

## EXECUTIVE SUMMARY

*The global financial system remains under severe stress as the crisis broadens to include households, corporations, and the banking sectors in both advanced and emerging market countries. Shrinking economic activity has put further pressure on banks' balance sheets as asset values continue to degrade, threatening their capital adequacy and further discouraging fresh lending. Thus, credit growth is slowing, and even turning negative, adding even more downward pressure on economic activity. Substantial private sector adjustment and public support packages are already being implemented and are contributing to some early signs of stabilization. Even so, further decisive and effective policy actions and international coordination are needed to sustain this improvement, to restore public confidence in financial institutions, and to normalize conditions in markets. The key challenge is to break the downward spiral between the financial system and the global economy. Promising efforts are already under way for the redesign of the global financial system that should provide a more stable and resilient platform for sustained economic growth.*

To mend the financial sector, policies are needed to remove strains in funding markets for banks and corporates, repair bank balance sheets, restore cross-border capital flows (particularly to emerging market countries); and limit the unintended side effects of the policies being implemented to combat the crisis. All these objectives will require strong political commitment under difficult circumstances and further enhancement of international cooperation. Such international commitment and determination to address the challenges posed by the crisis are growing, as displayed by the outcome of the G-20 summit in early April.

Without a thorough cleansing of banks' balance sheets of impaired assets, accompanied by restructuring and, where needed, recapitalization, risks remain that banks' problems will continue to exert downward pressure on economic activity. Though subject to a number of assumptions, our best estimate of writedowns on U.S.-originated assets to be suffered by all holders since the outbreak of the crisis until 2010 has increased from \$2.2 trillion in the January 2009 *Global Financial Stability Report (GFSR) Update* to \$2.7 trillion, largely as a result of the worsening base-case scenario for economic growth. In this GFSR, estimates for writedowns have been extended to include other mature market-originated assets and, while the information underpinning these scenarios is more uncertain, such estimates suggest writedowns could reach a total of around \$4 trillion, about two-thirds of which would be incurred by banks.

There has been some improvement in interbank markets over the last few months, but funding strains persist and banks' access to longer-term funding as maturities come due is diminished. While in many jurisdictions banks can now issue government-guaranteed, longer-term debt, their funding gap remains large. As a result, many corporations are unable to obtain bank-supplied working capital and some are having difficulty raising longer-term debt, except at much more elevated yields.

A wide range of nonbank financial institutions has come under strain during the crisis as asset prices have fallen. Pension funds have been hit hard—their assets have rapidly declined in value while the lower government bond yields that many use to discount their liabilities have simultaneously expanded their degree of underfunding. Life insurance companies have suffered losses on equity and corporate bond holdings, in some cases significantly depleting their regulatory capital surpluses. While perhaps most of these institutions managed their risks prudently, some took on more risk without fully appreciating that potential stressful episodes may lie ahead.

The retrenchment from foreign markets is now outpacing the overall deleveraging process, with a sharp decline of cross-border funding intensifying the crisis in several emerging market countries. Indeed, the withdrawal of foreign investors and banks together with the collapse in export markets create funding pressures in emerging market economies that require urgent attention. The refinancing needs of emerging markets are large, estimated at some \$1.6 trillion in 2009, with the bulk coming from corporates, including financial institutions. Though notoriously difficult to forecast, current estimates are that net private capital flows to emerging markets will be negative in 2009, and that inflows are not likely to return to their pre-crisis levels in the future. Already, emerging market economies that have relied on such flows are weakening, increasing the importance of compensatory official support.

Despite unprecedented official initiatives to stop the downward spiral in advanced economies—including massive amounts of fiscal support and an array of liquidity facilities—further determined policy action will be required to help restore confidence and to relieve the financial markets of the uncertainties that are undermining the prospects for an economic recovery. However, the transfer of financial risks from the private to the public sector poses challenges. There are continuing concerns about unintended distortions and whether the short-term stimulus costs, including open-ended bank support packages, will combine with longer-term pressures from aging populations to put strong upward pressure on government debt burdens in some advanced economies. Home bias is also setting in as officials are encouraging banks to lend locally and consumers to keep their spending domestically oriented.

These risks, discussed in Chapter 1, represent some of the most difficult issues that the public sector has faced in half a century. We outline below what we believe are the key elements to break the downward spiral between the financial sector and the real economy.

