While a discussion of deposit insurance issues is beyond the scope of this paper, it would seem worth reviewing recent developments with respect to bank-resolution procedures.

⁷⁸ For example, it is now clear that it was effectively impossible to provide a rating for many structured products that would demonstrate any stability over time. See: I. Fender, N. Tarashev and H. Zhu, “Credit Fundamentals, Ratings and Value-at-Risk: CDOs vs Corporate Exposures,” *BIS Quarterly Review* (March 2008); and J. D. Coval, J. Jurek and E. Stafford, “The Economics of Structured Finance,” Harvard Business School Working Paper 09-060, 2008. The latter show that even modest imprecision in the parameters used in rating methodologies could lead to wide variation in the default risk of structured products such as CDOs. Further, these products “substitute risks that are highly diversifiable for risks that are highly systematic” (page 2). As for sovereign ratings, it could be that the rating methodology could be significantly improved. For a new initiative in this area, see: Bertelsmann Foundation, “Blueprint for INCRA: an International Non-Profit Credit Rating Agency,” 2013.

⁷⁹ The development of the “shadow banking” system, characterized by increased reliance on securitization and wholesale funding, will be discussed further below.

⁸⁰ W. Wagner, “Liquidity Regulation Can Reduce Liquidity,” *The Banker*, February 4, 2013.

Bank-resolution procedures demand different legislation from normal corporate bankruptcies. The externalities from bank failures are very different, and resolution must often be carried out quickly to avoid uncertainty and contagion effects. The crisis has made it clear that bank-resolution procedures were, and often remain, inadequate in many jurisdictions. Absent the legal capacity to resolve a banking crisis in an orderly way, the only alternative seen was to keep the institution functioning so as to avoid a disorderly outcome. In many jurisdictions, there was also a significant degree of concern that forcing losses onto the creditors of threatened banks could also have contagion effects, not least that it would significantly raise the borrowing costs of other banks. In this fashion, even small banks might prove “systemic.”

Consistent with such fears, and as noted above, “bail out” has generally been preferred to “bail in.” Particularly remarkable has been the extraordinarily lenient treatment given to senior creditors in the current crisis in Europe. Only in late-2012 and 2013 did the failure and nationalization of SNS REALL bank in the Netherlands, and the treatment of the banking crisis in Cyprus, give hints of an approach that would be tougher on private creditors.⁸¹ This new approach was confirmed in the Bank Recovery and Resolution Directive issued on June 27, 2013. Dubel⁸² traces the evolution of this process, beginning with the banking crisis in Greece and culminating with the crisis in Cyprus. In particular, he documents how potentially “bail-able” capital was allowed to leave at the European taxpayer expense.⁸³ This crucial issue of bank-resolution procedures is returned to below, in the context of systemically important financial institutions (SIFIs).

Measures taken to support banks in the U.K., the U.S. and many European countries have all involved the commitment of significant amounts of government money. In a number of jurisdictions, particularly in Europe, fears remain of still-greater expenditures. In virtually every country, government debt levels are already so high that significant bank-related expenditures might call into question the capacity of governments to service such debts. This has already happened in a number of peripheral countries in Europe: the so-called, bank-sovereign instability nexus. Similar problems cannot be ruled out elsewhere.

⁸¹ Yet there remained considerable uncertainty about what these “hints” might lead to. Resolution of SNS REALL was originally said to be a template for future bank resolutions in Europe, but this was almost immediately denied. To add to the uncertainty, the initial proposal to deal with a troubled bank in Cyprus reversed the “normal” order in which creditors were to take losses. Senior bondholders were left untouched (although they represented a very small share of total liabilities) while insured depositors were initially supposed to take a significant haircut.

⁸² H-J. Dubel, “Creditor Participation in the Banking Crisis in the Eurozone – A Corner Turned?” study commissioned by The Greens/European Free Alliance in the European Parliament, June 28, 2013.

⁸³ Beyond these explicit fiscal costs, it is somewhat ironic that the “bail out” approach did not succeed in avoiding contagion from Greece to other peripheral eurozone countries. Moreover, as a tougher approach to bank creditors did emerge, it did not trigger still more contagion. For example, after the suggestion that insured depositors in Cyprus should take a haircut, there was no increase in deposit flight from peripheral countries. Of course, this could still happen in the future.

MACRO-PRUDENTIAL INITIATIVES

Three sets of issues will be discussed below: the treatment of systemically important financial institutions, the issue of inter-linkages via the inter-bank and derivatives market, and finally, the use of counter-cyclical policies to reduce the amplitude of “boom-bust” cycles driven by imprudent lending and “procyclicality” in the financial system. The first two reflect the cross-sectional aspect of the macro-prudential approach, whereas the third reflects a response to the changing time dimension. All three focus on issues affecting the system as a whole, not just its constituent parts.

Systemically Important Financial Institutions (SIFIs)

The so-called SIFIs have received attention from the Basel committee and also from the Financial Stability Board (FSB). At the moment, 29 banks have been classified as SIFIs, reflecting the belief (based on objective evidence) that they are so large, so interconnected, or are so dominant in important spheres of finance that they cannot be allowed to fail in a disorderly way.⁸⁴ The systemic implications would be too great. The fact that there is also great uncertainty about what these effects might be, especially given the high degree of interdependence among large firms, has been a further argument for official support, should fears arise of such a failure.⁸⁵

There is a developing literature on how to estimate the contribution made to systemic risk by individual financial institutions.⁸⁶ In principle, this might be used to calibrate the relative need for the use of supplementary instruments to influence the behaviour of all financial institutions. Then, there would be no need to designate institutions as SIFIs, with all the associated moral hazard. As noted above, the implicit subsidy given to SIFIs has widened significantly since the crisis began. Moreover, there is an unwelcome dynamic here in that healthy SIFIs have the capacity to devour their competitors, becoming even more SIFI-like in the process. In practice, however, it has been decided that there must be a hard distinction made between institutions designated as SIFIs and all others. This decision deserves to be revisited.

⁸⁴ Blundell-Wignall and Roulet (“Business Models of Bank Leverage”) provide econometric evidence, drawn from a panel of 34 large banks, that default risk is strongly influenced by a bank’s chosen business model. In particular, there is “strong evidence that the gross market value of derivatives is a key driver of the distance to default” (page 14). They further postulate that this exposure also seems correlated with leverage, size and reliance on wholesale funding, all of which seem to contribute to the probability of default.

⁸⁵ Paul Volcker feels this has been the single most important reason for forbearance in the post-crisis period. See: Paul Volcker, “Protecting the Stability of Global Financial Markets,” in “Macro-Prudential Regulatory Policies” Proceedings of a Conference Sponsored by the Federal Reserve Bank of Chicago and the International Monetary Fund, World Scientific Publishing Co. Ltd., 3–10. Astonishingly, because of concerns about systemic problems arising from reputational loss, a number of bankers who committed criminal acts have not been prosecuted by the U.S. Department of Justice. See: M. Taibbi, “Gangster Bankers: Too Big to Jail,” *Rolling Stone*, February 14, 2013.

⁸⁶ See: M. Dhremann and N. Tarashev, “Systemic Importance: Some Simple Indicators,” *BIS Quarterly Review* (March 2011).

A number of steps have been taken, or have been suggested, to reduce the expected losses associated with the disorderly failure of a SIFI. Cecchetti,⁸⁷ Haldane⁸⁸ and many others are of the view that these measures are grossly inadequate. Indeed, as Cecchetti suggests⁸⁹ the measures taken can only be judged adequate when “the FSB’s list of G-SIFIs (global SIFIs) ... is blank.” Or, as the governor of the Bank of England said earlier, “Any institution that is too big to fail is too big to exist.” Against this standard, the actions of the BCBS seem very limited. In December, the Basel committee (2011) circulated a document that suggested⁹⁰ SIFIs should have higher risk-weighted capital ratios than those imposed on ordinary banks under Basel III. This makes sense in that it reduces the probability of a disorderly default. Nevertheless, the size of the surcharge seems far too small to offset the expected costs should a SIFI fail in a disorderly way.⁹¹ This raises again the issue of whether risk-weighted capital ratios are generally too low. As for leverage ratios, the three-per-cent capital requirement under Basel III was thought too low by the Vickers commission in the U.K. Instead the committee suggested a four-per-cent ratio. Regulators in the U.S. announced in mid-2013 that they would impose a five-per-cent leverage standard.⁹²

This measure also seems somewhat anomalous in that it does not attack directly the factors that lead to such institutions having the potential (size, interconnectedness and concentration) to wreak such systemic damage in the first place.⁹³ In fact, a number of proposals for structural change have been made to reduce the systemic fallout from the failure of a SIFI. Among the better-known proposals, one would have to include the Volcker rule in the United States, the Liikanen proposals in Europe, and the Vickers proposals in the United Kingdom. These proposals are all similar in that each suggests that problems seem most likely to arise in the investment banking arm of a SIFI and that some aspects of these activities should be “ring-fenced.” This may reflect the recent evidence that investment banks were, in fact, virtually unique in running up their leverage ratios prior to the crisis.⁹⁴ However, in other important ways, the proposals made in different jurisdictions do differ, as described in Gambacorta and van Rixtel.⁹⁵ This diversity bears witness to the fact that there is no agreed answer on the best structural solution to the problem.

⁸⁷ S. Cecchetti, “The Future of Financial Intermediation.”

⁸⁸ Haldane, “Have We Solved.”

⁸⁹ S. Cecchetti, “The Future of Financial Intermediation,” 5.

⁹⁰ Basel Committee on Banking Supervision, “Global Systemically Important Banks: Assessment Methodologies and Higher Loss Absorbency Requirements,” November 2011.

⁹¹ See: A. Haldane, “On Being the Right Size” (speech given at the Institute of Economic Affairs, The Beesley Lectures, September 14, 2012).

⁹² It might also be suggested that the leverage ratio might be raised by a “conservation” buffer or moved counter-cyclically, as is already proposed for the risk-weighted capital requirements.

⁹³ Admati and Hellwig (*The Banker’s New Clothes*) focus on capital requirements (reducing the probability of failure) because they are highly skeptical that measures to reduce the costs associated with a SIFI failure will have any meaningful effect.

⁹⁴ S. Kalemli-Ozcan, B. Sorenson and S. Yesiltas, “Leverage Across Firms, Banks and Countries,” Mimeo, August 2011; and Blundell-Wignall, Wehinger and Slovik, “The Elephant in the Room.”

⁹⁵ L. Gambacorta and A. van Rixtel, “Structural Bank Regulation Initiatives: Approaches and Implications,” Bank for International Settlements Working Paper 412, April 2013.

