Building a More Resilient Financial Sector
Reforms in the Wake of the Global Crisis

EDITORS
Aditya Narain, İnci Ötker-Robe, and Ceyla Pazarbasioglu

INTERNATIONAL MONETARY FUND
Building a More Resilient Financial Sector
Reforms in the Wake of the Global Crisis

EDITORS
Aditya Narain, İnci Ötker-Robe,
and Ceyla Pazarbasioğlu
# Contents

Foreword v
Acknowledgments vii
Abbreviations ix
Contributors xi

## Chapters

1. From Crisis to a New Financial Architecture: Taking Stock and Looking Forward
   Inci Ötker-Robe

2. Shaping the New Financial System
   José Viñals, Jonathan Fiechter, Ceyla Pazarbasioglu, Laura Kodres, Aditya Narain, and Marina Moretti

3. Impact of Regulatory Reforms on Large and Complex Financial Institutions
   Inci Ötker-Robe and Ceyla Pazarbasioglu

4. The Perimeter of Financial Regulation
   Ana Carvajal, Randall Dodd, Michael Moore, Erlend Nier, Ian Tower, and Luisa Zanforlin

5. The Making of Good Supervision: Learning to Say “No”
   José Viñals, Jonathan Fiechter, Aditya Narain, Jennifer Elliott, Ian Tower, Pierluigi Bologna, and Michael Hsu

   Ross Leckow and Ceyla Pazarbasioglu

7. The Too-Important-to-Fail Conundrum: Impossible to Ignore and Difficult to Resolve
   Inci Ötker-Robe, Aditya Narain, Anna Ilyina, and Jay Surti

8. Contingent Capital: Economic Rationale and Design Features
   Ceyla Pazarbasioglu, Jianping Zhou, Vanessa Le Leslé, and Michael Moore

9. Recovery and Resolution Plans (Living Wills): A Solution to the Too-Important-to-Fail Problem?
   Katherine Seal

©International Monetary Fund. Not for Redistribution
10  Making Banks Safer: Can Volcker and Vickers Do It?................................. 193
   Julian T.S. Chow and Jay Surti

11  Subsidiaries or Branches: Does One Size Fit All?.................................. 221
   Jonathan Fiechter, İnci Ötker-Robe, Anna Ilyina, Michael Hsu,
   André Santos, and Jay Surti

12  Redesigning the Contours of the Future Financial System....................... 247
   Laura Kodres and Aditya Narain

References  261
Index      269
The chapters in this book derive from a large volume of work conducted since the onset of the global financial crisis in 2007–08. The International Monetary Fund (IMF), along with the Bank for International Settlements and the Financial Stability Board, has been closely involved in the discussions on developing the agenda for global financial sector reform and on reshaping the financial system architecture in a way that reduces the likelihood of future crises and/or limits the devastating consequences in the event they do occur. The chapters of this volume provide views on the various reform proposals and the extent to which they address the deficiencies exposed by the crisis. They support the ongoing reform process and reinforce its key priorities, while also pointing out areas of concern and challenges and urging completion of the reform agenda without further delay.

More than four years since the onset of the global financial crisis, much has been done to reform the global financial system, but there is much left to accomplish. The regulatory reform agenda agreed to by G-20 leaders in 2009 has elevated the discussions to the highest policy level and kept international attention focused on establishing a globally consistent set of norms. Comprehensive reform, once agreed and implemented in full, will have far-reaching implications for the global financial system and the performance of the world economy; the policymakers are mindful of the overarching objective of creating a financial system that provides a solid foundation for strong and sustainable economic growth.

The current reforms are moving in the right direction, but many policy choices lie ahead that are both urgent and challenging. The choices are further complicated by the negative feedback loop that has now set in between sovereign and banking risks in an environment with weakening growth prospects. Financial stability risks have increased significantly in recent months, signaling a reversal in progress toward financial stability. This means that banks must build stronger capital and liquidity buffers to boost eroding confidence, mitigate deleveraging pressures, and sustain credit to the still weak advanced economies.

Given the challenging environment, policymakers need to complete the financial reform agenda. This is necessary to limit the regulatory uncertainty that weighs on the real economy and to finalize the new architecture that would provide a helpful yardstick to emerging market policymakers, who need to limit a buildup of financial imbalances in their economies. In this context, ensuring a level playing field in regulation can foster competition and minimize the scope for cross-border regulatory arbitrage. Developing coherent resolution regimes at national and international levels and enhancing transparency to restore market discipline can help address the problem of institutions perceived as too important to fail. Casting a wide net to address emerging exposures and risks in the entire financial system would limit the danger that riskier activities and products could migrate to the less regulated or unregulated segments of the system and add to
systemic risk. In achieving these goals, business models and practices in the private sector should be aligned with the new financial structure laid out by public policy so as to ensure effectiveness and sharing of the financial burden generated by their risk taking.