## Immediate Policy Recommendations

Even if policy actions are taken expeditiously and implemented as intended, the deleveraging process will be slow and painful, with the economic recovery likely to be protracted. The accompanying deleveraging and economic contraction are estimated to cause credit growth in the United States, United Kingdom, and euro area to contract and even turn negative in the near term and only recover after a number of years.

This difficult outlook argues for assertive implementation of already-established policies and more decisive action on the policy front where needed. The political support for such action, however, is waning as the public is becoming disillusioned by what it perceives as abuses of taxpayer funds in some headline cases. There is a real risk that governments will be reluctant to allocate enough resources to solve the problem. Moreover, uncertainty about political reactions may undermine the likelihood that the private sector will constructively engage in finding orderly solutions to financial stress. Hence, an important component to restoring confidence will be clarity, consistency, and the reliability of policy responses. Past episodes of financial crisis have shown that restoring the banking system to normal operation takes several years, and that recessions tend to be deeper and longer lasting when associated with a financial crisis (see Chapter 3 of the April 2009 World Economic Outlook). This same experience shows that when policies are unclear and not

implemented forcefully and promptly, or are not aimed at the underlying problem, the recovery process is even more delayed and the costs, both in terms of taxpayer money and economic activity, are even greater.

Given the global reach of this crisis, the effect of national policies can be strengthened if implemented in a coordinated fashion among affected countries. Coordination and collaboration should build upon the positive momentum created by the recent G-20 summit, and is particularly important with respect to financial policies to avoid adverse international spillovers from national actions. Specifically, cross-border coordination that results in a more consistent approach to address banking system problems, including dealing with bad assets, is more likely to build confidence and avoid regulatory arbitrage and competitive distortions.

In the short run, the three priorities identified in previous GFSRs and explicitly recognized in the February 2009 G-7 Communiqué remain appropriate: (i) ensure that the banking system has access to liquidity; (ii) identify and deal with impaired assets; and (iii) recapitalize weak but viable institutions and promptly resolve nonviable banks. In general, the first task is for central banks, while the latter two are the responsibility of supervisors and governments. Progress has been made in the first area, but policy initiatives in the other two areas appear to be more piecemeal and reactive to circumstances. Recent announcements by authorities in various countries recognize the need to deal with problem assets and to assess banks' resilience to the further deteriorating global economy in order to determine recapitalization needs. These are welcome steps and as details become available will likely help reduce uncertainty and public skepticism. Lessons from past crises suggest the need for more forceful and effective measures by the authorities to address and resolve weaknesses in the financial sector.

### ***Proceed expeditiously with assessing bank viability and bank recapitalization.***

The long-term viability of institutions needs to be reevaluated to assess their capital needs, taking into account both a realistic assessment of losses to date, and now, the prospects of further writedowns. In order to comprehend the order of magnitude of total capital needs of Western banking systems, we have made two sets of illustrative calculations that factor in potential further writedowns and revenues that these banks may experience in 2009–10. The calculations rely on several assumptions, some of which are quite uncertain, and so the capital needed by banks should be viewed as indicative of the severity of the problem. The first calculation assumes that leverage, measured as tangible common equity (TCE) over tangible assets (TA), returns to levels prevailing before the crisis (4 percent TCE/TA). Even to reach these levels, capital injections would need to be some \$275 billion for U.S. banks, about \$375 billion for euro area banks, about \$125 billion for U.K. banks, and about \$100 billion for banks in the rest of mature Europe. The second illustrative calculation assumes a return of leverage to levels of the mid-1990s (6 percent TCE/TA). This more demanding level raises the amount of capital to be injected to around \$500 billion for U.S. banks, \$725 billion for euro area banks, \$250 billion for U.K. banks, and \$225 billion for banks in the rest of mature Europe. These rough estimates, based on our scenarios, suggest that in addition to offsetting losses, the additional need for capital derives from the more stringent leverage and higher capital ratios markets are now demanding, based on the uncertainty surrounding asset valuations and the quality of capital. Without making a judgment about the appropriateness of using the TCE/TA ratio, it is important to note that these amounts are lessened to the degree that preferred equity is converted into common equity (generating more of the loss-absorbing type of capital) and to the degree that governments have guaranteed banks against further losses of some of the bad assets on their balance sheets. In the United States, for instance, the amount of preferred shares issued in recent years is quite large and could help to raise the TCE/TA ratios if converted. In several countries, governments have agreed to take large proportions of the future losses incurred on selected sets of assets by some banks.