Perhaps reflecting such uncertainties, the political will to rigorously pursue these initiatives seems lacking. The French and German governments have recently passed legislation that is significantly less ambitious than the Liikanen proposals. On the one hand, this could well be a capitulation to bank lobbying.⁹⁶ On the other hand, concern has also arisen that the partial ring-fencing suggested by extant proposals might have costs as well as benefits. Gambacorta and van Rixtel⁹⁷ suggest that current ring-fencing proposals might provide disincentives for globalization, are likely to make resolution procedures even more difficult, and could encourage migration out of the regulated sector altogether. Critics of separation proposals also note that many of the banks that got into trouble did so through making bad loans (mostly retail), rather than through unprofitable trading.⁹⁸

Yet there are signs of motion in the opposite direction as well. In July 2013, a bill was introduced into the U.S. Senate that proposed bringing back many provisions of the Glass-Steagall Act — a much stricter form of ring-fencing. The OECD also continues to recommend, based on the work of Blundell-Wignall and his colleagues, a strict separation of traditional banking functions from investment-banking functions through the use of a non-operating holding-company structure. Haldane⁹⁹ also seems sympathetic to a cleaner separation. Indeed, Barr and Vickers¹⁰⁰ contend that there is actually a growing agreement across countries that a U.S.-style bank-holding-company structure (“structured universal banking”) has a great deal to recommend it. Whether such initiatives will garner broader political support remains to be seen, but there is certainly broad popular support for punishing both banks and bankers.

Having the legal capacity to resolve a SIFI in an orderly way is obviously even more important than having the capacity to do so for a normal bank. Unfortunately, resolving a SIFI is much more complicated than in the case of a normal bank. First, most SIFIs have an enormously complicated internal structure. Some have literally thousands of legal subsidiaries. Second, virtually all SIFIs operate internationally and are subject to diverse, national legislation. As well, they are subject to oversight by both home and host supervisors, which raises the issue of international co-operation with respect to both crisis management and crisis resolution. In the aftermath of the crisis, the FSB sought to deal with all these issues by developing the “Key Attributes for Effective Resolution Regimes for Financial Institutions.”¹⁰¹ Subsequently, they also conducted a series of peer reviews to establish where there were gaps between current practice and the key attributes. As well, cross-border crisis-management groups were set up to develop high-level resolution procedures for each G-SIFI.

⁹⁶ F. Guerrero (“Banks need simpler remedies,” *The Wall Street Journal*, December 4, 2011) suggests “They (the big banks) think that if they can survive a few tough years, they will benefit from a system, blessed by regulators, that concentrates power in a few large institutions.” In light of the discussion in Section A.1 above, this seems all too plausible.

⁹⁷ Gambacorta and van Rixtel, “Structural Bank Regulation.”

⁹⁸ While this is true, the retail business of many banks may have been conducted in a more imprudent way because investment bankers were in charge of the unified entity.

⁹⁹ Haldane, “The Dog and the Frisbee,” 23.

¹⁰⁰ M. Barr and J. Vickers, “Banks need Far More Structural Reform to be Safe,” *Financial Times*, July 21, 2013.

¹⁰¹ Financial Stability Board, “Key Attributes for Effective Resolution Regimes for Financial Institutions,” November 4, 2011.

What has emerged is that fundamental shortcomings still exist, and progress in dealing with them is likely to be very slow.¹⁰² The heart of the issue (as with non-systemic institutions) continues to be wholly inadequate domestic legislation. Resolution authorities lack the powers to wind down a SIFI, and often even the powers (e.g., temporary stays on the termination of financial contracts) to manage crises better. Indeed, in a number of jurisdictions, the authorities do not even have the power to force a SIFI to reorganize itself to facilitate subsequent resolution.¹⁰³ As for the international dimension, the FSB documents suggest that the state of play is even worse. In many, perhaps even most, jurisdictions, there are no domestic procedures in place to allow co-operation with foreign authorities trying to resolve a SIFI. In fact, in many cases, there are laws that still forbid the sharing of confidential information crucial to the resolution process.

In addition to these legal shortcomings, progress on cross-border resolution issues might be held back by other complications. First, as always, individual countries are hesitant to cede the degree of sovereignty that a more ideal solution demands. This is a broader problem leading to regulatory fragmentation across countries. Second, and closely related, individual countries might lose faith in a co-operative solution and turn to unilateral action. For example, in February 2012, Governor Tarullo of the Federal Reserve Board of Governors announced plans to apply the same capital and liquidity rules on foreign-bank holding companies operating in the U.S. as those applying to U.S. holding companies.¹⁰⁴ The U.K. and Swiss authorities are also trying to get more control over international banks operating in their jurisdictions. The fundamental objective of these measures is to ensure that domestic depositors have access to assets to meet their claims in the case of bankruptcy. Third, differences in international practice can also impede co-operative solutions. For example, Dodd-Frank in the U.S. emphasizes the speedy shut down of failing SIFIs. In contrast, continental Europeans seem to prefer keeping such institutions alive through the prior issue of CoCos and the like, as described above.

Faced with all these complications, it seems inevitable that the issue of branches versus subsidiaries will come to the fore once again. While banks prefer branches, because it allows a more efficient pooling of both capital and liquidity, domestic regulators fear that domestic creditors of cross-border banks will suffer in a crisis. Separately capitalized subsidiaries provide a solution to this problem.

¹⁰² Financial Stability Board, “The Financial Crisis and Information Gaps,” September 2012; and Financial Stability Board, “Consultation Paper on a Common Template for Global Systemically Important Banks,” October 6, 2012.

¹⁰³ This is related to what is popularly known as the “living will” issue. In principle, each SIFI should itself describe, ex ante, how it might be wound down (which units might be sold at a profit, which units might be preserved to carry out essential functions, etc.). If the regulator were not satisfied with the feasibility of this plan, it could order a restructuring of the organization. However, the regulator would have to have the legal powers to do so, and in many jurisdictions this is lacking.

¹⁰⁴ Deutsche Bank and Barclays discarded their position as U.S.-bank-holding companies in anticipation of this plan. The European reaction to this proposal has been distinctly hostile. See Barker and Braithwaite (“EU and Fed Clash over US Bank Move”), who quote Michel Barnier (EU commissioner for financial services) as saying this was a “protectionist reaction” that could lead to “retaliation” against U.S. banks. The mood was not lightened by comments from the Federal Reserve that U.S. banks should not count on regulators co-operating internationally in the event of a crisis.

Risks Arising from Inter-linkages between Institutions

In March 2013, the Basel committee issued a consultative document that proposed a sharp reduction in the allowed degree of inter-bank exposure for SIFIs.¹⁰⁵ This comes on top of a number of the measures noted above, which also have implications for this issue. For example, the Volcker plan to reduce proprietary trading by investment banks not only reduces the potential losses from such exposures, but also aims to reduce such trading *among* banks and thus the inter-linkages among them. As noted above, Volcker is of the view that uncertainty about the character of these linkages was the primary reason for the support provided by the U.S. government to the derivatives unit of AIG in 2008.

Of course, to the extent that the problem is one of uncertainty about inter-linkages, this could be rectified by more transparent and real-time reporting. There is a growing literature on this,¹⁰⁶ prompted in part by the possibilities opened up by new technology. More ominously, many hold the view that banks have under-invested in new technology for many years, and that this could have systemic implications — not least through failures in the payments and settlements system.¹⁰⁷ Addressing the inter-linkages issue is then seen as a wedge to address these broader exposures. Efforts underway in the G20 to collect and interpret financial data, with a view to preventing systemic problems, are discussed below.

Two areas that have received particular attention in light of the crisis have been links through the inter-bank markets and the derivatives markets. Worries about the former were first flagged in the Holland Report to the Euro Currency Standing Committee (ECSC) at the BIS in the early 1980s. Moreover, the same committee then repeatedly revisited the issue.¹⁰⁸ The basic concern was a sudden drying-up of liquidity in the inter-bank market leading to a series of cascading bankruptcies. In the end, however, nothing much was done. Against this background of persistent concern, it is puzzling that the drying-up of the inter-bank market, after the failure of Lehman Brothers in 2008, was seen by most central banks as totally surprising and unexpected. This myopia likely had deeper roots in the belief, supported by the facts of “The Great Moderation,” that improvements in the conduct of monetary policy had effectively eliminated economic and financial cycles.¹⁰⁹

The fundamental problem with reining in the inter-bank market is that inter-bank lending is a key component of an efficient financial system. It transfers money from those with excess deposits to those who have an excess demand for loans. This raises the difficult issue of identifying the point at which this efficiency has become “too much of a good thing.” This issue is pursued further in the context of the discussion of the “shadow banking” system. There, wholesale flows of funds between banks, and also between banks and non-banks, play an important role in the intermediation of funds between ultimate savers and investors.

¹⁰⁵ SIFIs would be allowed to conduct business with other big banks only up to an individual exposure limit of 10 to 15 per cent of core capital. This is well below the 25-per-cent limit previously recommended.

¹⁰⁶ See: R. Johnson, “Credible Resolution: What it Takes to End Too Big to Fail,” in “Make Markets Be Markets,” Franklin and Eleanor Roosevelt Institute, 2010. He recommends trading limits between SIFIs and substantial investment in information systems by big banks.

¹⁰⁷ A. Freeman (“Outdated Technology Could Lead to Another Crisis in Banking,” *Financial Times*, July 16, 2013) also notes that IT issues are a substantial constraint on needed bank restructuring.

¹⁰⁸ The ECSC was renamed as the Committee on the Global Financial System (CGFS) in the late 1990s. At various times, the committee received reports on this topic from the Frankel Working Group, the Yoshikuni Working Group and the Brockmeijer Working Group.

¹⁰⁹ See: White, “Is Monetary Policy a Science?”

Cross-border inter-bank exposures, particularly in foreign currencies, have also been receiving increasing attention as of late. On the one hand, the focus has been the traditional one of financial instability. In the eurozone in particular, cross-border lending (in part through inter-bank lending) rose sharply prior to the crisis.¹¹⁰ Lending banks in northern Europe thus became heavily exposed to banks and other borrowers in the peripheral European countries. On the other hand, there has also been growing attention paid to the impact of cross-border capital flows on the functioning of the economies (real as well as financial) in the recipient countries. In effect, banks are part of the international transmission mechanism through which credit bubbles spread across countries.¹¹¹ Both sets of concerns can have regulatory implications.

As for measures to safeguard the health of the financial system, national regulators of creditor countries in eurozone countries have recently been encouraging their banks to reduce their cross-border positions.¹¹² While “prudent” from a micro-prudential perspective, it could actually prove “imprudent” if the health of the eurozone were to deteriorate in consequence and financial losses were to mount in turn.¹¹³ As for the effects of cross-border capital flows on recipient countries, the IMF has recently suggested¹¹⁴ that countries that are the source of capital outflows must take responsibility for the implications of those outflows for other countries. This could in principle have implications for regulatory regimes in source countries, and also for the conduct of monetary policy in AMEs and especially the United States. Whether, in response, source countries will eschew “self-interest” in favour of “the broader good” seems rather unlikely. What seems more likely is that this suggestion will provide “cover” for recipient countries to rely more on macro-prudential measures (as discussed below) and even overt capital controls.