This volume elaborates on these key elements of the financial reform agenda. Therefore, a number of other areas that are also important parts of the ongoing regulatory reform process (e.g., macroprudential policy frameworks and market microstructure and accounting measures) are not covered in this volume. I would like to extend my thanks to all those responsible for the creation of this volume and hope that it provides a valuable resource for policymakers, academics, and private sector participants who are interested in IMF staff perspectives on key financial reform issues.

José Viñals
Financial Counsellor and Director
Monetary and Capital Markets Department
International Monetary Fund
Acknowledgments

We are grateful to many colleagues in the Monetary and Capital Markets Department (MCM) and other departments of the International Monetary Fund (IMF) for working with us on the range of issues associated with reforming the financial system that have formed this volume. The papers that form the chapters of this volume are the result of collaboration with, and comments from, many colleagues at the IMF and helpful discussions at the IMF’s Executive Board, as well as comments and suggestions from a range of national and international policymakers, including the Bank for International Settlements, Basel Committee on Banking Supervision, and the Financial Stability Board.

The chapters in this volume have benefited greatly from the support and guidance of José Viñals, Financial Counsellor and Director of MCM, and Jonathan Fiechter and Christopher Towe, both Deputy Directors of MCM, who have also made valuable contributions to the volume. John Lipsky, the former First Deputy Managing Director of the IMF, provided invaluable insights and comments for many of the papers that were discussed at the IMF’s Executive Board.

The volume has benefited from the excellent editorial work and support of Sean Culhane, Deputy Division Chief, External Relations Department, who also coordinated the arrangements for publication. Finally, we acknowledge the excellent assistance of Sandra Morales-Bermudez, MCM, in producing this volume, as well as Charmane Ahmed, Magally Bernal, Heidi Canelas, and Florence Dotsey (all in MCM) for their assistance in the production of individual chapters of the volume.
This page intentionally left blank
**Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSs</td>
<td>asset-backed securities</td>
</tr>
<tr>
<td>BCBS</td>
<td>Basel Committee on Banking Supervision</td>
</tr>
<tr>
<td>BHCs</td>
<td>bank holding companies</td>
</tr>
<tr>
<td>BIS</td>
<td>Bank for International Settlements</td>
</tr>
<tr>
<td>CBRG</td>
<td>Cross-Border Bank Resolution Group</td>
</tr>
<tr>
<td>CCPs</td>
<td>central counterparties</td>
</tr>
<tr>
<td>CDS</td>
<td>credit default swap</td>
</tr>
<tr>
<td>CESE</td>
<td>Central, Eastern, and Southern Europe</td>
</tr>
<tr>
<td>CET1</td>
<td>common equity Tier 1</td>
</tr>
<tr>
<td>CGFS</td>
<td>Committee on the Global Financial System</td>
</tr>
<tr>
<td>CoCo</td>
<td>contingent convertible capital</td>
</tr>
<tr>
<td>CP</td>
<td>core principle</td>
</tr>
<tr>
<td>DTAs</td>
<td>deferred tax assets</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FDIC</td>
<td>Federal Deposit Insurance Corporation</td>
</tr>
<tr>
<td>FINMA</td>
<td>Swiss Financial Market Supervisory Authority</td>
</tr>
<tr>
<td>FSA</td>
<td>U.K. Financial Supervisory Authority</td>
</tr>
<tr>
<td>FSAP</td>
<td>Financial Sector Assessment Program</td>
</tr>
<tr>
<td>FSB</td>
<td>Financial Stability Board</td>
</tr>
<tr>
<td>G-20</td>
<td>Group of Twenty</td>
</tr>
<tr>
<td>G-30</td>
<td>Group of Thirty</td>
</tr>
<tr>
<td>GDP</td>
<td>gross domestic product</td>
</tr>
<tr>
<td>GFSR</td>
<td>Global Financial Stability Report (of the IMF)</td>
</tr>
<tr>
<td>G-SIBs</td>
<td>global systemically important banks</td>
</tr>
<tr>
<td>G-SIFIs</td>
<td>global systemically important financial institutions</td>
</tr>
<tr>
<td>LCFIs</td>
<td>large and complex financial institutions</td>
</tr>
<tr>
<td>LCR</td>
<td>liquidity coverage ratio</td>
</tr>
<tr>
<td>MSR</td>
<td>mortgage servicing rights</td>
</tr>
<tr>
<td>NPLs</td>
<td>nonperforming loans</td>
</tr>
<tr>
<td>NSFR</td>
<td>net stable funding ratio</td>
</tr>
<tr>
<td>OTC</td>
<td>over-the-counter</td>
</tr>
<tr>
<td>RRP</td>
<td>recovery and resolution plans</td>
</tr>
<tr>
<td>RWA</td>
<td>risk-weighted asset</td>
</tr>
<tr>
<td>SAS</td>
<td>stand-alone subsidiarization</td>
</tr>
<tr>
<td>SIFI</td>
<td>systemically important financial institutions</td>
</tr>
<tr>
<td>SPN</td>
<td>Staff Position Note</td>
</tr>
<tr>
<td>TITF</td>
<td>too important to fail</td>
</tr>
<tr>
<td>UNCITRAL</td>
<td>United Nations Commission on International Trade Law</td>
</tr>
</tbody>
</table>
Contributors