Thus, to stabilize the banking system and reduce this uncertainty, three elements are needed:

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- A more active role of supervisors in determining the viability of institutions and appropriate corrective actions, including identifying capital needs based on writedowns expected during the next two years.
- Full and transparent disclosure of the impairment of banks' balance sheets, vetted by supervisors based on a consistent set of criteria.
- Clarity by supervisors regarding the type of capital required—either in terms of the tangible common equity or Tier 1—and the time periods allotted to reach new required capital ratios.

*Conditions for public infusion of capital should be strict.* In addition to taking stock of writedowns and available capital, bank supervisors who are in the process of evaluating the viability of banks will also need to assure themselves of the robustness of their funding structures, their business plan and risk management processes, the appropriateness of compensation policies, and the strength of management. Viable banks that have insufficient capital should receive capital injections from the government that preferably encourages private capital to bring capital ratios to a level sufficient to regain market confidence in the bank and should be subject to careful restructuring. While these institutions hold government capital, their operations should be carefully monitored and dividend payments restricted. Compensation packages and the possible replacement of top management should be examined carefully. Nonviable financial institutions need to be resolved as promptly as possible. Such resolution may entail a merger or possibly an orderly closure as long as it does not endanger system-wide financial stability.

*Restructuring may require temporary government ownership.* The current inability to attract private money suggests that the crisis has deepened to the point where governments need to take bolder steps and not shrink from capital injections in the form of common shares, even if it means taking majority, or even complete, control of institutions. Temporary government ownership may thus be necessary, but only with the intention of restructuring the institution to return it to the private sector as rapidly as possible. Most importantly, tangible common equity needs to be sufficient to allow the bank to function again—as this is the type of capital that markets are requiring to be held against potential writedowns. Most capital injections from governments thus far have come as preferred shares and these have carried with them a high cost that may impair the banks' ability to attract other forms of private capital. Consideration could be given to converting these shares into common stock so as to reduce this burden. Uncertainty about further policy intervention also deters private capital, and thus clear messages to counter such uncertainty are needed. In a systemic banking crisis, preferential treatment of new bondholders and disadvantaging previous bondholders could well be destabilizing, since many bondholders are themselves financial institutions facing stress. Authorities need to be cognizant of the legal conditions under which their intervention may be considered a “credit event,” triggering credit derivative deliveries so as to avoid further systemic effects for other institutions or markets.

*Cross-border cooperation and consistency is important.* Cross-border coordination of the principles underlying public sector decisions to provide capital injections and the conditions for such injections is crucial in order to avoid regulatory arbitrage or competitive distortions. While difficult to coordinate policies in today's political climate, authorities could usefully aim to provide comparisons between their proposals and others taken abroad as a way to provide more clarity.

### **Address “bad assets” systematically—asset management companies versus guarantees.**

Given the differences in the problems faced by banking systems and the degree to which they have bad assets, various approaches have been adopted. The most important priority is to choose an appropriate approach, ensure that it is adequately funded, and implement it in a clear

manner. However, the use of different techniques between countries makes it all the more important that they coordinate the underlying principles to be applied when valuing the assets and determining the share of losses to be borne by the public sector. Among the methods being used so far, the United Kingdom has favored keeping the assets in the banks but providing guarantees that limit the impact of further losses. An alternative is to place the bad assets in a separate asset management company (AMC) (a so-called “bad bank”), an approach that Switzerland has adopted with UBS and that Ireland is also pursuing. This latter approach has the advantage of being relatively transparent and, if the bulk of the bank’s bad assets are transferred to the AMC, leaves the “good bank” with a clean balance sheet. The United States has provided a guarantee against a pool of assets that are either troubled or vulnerable to large losses in the case of Citibank and Bank of America, as well as proposing to establish private/public partnerships to purchase impaired assets from banks. The current proposal has elements to encourage private sector participation, but it is not clear yet whether banks will have enough incentive to actually sell their impaired assets. In general, different approaches can work depending on country circumstances.