Exposures arising from bilateral trading of derivatives have also been a priority for those concerned about risks arising from inter-relationships between financial institutions. Uncertainty about counter-party exposures, particularly to derivatives, was an important contributing factor to the collapse of the inter-bank market in 2008. The principal suggestion to deal with it, strongly supported by the G20 process, has been to change over-the-counter (OTC) derivatives into exchange-traded derivatives. This means the exposure is no longer to another bank but to a clearinghouse. This proposal was intended not only to reduce the dominance of banks and associated systemic risks, but also to decrease counter-party risk through a greater reliance on collateralization by the clearinghouses. Finally, implementation was also expected to provide more transparency about exposures, given enhanced reporting requirements.

¹¹⁰ This constituted the capital-flow financing of rising current-account imbalances within the eurozone.

¹¹¹ There is growing evidence that heavy cross-border capital flows provided by banks are a good indicator of subsequent domestic crises. See: I. Fender and P. McGuire, “Bank Structure, Funding Risk and the Transmission of Shocks across Countries: Concepts and Measurement,” *BIS Quarterly Review* (September 2010); C. Borio, R. McCauley and P. McGuire, “Global Credit and Domestic Credit Booms,” *BIS Quarterly Review* (September 2011); E. Takats, “Was it Credit Supply? Cross Border Bank Lending to Emerging Market Economies During the Financial Crisis,” *BIS Quarterly Review* (June 2010); and V. Bruno and H.S. Shin, “Capital Flows and the Risk Taking Channel of Monetary Policy,” Bank for International Settlements Working Paper 400, December 2012.

¹¹² The BIS reported that cross-border inter-bank lending, as a share of total cross-border lending, fell to a record low of 38 per cent in the fourth quarter of 2012. The share had been 46 per cent at the end of 2007. The retreat was most evident in Europe and the United States.

¹¹³ Private-sector capital outflows (absent compensating official flows) must induce a contraction of current-account deficits. This could lead to deep recession and rising debt unsustainability. Greece, Ireland and Portugal are cases in point. Further, were a debtor country to leave the eurozone, and then depreciate its new currency, the burden of debts still denominated in euros would likely prove unsustainable. Widespread defaults would then threaten the health of the creditors, including banks in northern Europe.

¹¹⁴ International Monetary Fund, “The Liberalisation and Management.”

Unfortunately, a whole host of practical issues has arisen as participants have begun the process of implementation. First, and perhaps most important, is the potential of this scheme to aggravate fears of a growing shortage of collateral in the financial system. Not only will the demand for collateral rise markedly,¹¹⁵ but the supply of effective collateral will fall as collateral is increasingly “locked up” and unavailable for rehypothecation.¹¹⁶ Another emerging problem has been the proliferation of such clearinghouses in recent years, often operating under different national rules and legislation. In addition to concerns about declining standards, dealing costs could rise substantially as the benefits provided by “netting” within individual clearinghouses will be much reduced.¹¹⁷ As well, there is growing concern that clearinghouses themselves might become sources of systemic instability. They will soon be massive counterparties to all the G-SIFIs, yet currently have relatively low levels of capitalization. Further, given their international clientele, any instability will likely prove exceedingly hard to manage. As for the limitations to increased transparency, and some cross-border accountancy issues concerning derivatives, they are discussed further below.

A final issue that needs discussion is whether an increased reliance on exchanges really does lower the expected losses from systemic failures within the financial system. A report issued in 2013 by the BIS,¹¹⁸ based on evidence presented by the Macroeconomic Assessment Group on Derivatives, concludes that the benefits clearly outweigh the costs because the probability of crises will be significantly reduced. Critics argue, however, that the new procedures do not reduce the risk of losses overall, should a bank counterparty fail, but simply redistributes them. Those without collateral will pay a larger proportion of the losses and, absent knowledge of how precisely this might play out, the risks of a systemic crisis could either rise or fall. This important issue also needs further consideration.

¹¹⁵ See: *The Banker*, “Collateral: the Hunt is On,” March 5, 2013; W. Allen and R. Moessner, “The Big Collateral Squeeze,” *Central Banking* (March 19, 2013); and *Futures and Options World*, “The Collateral Cliff Approaches,” January 1, 2013. Fears about collateral shortages had already been raised as a result of an increase in the issue of covered bonds and the Basel III requirement that banks routinely hold a much higher level of high-quality liquid assets. Further, it is not just that collateral requirements will generally be higher at clearinghouses than has been traditional for OTC transactions. The new regulations also require much higher collateral requirements for remaining OTC derivatives transactions. This might be thought of as an incentive to use the exchanges instead, but the requirement applies even to derivatives whose structure is such that they could not possibly be centrally cleared. Finally, as central banks expand their balance sheets (in the context of “unconventional monetary policy”) they again take collateral out of the system. This is just one of the many unintended consequences of such policies. See: W. R. White, “Ultra Easy Monetary Policy and the Law of Unintended Consequences,” Globalisation and Monetary Policy Institute, Federal Reserve Bank of Dallas Working Paper 126, 2012. A recent study by the CGFS (Committee on the Global Financial System, “Asset Encumbrance, Financial Reform and the Demand for Collateral Assets,” *CGFS Papers* 49 (2013)) downplays all these concerns. It notes that the problem is not an absolute shortage of collateral, but whether it will be available to those who need it on a timely basis. It is not clear that this provides much solace.

¹¹⁶ On the repeated use of the same collateral (“rehypothecation”) see: M. Singh and J. Aitken, “The Sizeable Role of Rehypothecation in the Shadow Banking System,” IMF Working Paper 10 (172), July 2010. Just as a decrease in the velocity of circulation of money can constrain expansion of the money supply, a decline in the velocity of circulation of collateral can constrain the functioning of the financial system. This could potentially produce serious strains.

¹¹⁷ Another unintended consequence might be for swaps to be replaced by cheaper and less regulated futures contracts, even though the hedge they provide might be less-perfect. Apparently such a transformation has already begun. See: *The Banker*, “Collateral: the Hunt.”

¹¹⁸ Bank for International Settlements, “Macroeconomic Impact Assessment of OTC Derivatives Regulatory Reform,” August 27, 2013.

Counter-cyclical policies.

By way of background, it should be noted that macro-prudential measures to lean against either the economic cycle or the (longer) financial cycle¹¹⁹ have only rarely been used in recent years in the AMEs. Regulatory instruments such as minimum down payments for consumer credit, loan-to-value ratios for mortgages, and variable reserve requirements were widely in use in AMEs in the 1950s and 1960s. However, they were gradually phased out as the process of market liberalization proceeded. Note the important implication that regulatory actions in AMEs have been positively procyclical. That is, there has generally been no leaning against the upswing, but as losses materialized in the downswing, regulatory requirements were generally tightened.

The first issue to be dealt with is whether leaning against the upswing of the financial cycle with macro-prudential instruments would be effective. Some evidence on this can be drawn from much earlier experiences in AMEs, but more recent evidence is drawn from EMEs. Most of these countries have maintained the use of such instruments and have used them actively for macro-prudential purposes in recent years. The evidence on their effectiveness in resisting credit upswings is, however, rather mixed.¹²⁰ Consider, for example, that the use of “dynamic provisioning” in Spain still allowed the development of a massive credit bubble. That said, because of the build up of loan-loss provisions, the Spanish banking system was better prepared to ride out the downturn. As for the use of macro-prudential instruments in credit downturns (the “bust” after the “boom”), Borio et al.¹²¹ note that upswings tend to be “long and slow” while downturns are “abrupt and violent.” They conclude that the use of macro-prudential instruments should reflect this asymmetry. In contrast, Goodhart has raised the concern that such a policy might reduce confidence in the banking system and actually lead to less lending in the downturn and not more, as intended.¹²²

The second issue is determining when the process of leaning might begin. This is very similar to the “indicator” problem in conducting monetary policy. A decision is needed as to what indicators to monitor, and what thresholds should trigger action. The Basel committee has already suggested that national supervisors should consider raising required capital ratios when the ratio of credit/GDP rises significantly above its long-term trend. Again, there is a developing literature on these issues¹²³ largely based on empirical evidence (probit analysis) linking the probability of a banking (or some other kind of) crisis to sharp movements in credit growth rates and/or increases in asset prices. These models, in contrast to those used in the “risk map” analysis discussed below, are surprisingly parsimonious.

¹¹⁹ See: Borio, “The Financial Cycle.”

¹²⁰ See: G. Galati and R. Moessner, “Macro Prudential Policy — A Literature Review,” Bank for International Settlements Working Paper, 2011; R. Moreno, “Policymaking from a Macro Prudential Perspective in Emerging Market Economies,” Bank for International Settlements Working Paper 336, 2011; Committee on the Global Financial System, “Macro Prudential Instruments and Frameworks: a Stocktaking of Issues and Experiences,” *CGFS Papers* 38 (2010); International Monetary Fund, “Towards Effective Macroprudential Monetary Frameworks: an Assessment of Stylized Institutional Models,” August 20, 2011, for overviews of the evidence.

¹²¹ Borio, “The Financial Cycle.”

¹²² See: W. White, “Summary of the Meeting,” First IMF Financial Stability and Systemic Risk Forum on “Borders of Macroeconomic Policy,” Washington, D.C., March 8, 2013. The only way to ensure Goodhart’s prediction would not materialize would be to ensure that banks had built up sufficiently high capital ratios prior to the downturn. Evidently this was not done prior to the current downturn.

¹²³ See: C. Borio and M. Dhreman, “Towards an Operational Framework for Financial Stability: ‘Fuzzy’ Measurement and its Consequences,” Bank for International Settlements Working Paper, 2009; and R. Barrell et al., “Calibrating Macro prudential Policy,” Mimeo, NIESR and Brunel University, September 10, 2010.

A third issue is the choice of macro-prudential measures and their order/combination of use. Evidently, conclusions here might be very country specific, depending on institutional structure, perceived tradeoffs and preferences. Nevertheless, some guidelines in this regard have already been prepared by the Committee on the Global Finance System (CGFS).¹²⁴ A point amply made in this CGFS paper, and a central theme of a recent IMF conference on the topic,¹²⁵ is that there are many uncertainties about the effectiveness, timing and efficiency of macro-prudential measures. Given their experimental nature, policies should be introduced carefully.