Pierluigi Bologna, Technical Assistance Advisor, Financial Sector Oversight Division, Monetary and Capital Markets Department, International Monetary Fund

Alberto Buffa di Perrero, Senior Financial Sector Expert, Financial Sector Analysis Division, Monetary and Capital Markets Department, International Monetary Fund

Ana Carvajal, Senior Financial Sector Expert, Financial Sector Oversight Division, Monetary and Capital Markets Department, International Monetary Fund

Julian T.S. Chow, Financial Sector Expert, Financial Sector Analysis Division, Monetary and Capital Markets Department, International Monetary Fund

Marc Dobler, Senior Financial Sector Expert, Monetary and Capital Markets Department, International Monetary Fund

Randall Dodd, Director, Financial Policy Forum

Jennifer Elliott, Senior Financial Sector Expert, Europe, Central Asia and Middle East Division, Monetary and Capital Markets Department, International Monetary Fund

Jonathan Fiechter, Deputy Director, Monetary and Capital Markets Department, International Monetary Fund

Michael Hsu, Manager, Banking Supervision and Regulation, Federal Reserve Board of Governors

Anna Ilyina, Deputy Division Chief, Financial Sector Analysis Division, Monetary and Capital Markets Department, International Monetary Fund

Silvia Iorgova, Economist, Global Financial Stability Division, Monetary and Capital Markets Department, International Monetary Fund

Turgut Kişinbay, Economist, Financial Sector Analysis Division, Monetary and Capital Markets Department, International Monetary Fund

Laura Kodres, Assistant Director, Global Financial Stability Division, Monetary and Capital Markets Department, International Monetary Fund

Ross Leckow, Deputy General Counsel, Legal Department, International Monetary Fund

Vanessa Le Leslé, Financial Sector Expert, Financial Sector Analysis Division, Monetary and Capital Markets Department, International Monetary Fund

Fabiana Melo, Technical Assistance Advisor, Financial Sector Oversight Division, Monetary and Capital Markets Department, International Monetary Fund

Michael Moore, Deputy Division Chief, Financial Sector Oversight Division, Monetary and Capital Markets Department, International Monetary Fund

Marina Moretti, Advisor, Monetary and Capital Markets Department, International Monetary Fund

Aditya Narain, Division Chief, Financial Sector Analysis Division, Monetary and Capital Markets Department, International Monetary Fund

©International Monetary Fund. Not for Redistribution
Contributors

**Erlend Nier**, Senior Financial Sector Expert, Central Banking Fund Monetary Policy Division, Monetary and Capital Markets Department, International Monetary Fund

**İnci Ötker-Robe**, Advisor, Monetary and Capital Markets Department, International Monetary Fund; currently the Chief Technical Financial Sector Specialist, Finance and Private Sector Development, the World Bank

**Ceyla Pazarbasioglu**, Assistant Director, Financial Sector Oversight Division, Monetary and Capital Markets Department, International Monetary Fund

**Jiri Podpiera**, Economist, Western Hemisphere Department, International Monetary Fund

**Noel Sacasa**, Senior Financial Sector Expert, Financial Sector Oversight Division, Monetary and Capital Markets Department, International Monetary Fund

**André Santos**, Senior Economist, Financial Sector Analysis Division, Monetary and Capital Markets Department, International Monetary Fund

**Katherine Seal**, Senior Financial Sector Expert, Financial Sector Oversight Division, Monetary and Capital Markets Department, International Monetary Fund

**Jay Surti**, Senior Economist, Financial Sector Analysis Division, Monetary and Capital Markets Department, International Monetary Fund

**Ian Tower**, U.K. Financial Services Authority

**Volodymyr Tulin**, Economist, Financial Sector Analysis Division, Monetary and Capital Markets Department, International Monetary Fund

**José Viñals**, Financial Counsellor and Director, Monetary and Capital Markets Department, International Monetary Fund

**Luisa Zanforlin**, Senior Economist, Financial Sector Oversight Division, Monetary and Capital Markets Department, International Monetary Fund

**Jianping Zhou**, Senior Economist, Financial Sector Oversight Division, Monetary and Capital Markets Department, International Monetary Fund

©International Monetary Fund. Not for Redistribution
CHAPTER 1

From Crisis to a New Financial Architecture: Taking Stock and Looking Forward

İNCİ ÖTKER-ROBE

"Space: the final frontier. These are the voyages of the starship Enterprise. Its five-year mission: to explore strange new worlds, to seek out new life and new civilizations, to boldly go where no man has gone before."