Moreover, since valuation issues remain an important source of uncertainty, governments need to establish methodologies for the realistic valuation of illiquid, securitized credit instruments that they intend to support. When assets are not traded regularly and their market prices are based on “fire sales,” valuation should be based on expected economic conditions to determine the net present value of future income streams. Preferably, while recognizing the complexity of some of the assets, such a basic methodology should be agreed upon and consistently applied across countries to avoid overly positive valuations, regulatory arbitrage, or competitive distortions. The Financial Stability Board, working with standard setters, would be best placed to promote a coordinated approach.

### ***Provide adequate liquidity to accompany bank restructuring.***

Bank funding markets remain highly stressed and will only recover once counterparty risks lessen and banks and providers of wholesale market liquidity are more certain about how their funds are to be deployed. Many governments have introduced measures to protect depositors and have guaranteed various forms of bank debt, but little longer-term funding is available without such government backstopping. Even so, the wholesale funding gap remains large and the structure of national schemes could be made more consistent with each other to improve clarity and reduce frictions. As a result, central banks will need to continue to provide ample short-term liquidity to banks, and governments will need to provide liability guarantees, for the foreseeable future. However, it is not too early to consider exit policies, which in any case should be implemented gradually. Such policies should aim to gradually reprice the facilities and restrict the terms of their use so that there are incentives for banks to return to private markets.

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In addition to the three priorities concerning advanced countries’ banking sectors, other immediate policy measures are to address the spread of the crisis to emerging market countries and the risk of financial protectionism.

### ***Assure that emerging market economies have adequate protection against the deleveraging and risk aversion of advanced economy investors.***

The problems of the advanced country banking sectors and the global contraction are now having severe effects on emerging market countries. We project annual cross-border portfolio outflows of around 1 percent of emerging market GDP over the next few years. Under reasonable



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scenarios, private capital flows to emerging markets could see net outflows in 2009, with slim chances of a recovery in 2010 and 2011.

As in advanced economies, emerging market central banks will need to assure adequate liquidity in their banking systems. However, in many cases the domestic interbank market is not a major source of funding, as much bank funding has been sourced externally in recent years. Thus, central banks may well need to provide foreign currency through swaps or outright sales. Those central banks with large foreign exchange reserves can draw on this buffer, but other means, such as swap lines with advanced country central banks or the use of IMF facilities, should also be a line of defense. The greater resources available to the IMF following the G-20 summit can help countries buffer the impact of the financial crisis on real activity and, particularly in the developing countries, limit the effect on the poor. Moreover, IMF programs can play a useful role in catalyzing support from others in some cases.

The vast majority of the rollover risk in emerging market external debt is concentrated in the corporate sector. Direct government support for corporate borrowing may be warranted. Some countries have extended their guarantees of bank debt to corporates, focusing on those associated with export markets. Some countries are providing backstops to trade finance through various facilities—helping to keep trade flowing and limiting the damage to the real economy. Even so, contingency plans should be devised in order to prepare for potential large-scale restructurings in case circumstances deteriorate further.

Within Europe, the strong cross-border dependencies make it essential that authorities in both advanced and emerging countries work together to find mutually beneficial solutions. The recently issued report of the “de Larosière Group” provides a good start for discussing intra-European Union coordination and cooperation. Concerns over the rollover of maturing debt and the continued external financing of current account deficits in emerging Europe require action. Joint action is also needed to address banking system problems—including coordination on stress tests involving the parent and subsidiaries, better home/host cooperation, and data sharing—as well as preparations to deal with stresses arising from household and corporate debt service. In cases where western European banks have multiple subsidiaries in emerging European countries, joint discussions among the relevant supervisors of how to deal with common predicaments would likely result in better outcomes for all parties.

### **Coordinate policies across countries to avoid beggar-thy-neighbor treatment.**

*Pressure to support domestic lending may lead to financial protectionism.* When countries act unilaterally to support their own financial systems, there may be adverse consequences for other countries. In a number of countries, authorities have stated that banks receiving support should maintain (or preferably expand) their domestic lending. This could crowd out foreign lending as banks face ongoing pressure to delever their overall balance sheets, sell foreign operations, and seek to remove their riskier assets, with damaging consequences for emerging market countries and hence for the wider global economy. At the same time, recent agreements among the parents of banks in some countries to continue to supply their subsidiaries in host countries with credit are heartening.