Finally, there is the issue of whether the use of macro-prudential instruments to lean against the credit cycle should be complemented by the use of monetary policy. I have argued in a recent paper¹²⁶ that monetary policy should play an active role in the tightening phase, not least because the empirical evidence on the efficacy of macro-prudential instruments to moderate the financial cycle is very mixed. This debate is very much ongoing, with different central banks actually having very different views on this issue. The Bank of Japan (along with some other Asian and the Nordic central banks) seem the most supportive, the Federal Reserve Board of Governors the least supportive, and the European Central Bank (ECB) somewhere in between. It should be noted that small open economies often have a bias towards the use of macro-prudential policies in the credit upswing because it helps avoid the exchange-rate appreciation¹²⁷ likely to be triggered by higher interest rates. As for monetary policy in the aftermath of a credit boom, there is one thing that the crisis has made clear: The Greenspan view that monetary policy can always “clean up” easily after a crisis is just plain wrong.¹²⁸

Prudential regulation, the “shadow-banking system” and innovation

In the wake of the crisis, the “shadow-banking system” has received a great deal of attention. One reason for this increased attention goes back to the perception that non-banks played a big role in precipitating the crisis. One aspect of this was the role played by bank-supported (but off-balance-sheet) special investment vehicles during the early part of the crisis. More broadly, the withdrawal of funding from such entities by money-market mutual funds led directly to the failure of Lehman Brothers. This, in turn, led to a subsequent drying up of the inter-bank loan market. It is highly questionable, however, whether these dramatic events were the cause, rather than just the trigger, for the economic and financial crisis that still continued six years later.

¹²⁴ Committee on the Global Financial System, “Operationalizing the Selection and Application of Macro Prudential Instruments,” *CGFS Papers* 48 (2012).

¹²⁵ For a summary of the proceedings, see: White, “Summary of the Meeting.”

¹²⁶ W. R. White, “Should Monetary Policy Lean or Clean?” Globalisation and Monetary Policy Institute, Federal Reserve Bank of Dallas Working Paper 34, 2009.

¹²⁷ The so-called “fear of floating” has been an important phenomenon in recent decades. One legitimate reason (and there are numerous illegitimate reasons) is that the theory of uncovered interest parity (UIP) only applies over very long periods. Thus, exchange rates can overshoot fundamental value by significant amounts and for an extended period.

¹²⁸ See: M. Bech, L. Gambacorta and E. Kharroubi, “Monetary Policy in a Downturn: Are Financial Crises Special?” Bank for International Settlements Working Paper 388, September 2012.

Both the meaning and the measurement of “shadow banking” remain “shadowy.” The Financial Stability Board defines the “shadow-banking system” as being all those financial activities that involve the granting of credits that are essentially unregulated. As noted above, this paper focuses more narrowly on those entities involved in the process of securitization of assets and their funding through collateralized wholesale markets.¹²⁹ This covers a wide spectrum of financial institutions, including those specializing in collateral management, but allows a separate consideration (below) of the regulations involving the insurance industry and pension funds. In fact, a closer look at how the FSB has organized its work program indicates it would not have trouble with the approach taken in this paper.

The function of the shadow-banking system is essentially to take loans that have significant credit risk, are long-term and illiquid, and package them in such a way that they appear riskless, short-term and liquid. This is done through a long chain of relationships that strip away the risks, one by one, until the final product is ready.¹³⁰ While this whole process need not involve the traditional banking system, in fact, banks and shadow banks are closely linked. Shadow banks and traditional banks interact continuously, not least through shadow-banking entities providing wholesale funds to banks via the repo market. Moreover, many shadow-banking entities are actually owned by traditional banks.

With the definition of shadow banking somewhat unclear, measuring its size is also difficult. A recent publication by Deloitte¹³¹ provides a range of estimates from \$11 trillion to \$65 trillion (the latter being the FSB estimate). In part, the width of this range reflects the use of net versus gross flows and different treatments of collateral (i.e., whether it is grossed-up for rehypothecation or not). What is clearer is that the system grew very rapidly until 2007 and grew more slowly through to 2013. Geographically, European shadow banking still seems to be growing, although the shadow system has declined significantly in the United States. From 2012 onwards, there have been signs of renewed growth, particularly in Europe.

Before turning to the regulatory response, it is important to note that the shadow-banking system has an upside as well as a downside. Thus, the purpose of regulation has to be to preserve the former while reducing the latter. The first point is that shadow banking emerged to meet a real need. Over the last few decades, there has been an explosion in asset-management

¹²⁹ Evidently, the Financial Stability Board definition is wider and this has certain advantages. First, it would also encompass institutions and processes set up specifically for regulatory arbitrage. Consider, for example, what has come to be called “shadow banking” in China. There has been a massive increase in the granting of credit through investment trusts and other lending vehicles, which offer higher interest rates to depositors than the regulated rates available at banks. While not suffering from crisis thus far, this source of credit expansion has been of increasing concern to the Chinese authorities. Second, a broader definition would recognize that the particular character of shadow banking might vary from cycle to cycle. The advantage of a narrower definition is that it allows more specific solutions to more specific problems.

¹³⁰ For an excellent overview of this whole system, see: C. Claessens et al., “Shadow Banking: Economics and Policy,” IMF Staff Discussion Note, December 4, 2012. An example of the chain of institutions involved would link the following: house buyer to loan originator to loan warehouse to ABS pooler (broker dealer) to warehouse to CDO creator to structured-investment-vehicle/conduit (issuer of asset-backed commercial paper) to money-market mutual funds (MMF). Cash moves from the MMF to the house buyer, while obligations to repay flow the other way. Z. Poszar et al. (“Shadow Banking,” Federal Reserve Bank of New York, Staff Report 458, July 2010) contend that the links can be as few as three or as many as nine. Generally, the lower the quality of the underlying loan, the longer the “risk-stripping” chain has to be.

¹³¹ Deloitte Centre for Financial Services, “The Deloitte Shadow Banking Index,” Deloitte Consulting LLP, 2012.

institutions and in the financial assets of corporations. All of these portfolios must include a tranche of money or money-like assets (i.e., assets that are safe, short term and liquid). As well, banks (especially in Europe) had need of AAA-rated assets that they could use to raise wholesale funds from institutional investors and money-market funds. The development of structured products effectively met these needs, while also providing riskier products for those with a greater risk appetite. Further, the system provides static gains in efficiency in that borrowers (especially ultimate borrowers) can borrow more cheaply. Finally, there are dynamic benefits resulting from a vast array of analysts trying to design better products customized to the needs of clients.

While the upside of the shadow-banking system was more apparent in the upswing of the credit cycle, the downside revealed itself only later. Perhaps most importantly, it is now clear that much of the impetus for shadow banking came from regulatory arbitrage. Very low policy rates led to a sharp increase in the demand for credit, which, if granted, would have led to shortages of regulatory capital and funding. The shadow-banking nexus helped avoid both problems, at least for a time. However, when the crisis spread, a number of banks had (for reputational reasons) to put many off-balance-sheet items back onto their balance sheet, with serious implications both for capital adequacy and funding. Further, given possible systemic implications for the banking system, the official sector had to extend its support to parts of the shadow system as well.¹³²

Further downsides emerged as it became clear the risk transformations promised by the shadow system were only temporary, not permanent. The final assets produced by the system looked safe, short term and liquid, but they were not. With respect to credit risk, the complexity and opaqueness of the shadow-banking system eroded all forms of market discipline. In effect, everyone in the long chain of relationships assumed that someone else was doing “due diligence” and, in the end, no one was. In particular, the threat of tail events, inherent in the use of many structured products,¹³³ was completely ignored. The risks associated with maturity transformation also reappeared. Indeed, Singh¹³⁴ argues convincingly that a system in which longer-term assets are funded by short-term collateralized lending is significantly more “procyclical” than traditional lending.¹³⁵ As for the newly created products being liquid, the system showed itself all too susceptible to funding “runs.” When depositors at money-market funds started to fear losing part of their deposits (“breaking the buck”) the whole system promptly collapsed. More recently, commentators have also raised the possibility of a similar kind of run involving scarce collateral.

¹³² For example, broker dealers got access to discount facilities at the Federal Reserve, AIG’s derivatives business was supported, and government guarantees were given to depositors at MMFs.

¹³³ See footnote 78 above for an analysis. For warnings on this front, see: R. Rajan, “Has Financial Development made the World Riskier?” (presented at “The Greenspan Era: Lessons for the Future” symposium, sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 25–27, 2005). Even self-discipline disappeared as many big banks bought structured products with AAA ratings that, in the end, proved toxic. See: G. Tett, *Fool’s Gold* (London: Little Brown, 2009). Finally, it is worth noting that many of these products were deemed riskless because they were insured by monoline insurers, and sometimes by others (like AIG). Little if any attention was paid to whether the insuring firm actually had the capacity to make good on the coverage promised.

¹³⁴ M. Singh, “Velocity of pledged collateral: Analysis and implications,” IMF Working Paper 11/256, 2012.

¹³⁵ As asset prices rise, there is more collateral, haircuts get smaller, the velocity of turnover rises, and new kinds of collateral become acceptable. In the downswing, this all goes into reverse.

Finally, the crisis drew attention to two other problems. First, much of the shadow-banking business is international. In particular, European banks became heavily dependent on dollar funding from U.S. money-market funds (MMFs) to finance heavy investments in U.S. dollar assets. When the run on MMFs began, the access to these dollar funds suddenly disappeared.¹³⁶ In the end, the U.S. Federal Reserve (and other central banks) had to reopen swap lines to make funding available in various currencies. Second, with the growth of the shadow-banking system, collateral management has become much more important. However, there are only a limited number of firms providing such services and, partially as a result, all of them have been designated by the FSB as G-SIFIs. Moreover, for tri-party repos, which have also been growing in importance, only two Wall Street firms provide such services. In short, the expansion of shadow banking may actually have worsened the “too big to fail” problem.

What has been the official response? In Europe, the EU recently approved a new Directive on Alternative Fund Managers that introduces official capital and reporting requirements. The European Commission in September 2013 proposed tough new regulations for MMFs that will require funds promising “no loss” investments (constant net-asset-value MMFs, or CNAV)s¹³⁷ to hold three-per-cent capital. New regulations will also seriously constrain the capacity of all MMFs to undertake liquidity transformation. Initial reaction from the industry was that these regulations would “kill off” the MMF business in Europe. A serious accounting impediment to corporate treasuries simply switching funds to variable net-asset-value funds (VNAV)s is that CNAV)s are not treated as “cash.” Thus, they cannot be subtracted from gross debt to lower net-debt figures. In the United States, similar proposals are also being considered with the industry lobbying vigorously against them.

The FSB also issued three documents for consultation in November 2012: an integrated overview of policy recommendations, a policy framework for oversight and regulation of shadow-banking entities (other than MMFs), and a policy framework addressing risks in securities lending and repos. It subsequently issued a series of policy proposals in the “Progress of Financial Reforms” letter, sent to G20 ministers and central bank governors.¹³⁸ The FSB proposes enhanced monitoring of the system, viewed very broadly, with a special focus on innovative and potentially risky developments. However, when it comes to policy prescriptions, the FSB makes recommendations with respect to five specific areas where systemic risk-mitigation is thought possible.¹³⁹ In particular, it wants: (1) to reduce spillover effects between banks and shadow banks; (2) to reduce the susceptibility of MMFs to runs; (3) to assess and align the incentives associated with securitization; (4) to dampen risks and procyclical incentives associated with securities-financing transactions, such as repos and securities lending; and (5) to assess and mitigate systemic risks posed by other shadow-banking entities and activities.

¹³⁶ P. McGuire and G. von Peter, “The US Dollar Shortage in Global Banking,” *BIS Quarterly Review*, March 2009.

¹³⁷ Europe’s fixed-value MMFs (CNAV)s have about 500 billion euros in assets. Variable net-asset-value funds (VNAV)s are even larger.

¹³⁸ Financial Stability Board, “Progress of Financial Reforms,” Letter Sent to G20 Ministers and Central Bank Governors, April 15, 2013.

¹³⁹ The recommendations reflect the work of five separate working groups.

The principal FSB recommendations all seem quite sensible: central clearing of repos, curbs on rehypothecation, more stringent collateral valuations, and better liquidity management at MMFs. Nevertheless, some issues remain. What will be the net influence on the size of the shadow-banking system of tighter regulation of both banks and non-banks? Could the interconnections between the banks and shadow banks actually increase as the opportunities for regulatory arbitrage increase? Is the regulatory approach to dealer banks — which play a big role in the shadow-banking system — adequate, given the “inherently fragile” nature of their business model?¹⁴⁰ Finally, could enhanced regulation in AMEs lead to a migration of the shadow-banking business elsewhere (especially Asia, now deemed “the future”) with still further unintended consequences?¹⁴¹

This last comment raises a whole set of still broader concerns about innovative/adaptive responses by the financial system to enhanced regulation of all sorts. Consider, for example, the Vickers proposal to “ring-fence” the investment-banking arm of big conglomerates in the U.K. The authorities have explicitly said that they are concerned these proposals might be “gamed” and they have threatened complete legal separation should this happen.¹⁴² Another example of an innovative response to new regulation has been the creation of new instruments, such as “callable” paper to be issued by U.S. municipalities, to reduce the impact on banks of new liquidity requirements. Other examples will surely follow.

It is not clear that any regulatory authority has yet come to grips with the reality of continuous innovative adaptation to regulatory change, which is a typical characteristic of complex adaptive systems. The suggestions made by Andrew Haldane in this vein¹⁴³ clearly need to be treated seriously. First, it is not at all clear that complexity in the system itself is best met with still more complex regulation. It will be evaded or have unintended consequences. Second, relying more on regulatory principles, focusing on the “spirit of the law,” rather than on still more detailed regulation, would seem to have much to recommend it in such circumstances. Third, there would seem to be a need for regular updating of legislation and regulation to keep pace with endogenous innovation.

¹⁴⁰ See: Claessens et al., “Shadow Banking.”

¹⁴¹ Oliver Wyman, “The Financial Crisis of 2015: an Avoidable History,” in “State of the Financial Services Industry” 2011, http://www.oliverwyman.com/media/OW_EN_FS_Publ_2011_State_of_Financial_Services_2011_US_Web.pdf.

¹⁴² Whether they would so act, given the continuing presence of universal banks elsewhere, remains to be seen. In continental Europe and Japan, universal banks have existed (it is said) “forever,” and this seems unlikely to change in the near future. In the U.S., as noted above, a bill has recently been introduced in the Senate to bring back aspects of the Glass-Steagall Act.

¹⁴³ Haldane, “The Dog and the Frisbee.” The point is also made by Claessens et al., “Shadow Banking.”

Prudential regulation of insurance companies and pension funds

The business models for insurance companies and pension funds are very different from banks. Banks borrow short and lend long. The principal risks they face are losses in the value of their assets (threatening insolvency) and difficulties in attracting funding. In contrast, insurance companies and pension funds receive stable revenues up front (premiums and pension contributions respectively), and then have to pay out on contingent contracts extending over very long time periods. For such entities, the principal risks are on the liability side of the balance sheet, though for life insurance companies and pension funds, the risks concerning assets also remain substantial. Given these different risks, it is not surprising that the preoccupations of the prudential regulators in these different financial sectors have also been quite different. Further, absent any crisis in the insurance and pension industries in recent years to match that in the banking sector, regulatory change has been much more stable and, indeed, slower moving.

The principal preoccupation of the insurance industry in recent years has been the implementation of the Insurance Core Principles (ICP) promulgated by the International Association of Insurance Supervisors (IAIS) in 2011.¹⁴⁴ Twenty-six high-level principles are laid out to ensure the insurance sector is financially sound and that there is an adequate level of policyholder protection. Arguably, however, the three key elements are the following. First, ICP suggests focusing on a group-wide evaluation of risks, using economic-based evaluations of the value of assets and liabilities. Second, it requires minimum capital and solvency requirements and “ladders” of supervisory intervention, ending with resolution and closure. Third, it points out the need to develop a full-fledged “Enterprise Risk Management Framework.”

While insurance companies and pension funds in advanced market economies have been significantly affected by the ICP, many of them had already been aspiring to “best practices” in the industry. The greatest effect may then be felt in emerging market economies, whose regulatory officials recognize that their compliance with ICP will be evaluated under the IMF’s Financial Sector Assessment Program. Further, many companies in EMEs are part of broader international groups that will be actively interested in importing best practices from elsewhere. Finally, the earnings of insurance companies and pension funds everywhere are under pressure, given the environment of very low interest rates. The need to re-evaluate business lines, to establish whether the risk being run is worth it, is another motivation to implement ICP.

Measures to implement the Solvency II Directive in Europe provide some insight into the pros and cons of an ICP-consistent regulatory regime, as well as of Solvency II itself. As noted above, the regime has a three-“pillar” foundation, which is broadly based on Basel III.¹⁴⁵ As with Basel III, the calculation of the amount of required capital has been the most controversial.

¹⁴⁴ International Association of Insurance Supervisors, “Insurance and Financial Stability,” November 2011. For some detailed country analysis of recent regulatory changes and the influence of ICP, see: Financial Services, KPMG, “Evolving Insurance Regulation,” March 2013.

¹⁴⁵ There remain many material differences between the two regimes. See: N. Gatzert and H. Wesker, “A Comparative Assessment of Basel I/III and Solvency II,” *The Geneva Papers*, IASIE 37, 2012; and A. Al-Darwish et al., “Possible Unintended Consequences of Basel III and Solvency II,” IMF Working Paper 187, 2011.

The amount of capital required should ensure solvency over a period one year ahead, with a probability of 99.5 per cent. Unlike Basel III, where risks (e.g., market, credit, liquidity and operational) are considered additively, Solvency II attempts to calculate the totality of these risks, thus considering their interactions as well. This characteristic of the calculation, together with the use of economic-based evaluations of the values of assets and liabilities, has led to enormous complexity.¹⁴⁶ Haldane's concerns about "over-fitting" would seem to apply in spades here. Moreover, given the very long maturity structure of the assets and liabilities, the calculations of required capital can be very sensitive to relatively small changes in assumptions about discount rates in particular.¹⁴⁷ In fact, such issues have required five quantitative impact studies to date (the last in March of 2013) and the postponement of Solvency II to a date still to be determined.¹⁴⁸

A related feature is that calculations of profit and loss under this proposed system would likely be much more variable than in the past. Various proposals, some on the asset side and some on the liability side, have been proposed to mitigate this and related problems.¹⁴⁹ The fear raised by many is that this increased volatility of profits, together with the significant costs associated with the practical application of Solvency II,¹⁵⁰ could raise the cost of capital for many insurance companies. The implication would be that some insurance products would become more expensive, while others might be withdrawn altogether.

A further source of concern related to this volatility would be an increased tendency to "procyclicality" on the part of the insurance industry. One problem might be a widening of risk spreads on assets, implying losses in the downswing of the cycle. This might lead, in turn, to attempts to constrain losses and thus "procyclicality." This tendency would be exacerbated if "risk-free" rates were falling as well, since the average duration of insurance liabilities tends to exceed that of assets. Finally, if the regulatory regime encouraged many insurers to react similarly, rather than idiosyncratically, as in the past, "procyclicality" would be further enhanced. Since the insurance industry has typically absorbed volatility, rather than creating it, this would be a step backwards for the financial system as a whole.¹⁵¹ A recurrent theme in the regulatory literature is that proposed reforms in one sector give too little emphasis to the effects on other financial sectors.

¹⁴⁶ The guidebook for calculating capital requirements under Basel III is 100 pages long, while for Solvency II, it is apparently more than 400 pages.

¹⁴⁷ In addition, the impact on capital requirements of an increase in the probability threshold (say from 99.5 per cent to 99.6 per cent, versus from 99.75 per cent to 99.85 per cent) also rises exponentially. See: B. Pfister, "The More Underlying Capital, the Greater the Financial and Societal Stability," *Insurance and Finance Newsletter*, SC 13, The Geneva Association, March 2012. Pfister makes the point that the only way to totally avoid crises is to shut the industry down. This raises starkly the tradeoff between safety and efficiency.

¹⁴⁸ For a discussion of the currently "live" issues, see: Morgan Stanley and Oliver Wyman, "Solvency II: The Long and Winding Road," Morgan Stanley Blue Paper 23, March 2013.

¹⁴⁹ Some of these proposed solutions require the agreement of accounting bodies like the IAB and FASB, which is an added complication. For an overview of some of these mitigation approaches, see: J. Daniellson et al., "Countercyclical Regulation in Solvency II," VoxEu.org, June 23, 2012.

¹⁵⁰ The Financial Stability Authority has estimated the upfront costs for U.K. insurers would be around 2 billion pounds and a further 250 million pounds a year for compliance. See *The Economist*, "From Brussels with Shove," April 7, 2012. A deputy governor of the Bank of England recently declared that both the Bank of England and the FSA were "dismayed" at these costs. See: B. Masters, "Insurers Warned on Shadow Banking," *Financial Times*, March 11, 2012.

¹⁵¹ Oliver Wyman, "Insurance Viewed from the Outside: Contributing to Financial Stability," *Insurance and Finance* 9, The Geneva Association, February 2012.

Because Solvency II, is based on risk weights, like Basel III, the new system could also affect the allocation of funds as well.¹⁵² In particular, there is concern that the risk weights will discourage equity investments and longer-term asset-holdings. The former might be a threat to profits and solvency going forward. The latter might impede insurance companies from making the longer-term investments (especially in infrastructure) that seem increasingly in demand in well-functioning societies.¹⁵³ Finally, some have raised the possibility that insurance companies, traditionally a major source of longer-term funds to the banking system, will be dissuaded from doing so.¹⁵⁴ Since longer-term funding for banks has emerged as a serious problem in its own right, the consequences of this could be material. In contrast, it must be noted that careful empirical work by H6ring¹⁵⁵ indicates that these concerns are groundless. He concludes that the current Standard and Poor's ratings model requires 68-per-cent more capital than the standard (Solvency II) model for the same market risks. Thus, Solvency II would not be expected to influence significantly the insurance companies' investment strategies. However, whether this will prove a definitive finding must remain open to question.