### **Macroeconomic Policy Consistency and Reinforcement**

In order to provide a foundation for a sustainable economic recovery, it is critical to stabilize the global financial system. As also noted in the April 2009 *World Economic Outlook*, policies aimed at the financial sector will also be more effective if they are reinforced by appropriate fiscal and monetary policies.

### ***Promote fiscal and financial policies that reinforce each other.***

Restoring credit growth is necessary to sustain economic activity. Fiscal stimulus to support economic activity and limit the degradation of asset values should improve the creditworthiness of borrowers and the collateral underpinning loans, and combined with the financial policies to bolster banks' balance sheets would enable sound credit extension. Also, seed funds for private-public partnerships for infrastructure projects could raise demand for loans.

For those countries where there is fiscal room to maneuver, fiscal stimulus will be looked at positively by markets, potentially helping to restore overall confidence. However, for governments already suffering large deficits or poor policymaking institutions, the markets may be less welcoming. Already, market concern at the potential fiscal cost of public support of the banking systems is evident in countries where explicit or implicit support has been provided, especially where the financial system is large compared to the economic size of the country. Although there has been some improvement recently, higher government bond yields, widening credit default swap spreads, or weakening currencies are all manifestations of this concern. Authorities should reduce their refinancing risks by lengthening their government debt maturity structure, to the extent that investor demand allows.

It is clear that stimulative policies are needed now, but careful attention must be paid to the degree of fiscal sustainability and implications for the government's funding needs in any stimulus package, particularly given the contingent risks to the government's balance sheet.<sup>1</sup> Where stimulus packages suggest fiscal targets may be missed, packages need to be accompanied by credible medium-term fiscal frameworks for lowering deficits and debt levels.<sup>2</sup> Without such policies, governments may risk a loss in confidence in the governments' solvency.

### ***Use unconventional central bank policies to reopen credit and funding markets, if needed.***

A number of countries have rapidly lowered nominal policy rates as their first line of defense against the recession, and some are nearing (or have already arrived at) a rate close to zero while spreads on consumer and business lending rates continue to be high. In some cases, unconventional central bank policies to reopen credit and funding markets have been used, and others may need to be considered. The effectiveness of additional tools is difficult to gauge so far, but it is evident that moves to expand and alter the composition of the central banks' balance sheet are becoming more common. As central banks increasingly use such tools, more thought should be given to appropriate exit strategies when conditions improve. Governments may need to provide assurances both to the integrity of the central bank's balance sheet and its overall independence.

For some emerging market countries, interest rate policy in the present environment is complicated by the need to consider exchange rate implications. Some countries may have no scope to lower rates, and may even need to raise them, if cutting rates would lead to capital outflows. As with fiscal policy, individual country circumstances will dictate how monetary policy can be used. Some countries may be able to ease pressures on the exchange rates by providing foreign currency liquidity.

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<sup>1</sup>See the section entitled "Costs of Official Support, Potential Spillovers, and Policy Risks" in Chapter 1; and Box 3.5 in Chapter 3.

<sup>2</sup>See the IMF paper "The State of Public Finances: Outlook and Medium-Term Policies After the 2008 Crisis," March 6, 2009. Available via the Internet: <http://www.imf.org/external/np/pp/eng/2009/030609.pdf>.

### Setting the Stage for a More Robust Global Financial System

The immediate priority of policymakers is to address the current crisis. At the same time, work is continuing to develop a more robust financial system for the longer term. In addition to providing for a more resilient and efficient financial system after the crisis clears, a clear sense of direction about longer-term financial policies can also contribute to removing uncertainties and improving market confidence in the short term. While many of the proposals below may appear conceptual, their implications are real. Their proper implementation will require significant changes in structures and resources, while international consistency will be essential.<sup>3</sup>

There is little doubt that the crisis will require far-reaching changes in the shape and functioning of financial markets, and that the financial system will be characterized by lower levels of leverage, reduced funding mismatches, less counterparty risk, and more transparent and simpler financial instruments than the pre-crisis period. The private sector has a central responsibility to contribute to this new environment by improving risk management, including through attention to governance and remuneration policies.

Since neither market discipline nor public oversight were sufficient to properly assess and contain the buildup of systemic risks, improved financial regulation and supervision are key components to preventing future crises. The emphasis should be on how to detect and mitigate systemic risks through better regulation.