Basel III (as Basel I) is intended to provide regulatory guidance for internationally active banks. In contrast, there has until recently been no similar guidance for internationally active insurance companies. For a while, it was hoped that Solvency II might be adopted outside Europe as well, thus leading to a de facto harmonization. However, given the difficulties just described, this no longer seems likely. Further, while there are both differences and similarities between the proposed European and actual U.S. regulatory regimes (e.g., both have risk-based capital requirements), there seems to be no appetite for convergence.¹⁵⁶ In part, this seems due to American commentators feeling their state-based regulation (while divergent) is "mature and robust," while they see European initiatives as very much "work in progress."

In response to these challenges, and the need for greater cross-border co-operation among supervisors, the IAIS recently initiated ComFram, the Common Framework for the Supervision of Internationally Active Insurance Groups (IAIG). ComFram is built upon the high-level principles found in the ICP, but expands upon them to reflect not only the international dimension, but also the added complexity of the business being done by large firms.¹⁵⁷ It is not in any way compulsory, but invites firms to take a group-wide view of risks and opportunities. ComFram is currently undergoing development with a view to field-testing late in 2013 and formal adoption in 2018. It is hoped that implementation will follow.

¹⁵² For an overview, see: Committee on the Global Financial System, "Fixed Income Strategies of Insurance Companies and Pension Funds," CGFS Papers 44, 2011. Also the literature review in D. H6ring, "Will Solvency II Market Risk Requirements Bite? The Impact of Solvency II on Issuer's Asset Allocations," *The Geneva Papers* 38 (July 2013).

¹⁵³ For recent recommendations in this area, see: Group of Thirty, "Long Term Finance and Economic Growth," Working Group on Long-Term Finance, 2013; and McKinsey Infrastructure Practice, "Infrastructure Productivity: How to save \$1 Trillion a Year," McKinsey Global Institute, January 2013.

¹⁵⁴ P. Jenkins and T. Braithwaite, "Rule Book Casts Shadow over Banking Recovery," *Financial Times*, January 25, 2013. The CEO of Prudential (U.K.) has been quoted as saying "The insurance industry is (traditionally) the biggest investor in the banking industry but Solvency II says we can't invest in banks."

¹⁵⁵ H6ring, "Will Solvency II Market Risk."

¹⁵⁶ See: KPMG, "Evolving Insurance." In October 2012 there was a first meeting of the EU-US Dialogue on Insurance Regulation, which identified "key communalities" and "key differences." The KPMG paper notes: "Disappointingly, the paper provides (these) two main observations, without offering a firm commitment to change" (page 7). See also: L. Woodall, "Deadlock," *Risk*, April 15, 2013. The potential importance of this issue is underlined by the recognition that Basel I was triggered by the agreement of the U.S. and U.K. regulators to move ahead jointly, thus effectively forcing smaller players to go along as well. See: Silber, *Volcker*.

¹⁵⁷ For documentation, see: International Association of Insurance Supervisors, "Some Frequently Asked Questions for the IAIS Common Framework of the Supervision of Internationally Active Insurance Groups," April 4, 2013.

The IAIS has been at pains to stress that, while all systemically important insurance groups will likely be global firms, not all global insurance firms are systemically important.¹⁵⁸ Indeed, the single most important effort made by the insurance industry in recent years has been to provide evidence that the industry should not be thought of as a source of systemic concerns, either globally or in individual markets.¹⁵⁹ The motivation is obvious: namely, insurers wish to avoid capital surcharges for SIFIs. In a nutshell, they argue that the expected loss from a crisis originating in the insurance sector would be very low because both the probability of a sudden crisis and the losses given a crisis would be very low. A recent study¹⁶⁰ has compared the “systemic” properties of 28 systemically important banks and 28 of the largest global insurers, using 17 criteria suggested by the FSB and the IAIS. The insurance companies score far lower than the banks. Indeed, they all score significantly lower than three banks that were originally classified as SIFIs, but then removed from the list as not being systemic enough.

With respect to the probability of crisis, industry representatives note that there has not been such a systemic crisis in the insurance sector in the last hundred years. Far from being engaged in a maturity-transformation business (like banks), which could leave insurance companies subject to liquidity runs, their premiums are prepaid and their liabilities are generally of longer term than their assets. Further, the industry spontaneously builds reserves during good times¹⁶¹ to have them available when circumstances worsen. With respect to losses given a crisis, there is little prospect of the crisis spreading because (apart from the link via reinsurers) most insurance conglomerates have few bilateral links with other such companies. As well, resolution procedures for insurance companies tend to be well defined and there is also plenty of time to detect problems and to deal with them. Finally, when companies fail, there is invariably sufficient capacity in the system for their products to be easily replaced.

The IAIS has agreed with these arguments that “traditional” insurance activities are unlikely to cause or amplify systemic risks in the financial sector.¹⁶² However, in light of the earlier problems at AIG, both they and the industry accept that non-traditional, non-insurance (NTNI) lines of business could pose problems. In spite of the judgment by the IAIS about “traditional” insurance, the FSB announced in mid-July 2013 that nine large insurance groups would be classified as SIFIs and would be subject to both tighter supervision and the need to provide “living wills.”¹⁶³ However, as with banks, exactly how this supervision would be done on a cross-border basis remains to be determined.

¹⁵⁸ For a good overview, see: KPMG, “Evolving Insurance.”

¹⁵⁹ For a seminal piece from the industry see: The Geneva Association, “Insurance and Resolution in Light of the Systemic Risk Debate,” February 2012. The FSB made the original distinction between global SIFIs (G-SIFIs) and domestic SIFIs (D-SIFIs).

¹⁶⁰ J. H. Patrick, “Cross Industry Analysis of 28 G-SIBs vs. 28 Insurers: Comparison of Systemic Risk Indicators,” The Geneva Institute, Economist Conference, London, February 12, 2013.

¹⁶¹ In the industry jargon, “hard times” are periods when demand is high for insurance products (a seller’s market) and the industry can charge more for the services it provides. These cycles are generally not highly correlated with the economic cycle. See: E. Baranoff, “Financial Stability in Insurance: A Built-In Resilience Mechanism,” Editorial, *Insurance and Finance Newsletter*, the Geneva Institute, February 9, 2012.

¹⁶² See: International Association of Insurance Supervisors, “Insurance and Financial”; and International Association of Insurance Supervisors, “Reinsurance and Financial Stability,” July 19, 2012.

¹⁶³ In the U.S., AIG and GE Capital have already been designated as systemically important financial institutions by the U.S. Financial Stability Oversight Council. What exactly this will entail remains to be determined.

As for supplementary capital requirements for insurance SIFIs, the IAIS has suggested that NTNIs should be segregated into separate businesses and any capital surcharge should be similarly restricted. However, they admit that defining NTNIs might not be easy.¹⁶⁴ The FSB has recently agreed with this proposal, and has further encouraged such segregation by noting that firms that fail to segregate will have to face higher capital requirements over the entire balance sheet. The determination of precise capital surcharges is still very much work in progress.¹⁶⁵

Pension funds played an even more limited role than did insurance companies in initiating and propagating the continuing economic and financial crisis. Nevertheless, they might still be affected by some of the regulatory changes proposed in light of the crisis. An important European initiative has been to consider imposing a Solvency II-type regime on defined-benefit pension funds across Europe. An initial quantitative-impact study has already been carried out¹⁶⁶ and shows that, in a large number of European countries, the average defined-benefit pension fund is significantly underwater. Not surprisingly, national pension regulators (in the U.K., the Netherlands, Germany, Ireland and Belgium) have all expressed their unwillingness to import these European standards, and the European Commission has recently said it will pursue them no further. It bears noting, however, that the use of national methodologies also shows that many defined-benefit pension funds in Europe, as well as in Canada and the United States, are deeply underfunded.¹⁶⁷

The European initiative seems likely to focus more attention onto this long-neglected topic of underfunding, as will the prospects of bond rates staying low for a long time.¹⁶⁸ At one extreme are suggestions that pension schemes should rely on more flexible accounting that dispenses with the need for discounting altogether.¹⁶⁹ Critics, of course, will see this as another form of forbearance. At another extreme, company sponsors could be forced into making good the pension shortfall. At the least, this would be another major constraint on fixed capital investment at a time when such investment is greatly needed to support the advanced market economies. At worst, it would lead to widespread corporate bankruptcies, implying workers would lose both their jobs and their pensions. Evidently, some middle road will be required to deal with this current problem before regulatory steps can be taken to reduce the risk of this happening again.

¹⁶⁴ Insurance Regulation, "Regulators Balk at G20 Insurer Systemic Risk Plan," *Global Risk Regulator*, January 15, 2013.

¹⁶⁵ International Association of Insurance Supervisors, "Proposed Topic for Discussion during the FSC Session with Observers on 20 March in Basel," Mimeo, 2013.

¹⁶⁶ The study was undertaken by the European Insurance and Occupational Pensions Authority at the request of the European Commission. Strict assumptions about the discount rate and the need for capital buffers contribute to pushing up the shortfall.

¹⁶⁷ A study by Towers Watson ("Global Pension Assets Study 2013," 2013) shows that, at the end of 2012, 55 per cent of global pension assets were in defined-benefit schemes. The ratios are much higher for Canada (96 per cent), Japan (98 per cent), the Netherlands (94 per cent) and the U.K. (74 per cent).

¹⁶⁸ Some other policy changes might also affect pension funds adversely. A proposed financial-transactions tax in Europe could be costly, as could regulations to force derivatives trading onto exchanges. The exchanges are very likely to ask for collateral that pension funds do not have.

¹⁶⁹ E. Kelleher, "Push for More Flexible Accounting," *Financial Times*, March 4, 2013.

Possible implications for the institutional structure for governance

There are many issues to be addressed to ensure the prudent regulation of financial institutions. Not least is the issue of how regulation and supervision should be organized institutionally. The IMF¹⁷⁰ recently looked at national practices around the world. It identified seven major models for overseeing financial regulation, as well as a whole host of variants. Each seemed, to the IMF, to be very much an accident of history, rather than an attempt to apply agreed-upon principles. That said, as the interconnections between markets and financial institutions became more evident as financial liberalization proceeded, the IMF did identify a tendency towards the unification of the regulatory agencies involved. In this process, central banks in a number of countries saw their responsibility for prudential oversight somewhat diminished.

What needs to be asked is whether some principles might be identified to guide the adoption of an institutional structure for prudential regulation, including macro-prudential regulation. Against the background of financial globalization, some have suggested¹⁷¹ the need for a global super-regulator. Given the great need for cross-border co-operation to harmonize reporting, and to aid in recovery and resolution issues, this suggestion has clear merit at the level of principle. However, there is currently virtually no support for such an approach among national politicians and officials. That said, the crisis has led to a serious discussion within the eurozone area of the need for a banking union. This would include common deposit insurance, common resolution procedures and unified banking supervision. Indeed, the process of setting up supervisory capacity at the European Central Bank is already well advanced. Nevertheless, the ongoing debate about the relative mandates of the ECB and national regulatory authorities shows clearly the unwillingness of many European countries to give up what they have always thought of as sovereign powers. It will take significantly more progress before Europe can be held up as a model for the rest of the world in the regulatory area.

The search for organizational principles must therefore be conducted at the national level. I have elsewhere suggested¹⁷² that there are criteria for assigning mandates and powers to existing national institutions to ensure effective policy decisions in the pursuit of macro-prudential objectives. I defined these as the “should, could and would” criteria. The “should” criterion asks which institution has the expertise to identify what needs to be done in the regulatory sphere, including the use of macro-prudential measures. The “could” criterion asks which institution currently has, or should be assigned, the needed legislative powers to act. Finally, there is the “would” criterion: Which institution would seem most likely to have the will to act when such action will be resolutely opposed by many self-interested groups? Recognizing the pervasive influence of inertia, lobbying and justified uncertainty about the implications (both expected and unexpected) of policy action, the importance of this last criterion cannot be over-emphasized.

¹⁷⁰ IMF (2011) “Towards effective macroprudential monetary frameworks: an assessment of stylized institutional models.”

¹⁷¹ See: J. Eatwell and L. Taylor, “Global Finance at Risk: the Case for International Regulation,” New School for Social Research, 2000; and L. Clancy, “A Rallying Cry for Uniform Regulation,” *Risk*, March 19, 2013. Clancy reports on the views of David Wright of IOSCO.

¹⁷² W. R. White, “Macro Prudential Regulatory Policies: the New Road to Financial Stability?” in “Macro Prudential Regulatory Policies Conference, Organized by the Federal Reserve Bank of Chicago,” World Scientific Publishing Company, Singapore, 2012.

Application of these three criteria, especially the first and third, would seem to give an important role to central banks in the pursuit of systemic stability in the financial sector. Broadly stated, the more the objective of regulatory policy moves in the direction of systemic stability, the greater should be the role played by central banks in regulating institutions whose activities seem likely to have systemic implications. This conclusion is further strengthened if it is agreed that monetary policy also has a role to play in the pursuit of financial stability.¹⁷³ Indeed, some would even argue that, in the limit, there is no valid distinction between pursuing price stability and pursuing financial stability.¹⁷⁴ They are two sides of the same macroeconomic coin.

It is important to stress that there is currently no consensus on the underlying macroeconomic analytics. In particular, there is no consensus on whether monetary policy should support macro-prudential policies in leading against the credit cycle and systemic instability. Therefore, there is no consensus on the implications for institutional structure. To illustrate the resulting diversity, the U.S. has set up the Financial Stability Oversight Council made up of the heads of various regulatory agencies and chaired by the U.S. Department of the Treasury. In Europe, the European Systemic Risk Board is made up of supervisors and central bankers, and is chaired by the president of the ECB. In the U.K., all these prudential functions have been given to the Bank of England, which now has two internal committees (the Monetary Policy Committee and the Financial Policy Committee) both headed by the governor. In the eurozone, banking supervisory oversight has recently been given to the ECB, but there is to be a strict separation (and “firewalls”) from the ECB’s monetary-policy function. Evidently, what has been done in practice reflects a wide range of divergent “beliefs,” not all of which can be well founded.

There might, however, be other areas where a broader consensus could be arrived at. First, to avoid central banks becoming overly “powerful” and unnecessarily embroiled in political decisions, “micro-prudential supervision” and “conduct of business” functions should likely be in another institution. This said, when it comes to the use of instrument of all sorts for macro-prudential purposes, some institution (likely the central bank) must have the power to make binding decisions. Levels of central bank accountability must, of course, be raised commensurately. Second, in the event of a “bust” after a “boom,” those responsible should be held accountable. This would, of course, be a marked change from current practice. And third, in a post-boom crisis, institutional dominance should likely pass to Treasuries given the likely need for committing significant amounts of taxpayers’ money in such circumstances.

¹⁷³ See: International Monetary Fund, “The Interaction of Monetary and Macroprudential Policies,” January 19, 2013.

¹⁷⁴ D. Laidler (“Financial Stability, Monetarism and the Wicksell Connection,” University of Western Ontario, Working Paper 2007-3, 2007: 8) says, “These (inflation-control) regimes, in short, have a long intellectual prehistory during which the stabilization of inflation was by and large not treated as a policy goal separate and distinct from mitigating the cycle and maintaining financial system stability, but as a key means of promoting precisely these ends.”

ESTIMATING THE BUILDUP OF FINANCIAL RISKS

A large part of “modern” regulation has to do with estimating the buildup of risks within individual firms and across the financial system as a whole. Recent experience has taught us that both regulators and bankers are not as good at this as might be desired. A number of shortcomings have been identified, but there continues to be differing views in different jurisdictions (and often within jurisdictions) as to what precisely needs to be done to remedy those deficiencies. These issues (what “should” be done to mitigate risks) are logically separate from issues having to do with effective supervision (the “can” and “would” issues identified above). Unfortunately, the issue of effective supervision is beyond the scope of this paper.¹⁷⁵

A first problem with estimating the buildup of risks has to do with accounting standards. In spite of immense efforts, significant accounting differences still exist between the international accounting standards laid out by the International Financial Reporting Standards (IFRS) and the GAAP standards that apply in the United States. Different approaches, especially with respect to the netting of derivative contracts, also make it difficult to make international comparisons between banks. However, the fact of differences is less significant than the absence of agreement about the best way to do things. The biggest conceptual issue holding back standardization of accounting standards affecting banks seems to be differences of view about the benefits (or, perhaps, the costs) of mark-to-market and “fair value” accounting. As well, there is a sense that current accounting standards are not granular enough. Thus, they permit banks to present their accounts in such an opaque way that they remain virtual “black boxes.”¹⁷⁶ As for insurance companies, the process of standardization has only begun. KPMG¹⁷⁷ summed up the issue well. It states that “currently financial statements can be unrepresentative and confusing,” though it then maps out existing plans to improve the situation over the next five years.

A second problem has to do with auditing standards, which seem universally too low. All of the financial firms that have gotten into trouble over the last few years had recently been audited and received good marks. In sum, audits appear to be very costly but provide little useful information. A particular source of concern has been the performance of auditing firms in emerging market countries — firms that are, in principle, linked to larger firms in advanced market countries. Nevertheless, they seem, in practice, to receive little oversight with respect to quality standards. Again, there is a proposed agenda for change, which includes measures to encourage audits by firms other than the “big four” and more frequent rotation among auditing firms.

¹⁷⁵ H. Caruana (“Financial Stability: Ten Questions and About Seven Answers” (paper presented at the 50th Anniversary Symposium Conference Organized by the Reserve Bank of Australia, Sydney, Australia, February 9, 2010)) notes that the effectiveness of supervision across countries varies widely. In part, this may reflect different philosophical approaches: a “light touch” approach based on general principles, versus a strict, rules-based approach. Each has its shortcomings. A “light touch” approach will be inadequate if assumptions about ethical behaviour are routinely violated. At the same time, a rules-based approach invites evasion and will always lag behind ongoing innovation.

¹⁷⁶ See: F. Partnoy and J. Eisinger, “What’s Inside America’s Banks?” *The Atlantic*, January/February 2013.

¹⁷⁷ KPMG, “Evolving Insurance.”

A third problem, closely related to the first two, has to do with the broader issue of transparency. If financial institutions were to be more explicit about their business models and the associated risks, as well as the assumptions underlying the calculations feeding into their risk calculations, this would go a long way to opening the “black box.” The Report of the Enhanced Disclosure Task Force,¹⁷⁸ a private-sector initiative supported by the FSB, at least indicates some good intentions. These good intentions could be supported by a realization that it is also in the banks’ own interests to follow through with action. Recall that uncertainty about exposures seems to have been an important element in the seizing up of the inter-bank market after the failure of Lehman Brothers in 2008. Note, further, that many large banks have market values for their equity well below book values. In part, this reflects the influence of such uncertainty.

Improvements to data have also moved much higher up the agenda of the official sector, not least, data on real-time counter-party exposures.¹⁷⁹ Against the backdrop of the crisis, the G20 has strongly supported efforts to improve the availability and quality of data for monitoring growing risk exposures within the financial system, and a great deal of progress has been made.¹⁸⁰ That said, there remains significant shortcomings, particularly with respect to consolidated (global) data for individual banks.¹⁸¹ Moreover, the complexity of risk-management processes, and the variety of inter-firm relationships through which risk exposures are transferred, could imply a need for data that is almost infinite. An evident danger, absent all the data required, is that costly efforts are made to collect data that, in the end, proves impossible to interpret.¹⁸²

A fourth problem has to do with the quality of the modeling of risk exposures in the financial sector. As Borio puts it:¹⁸³ “The main reason why crises occur is not lack of statistics but the failure to interpret them properly and take remedial action.” Nevertheless, certain positive

¹⁷⁸ Enhanced Disclosure Task Force, “Enhancing the Risk Disclosures of Banks,” October 29, 2012.

¹⁷⁹ The CGFS of the BIS tried in the late 1990s to substantially enhance such data collection (the Bédeneau Group), but this was strongly resisted by the biggest countries. The arguments used were that such data collection would reveal proprietary trading strategies and would be too costly. As well, national central banks might well have been trying to protect their own national “champions.” Note that real-time exposure data would not only be of use for crisis prevention but also for crisis management.

¹⁸⁰ See Financial Stability Board, “The Financial Crisis,” for an update. Monitoring risk exposures within the financial system is a different exercise from determining when to begin “leaning” against credit bubbles likely to have significant macroeconomic costs. As recorded in Borio and Drehman (“Towards an Operational”), joint deviations of credit and property prices from longer-term trends appear to have significant predictive power. Unfortunately, data series on property prices are very poor in most countries.

¹⁸¹ See: C. Borio, “The Great Financial Crisis: Setting Priorities for New Statistics,” Bank for International Settlements Working Paper 408, April 2013. Consolidated data for individual banks (both on-balance-sheet and off-balance-sheet; both domestic and international) would shed light on exposures to various risks, including funding risks. A very useful complement would be comparable income information, especially about the sources of profits. Once completed, such data would allow drilling down to get other useful information about inter-office exposures and bilateral exposures. In addition, methodologies and processes developed for banks might then be extended to “shadow banks” and perhaps other financial institutions.

¹⁸² This is less applicable to more highly aggregated data. In contrast, one of the purposes of forcing OTC derivatives to be exchange traded is that the information about each such trade can be consolidated at trade depositories. However, according to the FSB, only a limited number of depositories worldwide actually have the capacity to collect information on counter-party exposure (gross and net) along with information about collateralization and the character of the legal agreements governing the trade. Unfortunately, having such information is essential for evaluating risk exposure, as indicated in International Financing Review (2013), which records the views of market professionals attending ISDA’s 2013 annual meeting.