While attempts to eliminate all systemic risk would not only be impossible, but also would slow economic growth and constrain creativity and innovation, the current crisis demonstrates that greater emphasis should be placed on systemically focused surveillance and regulation. At the same time, a better macroprudential framework for monetary policy would also help to mitigate systemic risks. While we should strive for regulation that provides incentives for private institutions, wherever possible, to take actions that reinforce financial stability, we should recognize that system-wide stability is a public good that will be undervalued by private institutions and regulations will need to force systemically important firms to better internalize the overall societal costs of instability. For this to occur, the mandates of central banks, regulators, and supervisors should include financial stability. A clear framework to assess and act upon systemic risks will need to be in place, with a clear delineation of who is the lead systemic regulator.

To be able to mitigate systemic risks, those risks will need to be better defined and measured. Chapters 2 and 3 both shed light on various metrics to help identify systemically important institutions by observing both direct and indirect linkages. In some cases, the measures could be viewed as a starting point for the consideration of an additional capital surcharge that could be designed as a deterrent to firms becoming “too-connected-to-fail.” Even if not formally used, the proposed measures could guide policymakers to limit the size of various risk exposures across institutions. Clearly, such methods would require very careful consideration and application in order to avoid outcomes whereby institutions find other means of taking profitable exposures. More discussion and research is needed before regulations based on this work could be put into place.

As regards regulatory reforms, we see five priority areas: extending the perimeter of regulation to cover all systemically important institutions and activities, preventing excessive leverage and reducing procyclicality, addressing market discipline and information gaps, improving cross-

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<sup>3</sup>For a set of recommendations along these lines, see the IMF paper “Lessons of the Financial Crisis for Future Regulation of Financial Institutions and Markets and for Liquidity Management,” February 4, 2009. Available via the Internet: <http://www.imf.org/external/np/pp/eng/2009/020409.pdf>.



border and cross-functional regulation, and strengthening systemic liquidity management. The main lessons can be summarized as follows.

### ***Define systemically important institutions and the perimeter of prudential regulation.***

As recognized by the recent G-20 Communiqué, this crisis has demonstrated that regulation needs to encompass all systemically important institutions. Traditionally, only a core set of large banks has been regarded as systemically relevant, but the crisis has shown that other nonbank financial intermediaries can be systemically important and their failure can cause destabilizing effects. Not only does an institution's size matter for its systemic importance—its interconnectedness and the vulnerability of its business models to excess leverage or a risky funding structure matter as well.

In order to better capture systemic risks, regulation needs to be expanded to a wider range of institutions and markets. While certainly not all financial institutions need to be regulated, prudential supervision will need to cover some institutions that had previously been viewed as outside the core institutions (e.g., investment banks). Moreover, certain activities (such as credit derivatives and insurance) will need to be overseen by regulators regardless of the type of legal structure in which they are placed.

A two-tiered approach may work best. A wider tier would be required to provide information from which supervisors would determine which institutions are systemically important. The other tier would be a narrower—though wider than at present—perimeter of more intensified prudential regulation and oversight that would include all systemically important institutions. While these institutions would receive more intense scrutiny given their systemic importance, other institutions would continue to be overseen as participants in the payments or banking system or for consumer or investor protection purposes. Chapters 2 and 3 provide methodologies that could be used to discern how close institutions are to each other and thus the contours of an inner tier. These methods will be further explored as the IMF works toward a practical definition of a systemically important institution as requested by the G-20.

### ***Prevent excessive leverage and curb procyclicality.***

New regulatory approaches are needed to avoid the buildup of systemic risk and the subsequent and difficult deleveraging process. Finding solutions for how to limit leverage going forward and reduce the procyclical tendencies inherent in business practices and existing regulation remains challenging. Regulation should attempt to reinforce financial institutions' sound risk-based decision-making, whereas deterring risk-taking in the global economy would be unhelpful. Regulation should provide incentives that support systemic stability, while discouraging regulatory arbitrage and short-termism, but the higher standards should be phased in gradually over time so that they do not exacerbate the present situation.

Capital regulation and accounting standards should include incentives and guidance that permit the accumulation of additional capital buffers during upswings when risks tend to accumulate and are typically underestimated. This would better reflect the risks through the cycle and thus add to capital and provisions that could be used to absorb losses during the downswings. Ideally, these countercyclical capital requirements would not be discretionary, but act as automatic stabilizers and be built into regulations. This would not limit the capacity of supervisors to act with supplementary measures if needed. An upper limit on leverage based on a simple measure could be useful as a supplementary restriction to more robust risk-weighted capital calculations.