¹⁸³ Borio, “The Great Financial.”

developments can be noted. A welcome development has been the increasing attention paid to “risk maps,” which attempt to identify points of stress within the financial system.¹⁸⁴ Network analysis seems to provide an especially promising source of insight in this regard.¹⁸⁵ As a stylized fact, increases in cross-border lending, especially by banks, appear to have strong predictive capacities for subsequent crises. Bruno and Shin¹⁸⁶ also emphasize the dangers associated with a rising dependence by banks on wholesale funding.

On the other hand, less positive developments concerning modeling can also be noted. First, Haldane¹⁸⁷ makes a convincing case that the risk weights produced by complex “internal models” are inherently, extremely unreliable. The more complex the portfolio and the shorter the available data set, the greater the danger of over-fitting and spurious results. In contrast, Sands recognizes shortcomings but suggests important improvements are still possible.¹⁸⁸ Second, a number of commentators have suggested that many of the technical assumptions underlying the Basel methodology are seriously flawed.¹⁸⁹ Third, those trying to predict financial crises using market-generated price data have been gravely disappointed. At best, market indicators (e.g., credit spreads and the Vix) are coincident indicators of crises. At worst, such indicators are positively misleading in that the market indicators of risk go down just as the underlying risks are really going up.¹⁹⁰ Third, models used by individual banks to assess capital requirements under the Advanced Assessment Regime under Basel II have been found by the Basel committee to give wildly different results for both the trading book and the banking book.¹⁹¹ This could lead to some banks being asked to revert to use of the standardized methodology, or to the imposition of capital floors.¹⁹² Interestingly, a substantial proportion of the differences in the trading book can be explained by differing requirements for calculating “risk weights” put down by national regulators themselves. This has raised further concerns about the whole “risk weight” methodology, as well as the real commitment of supervisors to a “level playing field” internationally.

¹⁸⁴ See, for example: O. Issing et al., “New Financial Order: Recommendations by the Issing Committee,” Center for Financial Studies, White Paper 2, April 2, 2009; J. P. Krahenen, “A Global Risk Map: Is it Feasible? How to Do It?” (presented at Finance Focus Breakfast, Bruegel Institute, Brussels, 2010); and S. Cecchetti, I. Fender and P. McGuire, “Towards a Global Risk Map,” Bank for International Settlements Working Paper 309, May 2010.

¹⁸⁵ The BIS was an early entrant into this area. See: McGuire and von Peter, “The US Dollar Shortage”; and C. Upper, “Simulation Methods to Assess the Danger of Contagion in Interbank Markets,” Bank for International Settlements Working Paper 234, August 2001.

¹⁸⁶ Bruno and Shin, “Capital Flows.”

¹⁸⁷ Haldane, “The Dog and the Frisbee.”

¹⁸⁸ Sands, “When it Comes to Banks.”

¹⁸⁹ See, for example: M. Zanganeh and R. A. Jones, “Asset Correlation and Credit Quality: the Basel Assumption,” Mimeo, BMO Financial Group and Simon Fraser University, August 2012. The Basel committee assumes that asset-return correlations and default probabilities are negatively correlated on sovereign, corporate and banking exposures. The authors rather contend they are positively correlated. See also T. Aubrey and G. Le Pera (“Improvements in the Measure of Systemic Risks for Credit Portfolio Management,” Mimeo, Credit Capital Advisory, July 2013) who fundamentally question the relevance of historical data in evaluating systemic risk going forward. Thus, value-at-risk calculations give much more solace than they should.

¹⁹⁰ One important exception might be the ratio of book values and market values for the equity of banks.

¹⁹¹ See: Basel Committee on Banking Supervision, “Report on the Regulatory Consistency of Risk Weighted Assets for Market Risk,” January 31, 2013; and Basel Committee on Banking Supervision, “Progress Report.”

¹⁹² The Swedish authorities have done this for residential mortgages. By raising the minimum risk weight to 15 per cent, they essentially tripled the capital requirement. The Norwegian Ministry of Finance has asked its banking supervisors to consider a minimum risk weight of 35 per cent for residential mortgages. In both countries, household debt and house prices are at record levels, and these policy prescriptions have been motivated by macroprudential considerations.

Finally, as Hellwig¹⁹³ notes, stress tests still hold constant too many variables that would change simultaneously in a crisis. Thus, stress tests fail to measure the full effects of systemic events. As a result, they have repeatedly provided solace when no solace was due. Worse, there have been growing concerns that the failure of stress tests to reveal underlying banking fragilities might actually have been the purpose of the exercise. In Europe in particular, the disconnect between benign stress tests and subsequent outcomes has been remarkable.¹⁹⁴ Such perceptions have also contributed to the widespread belief that European banks still have many losses that have not yet been revealed, and this perception has clearly aggravated the eurozone crisis. Against this background, the European Central Bank will face grave risks when it conducts similar tests in the exercise of its new responsibilities. The tests will only be credible if they can reveal some banks as being undercapitalized. However, absent a “Plan B” to resolve such a problem,¹⁹⁵ this will not be possible and the ECB’s reputation could suffer accordingly.

CONCLUSIONS AND SUGGESTIONS FOR FURTHER WORK

In recent years, both at the level of the nation-state and internationally, an extraordinary amount of effort and resources has gone into drafting laws and regulations to prevent a recurrence of the current crisis. The last progress report submitted by the FSB to the G20¹⁹⁶ records welcome developments in a whole host of areas. Serious attempts are being made, sometimes opposed by vigorous lobbying efforts, to address virtually all the questions raised below. Nevertheless, a dispassionate observer would still harbour two sets of concerns.

The first would be that the concern for crisis prevention has led to too little attention being paid to resolving the current crisis. Short-term measures avoided disaster but, as described above, compounded medium-term problems. In some regions, the “too big to fail” problem worsened. In others, banks and the shadow-banking system remained for years too weak to provide the loans needed for the early resumption of “strong, stable and balanced growth” desired by the G20. This latter problem continues to plague Europe in particular.

The second concern would be that most of the measures proposed to ensure future financial stability have a strong flavour of “more of the same”: more capital, more liquidity, more supervisors and, above all, more detailed regulatory prescriptions. Many of the difficulties associated with these individual initiatives have been described above. Perhaps even more importantly, what continues to be missing is a willingness to approach the problem of financial stability in an even more radical way. The rest of this paper identifies the most fundamental issues pertaining to the prudential regulation of financial institutions. While posed as questions, in order to motivate more research going forward, the author’s inclination is to answer most of these questions in the affirmative.

¹⁹³ M. Hellwig, “Capital Regulation after the Crisis: Business as Usual?” Max Planck Institute for Research on Collective Goods, 2010/31, 2010.

¹⁹⁴ For example, stress tests conducted on the Irish banks, just prior to the collapse of the banking system, gave all the Irish banks a clean bill of health.

¹⁹⁵ A “Plan B” would likely require public-sector recapitalization, for which there are currently no adequate funds available, or closure. As described above, the latter approach seems almost impossible in the European case.

¹⁹⁶ Financial Stability Board, “FSB Reports to the G20 on Progress and Next Steps Towards Ending Too-Big-to-Fail,” Press Release, September 2, 2013.

Should we be clearer about the ultimate purpose of a financial system, and how it might be structured to achieve that purpose? Avoiding financial instability, laudable as this might be, is only a partial answer to this broader question of efficiency.

Should there be more explicit recognition of the financial sector (indeed the whole economy) as a complex adaptive system? This implies greater “top down” attention to systemic issues as opposed to “bottom up” attention to individual institutions and individual market failures. It also implies recognition that the problem is largely uncertainty, not risk, and that simple regulatory responses might generally be preferable to complex ones.¹⁹⁷ Thirdly, it implies the need for a constant regulatory response to what is likely to be constant innovation in response to regulation itself, as well as other forces. Finally, it implies financial regulators might have a lot to learn from other regulators of complex, adaptive systems

Closely related, should we pay more attention to the problem that Hayek referred to as the “pretence of knowledge” when setting policies? We never know as much as we would like, and therefore, policies can have unintended consequences. Collateral, for example, shifts risk in the system rather than reducing it overall, and could make the system less stable not more. At the philosophical level, how do we approach policy-making in the area of prudential regulation in the face of pervasive uncertainty?

Should prudential regulation in pursuit of financial stability be pursued jointly with monetary policy or independently? Since macro-prudential policies and monetary policies both affect the real economy, as well as the financial sector, who should make what decisions?

Should the capital requirements standard for banks be even higher than mandated by Basel III, given how elusive a concept it is, how hard it is to measure, how easily it can be gamed (weighted versus unweighted) and how quickly it can disappear in a crisis? How might these problems associated with a reliance on capital standards be minimized? Is there a possibility that regulatory standards might become “floors” in the eyes of the market? If so, how might this tendency be minimized since it implies that capital (below the floor) could never be used as a buffer (for unexpected losses) because such use would cause market panic?

Should relatively less emphasis be put on regulatory and supervisory discipline and relatively more on self-discipline and market discipline?

How might self-discipline (more prudent behaviour) be best improved? Should we roll back the public safety net, re-establish bankers’ sense of “fiduciary responsibility” to their clients, change compensation incentives to discourage “short-termism” and encourage value investing, make legal redress (including prison) more threatening, restore unlimited liability, etc.? How might these changes be practically carried out?

How might market discipline be improved? How can accounting and auditing be made more useful to those who rely on these functions to exert market discipline? Does it really make sense to use market-determined numbers (“fair value”) to value firms when the purpose of the accounts is to inform the market? Are we collecting the right data from financial institutions (“risk map” issues) and are we making them known to the market in the right way?

¹⁹⁷ As argued by Haldane (“The Dog and the Frisbee”).

Should we show more willingness to change the structure of the financial system to make it more stable? Should we be prepared to roll back globalization by insisting that foreign banks act as branches not subsidiaries? Should we be prepared to roll back securitization and shadow banking by reducing the (perhaps dangerous) role of collateral in the system? Should we be prepared to roll back consolidation by breaking up SIFIs and by forbidding links between commercial banks and investment banks? What about “narrow banking” and the Chicago proposals (Henry Simons and Irving Fisher) from the 1930s?

Should there be greater recognition that different financial institutions have different business models (banks are not insurance companies) and pose different threats to financial stability? If so, different regulatory responses would seem required.

Finally, with respect to identified shortcomings in the prudential regulatory prescriptions identified above, could more research show us how they might be “tweaked” to improve their effectiveness? In principle, the answer is yes. Nevertheless, there is the clear danger of just replacing “more of the same” with “still more of the same.” In the end, the greatest benefit of more research might be to call into question some of the fundamental assumptions motivating the current policy agenda. This would close some doors but, hopefully, would open others.

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