Accounting rules and valuation practices should be strengthened to reflect a broader range of available information on the evolution of risks through the cycle. Accounting standard setters and prudential authorities should collaborate to achieve these objectives, with particular emphasis on enabling higher loan loss provisions during periods of rapid credit expansion, evaluating approaches

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to valuation reserves or adjustments when valuation of assets on the trading book are highly uncertain, and examining other ways to dampen adverse dynamics potentially associated with fair value accounting.

It is also necessary to reduce the procyclicality of liquidity risk by taking measures to improve liquidity buffers and funding risk management. During upswings, greater attention needs to be given to funding maturity structures and the reliability of funding sources that can prove vulnerable during downturns.

### ***Address market discipline and information gaps.***

It is important to address the gaps in information that have been revealed by the crisis. In many cases the information needed to detect systemic risks is either not collected or not analyzed with systemic risk in mind, especially those data needed to examine systemic linkages, as this requires information about institutions' exposures to one another. However, in addition to some technical difficulties in collecting these data and formally measuring the exposures, there are legal impediments to their collection across different types of institutions within a country and across borders. Consistency of reporting and definitions and greater information-sharing across jurisdictions are needed to begin to make headway in this area.

Better information is needed on off-balance-sheet exposures, complex structured products, derivatives, leverage, and cross-border and counterparty exposures, supplementing the existing set of indicators used in early warning frameworks. Disclosure practices should be strengthened for systemically important financial institutions, including valuation methodologies and risk management practices, a revamped set of financial soundness indicators, and more effective assessments of systemic risk by policymakers. These elements are reinforced by the analysis in Chapters 2 and 3. As well, greater availability of reliable public information will help investors to perform proper due diligence, the failure of which was a major contributor to the present crisis.

### ***Strengthen cross-border and cross-functional regulation.***

Enhanced cross-border and cross-functional regulation will require improvements in institutional and legal settings. Progress is needed in reducing unnecessary differences, tackling impediments to supervision of globally and regionally important firms, with more harmonized early remedial action, bank resolution legal frameworks, and supervisory practices to oversee cross-border firms. An appointment of a lead regulator, in principle the home authority, by the college of regulators overseeing a firm would be essential to ensure adequate oversight. Home countries should endeavor to strengthen cooperation with host countries so as to assure lines of communication are open when rapid responses are required—contingency planning should involve all relevant parties.

### ***Improve systemic liquidity management.***

In terms of systemic liquidity management, central banks can learn some lessons from the crisis in terms of the flexibility of their operational frameworks, the infrastructure underlying key money markets, and the need for better mechanisms for providing cross-border liquidity.

Another way of limiting systemic linkages and the risks of multiple-institution distress is to provide clearing facilities that mitigate counterparty risk by netting trades and making the clearing facility a counterparty to every trade. Recent attempts to provide some of these services for the credit default swap market are welcome. However, allowing a large number of proposed institutions risks diluting much-needed counterparty risk mitigation by splitting up the volumes and reducing netting opportunities. A competitive environment could potentially lead to cost-cutting measures that may compromise risk management systems. Thus, if multiple clearing facilities are permitted, they should be subject to strong oversight using globally accepted standards, ensuring the ability to clear and

settle across borders and in multiple currencies. Box 2.4 provides the principles for their construction.

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Many of these recommendations have already been discussed in international fora and are forming the basis for new or altered regulation or supervisory guidance. The Financial Stability Board, through its main working group, has established a set of subgroups to provide policy guidance in a number of areas, including some of those emphasized here. The Basel Committee is considering changes to the Basel II framework and to its liquidity risk management framework. The International Accounting Standards Board and the Financial Accounting Standards Board have both issued guidance on how to value illiquid assets and have made other alterations to their accounting guidance and standards given the crisis and its causes. Other international organizations are reviewing their guidelines and best practices. For its part, the IMF will be revamping its Financial Sector Assessment Programs as well as improving its multilateral and bilateral surveillance. The joint Early Warning Exercise, conducted by the IMF in cooperation with the Financial Stability Board, will enhance the global coordination of risk assessments with the aim of making stronger policy recommendations to prevent a buildup of systemic risks.

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