——Star Trek: The Original Series

Imagine a financial system where financial institutions help create growth and prosperity for the countries they operate in and for the individuals populating them. Only a financial system that is well managed and resilient to shocks would provide a solid foundation for strong and sustainable economic growth and the prosperity brought by such growth. The journey of policymakers through Basel II to Basel III, and the initiatives of the Group of Twenty (G-20), the Financial Stability Board (FSB), and national authorities have been no less exciting or challenging than the voyages of the starship Enterprise—to identify the contours of a new financial architecture and to seek out policies and practices that can create a stable and resilient financial system capable of achieving its important mission.

This is the financial system policymakers strive to achieve: a better-governed and more competitive financial system with transparent corporate structures and instruments and markets that allow for easy entry and exit; financial intermediation that delivers products better geared to satisfy the needs of households and firms; banks endowed with higher, better quality, and globally consistent capital and liquidity buffers that adequately weigh systemic risk and discourage procyclical lending behavior; and institutions—even systemically important ones—that can be resolved in timely fashion with minimum or no cost to taxpayers.

The ongoing global financial crisis—which has been assigned the “honor” of being the worst crisis since the Great Depression—has taken us miles away from such a vision. It led to an unprecedented dislocation in financial markets, with abrupt consequences for growth and unemployment, and prompted a rapid and sizable internationally coordinated public sector response. Behind this response was the acknowledgment that these costs have been imposed partly due to
systemic weaknesses, or cracks, in the regulatory architecture and partly due to the failure of supervisors to rein in excessive private sector risk taking.

The global crisis has made these cracks in the financial architecture very visible. Incentives at both macro and micro levels (through low interest rates, abundant liquidity, a favorable macroeconomic environment, and compensation schemes) encouraged financial institutions to take greater risks than they could manage in an attempt to extract higher returns. When combined with inadequate regulation and supervision, insufficiently wide regulatory perimeters, poor disclosure, and poor risk management practices, these incentives resulted in a highly complex and opaque financial system, with overleveraged institutions dependent on short-term wholesale funding to finance risky investments, including the rapid growth of credit of dubious quality. In many cases, institutions moved away from their traditional banking model to become large and complex financial institutions (LCFIs) heavily interconnected within and across borders, making them, in turn, too important to fail (TITF).

A new architecture is urgently needed to take policymakers back to their envisioned world. This requires, first and foremost, addressing the market failures that planted the seeds of the crisis: the principle-agent problem fed by information asymmetries, externalities that individual institutions imposed on others, and irrational exuberance that amplified the impact of economic cycles. It calls for

- tighter regulation to internalize the negative externalities caused by the risks individual firms take;
- better supervision to effectively implement that regulation;
- greater transparency and disclosure both to address the information gaps and, together with more “skin in the game” (e.g., through compensation practices and the sharing of losses in the event of a failure), to strengthen market discipline and limit incentives for risk taking;
- better macroprudential policies and effective safety nets to dampen the impact of swings and failures on the rest of the financial system so that no institution is viewed as TITF; and
- reforms to establish an infrastructure that could cope with large, complex, and interconnected institutions so that the financial system can still perform its essential functions when some of its parts are troubled.

Significant reforms are in the making along these lines internationally and domestically (Figure 1.1), and the IMF has been participating in the deliberations. The reforms have focused on microprudential measures that aim at reducing the probability or the cost of failure by making individual financial institutions more resilient and/or allowing them to fail in an orderly fashion in the event of severe stress. They have also focused on policies aimed at strengthening the resilience of the overall financial system by mitigating risks caused by systemically important financial institutions (SIFIs) and procyclicality. The chapters in this volume describe work undertaken at the IMF on the various reform proposals to address some of the key issues.
The overarching objective of the ongoing reforms is to create a financial system that provides a solid foundation for strong and sustainable economic growth. Chapter 2 provides a broad overview of the financial reform agenda and lays out a vision for a better future global financial system capable of delivering this objective. It acknowledges that the current reforms are moving in the right direction, including through the proposals of the Basel Committee on Banking Supervision (BCBS) to strengthen the quality and quantity of bank capital and liquidity, but many urgent and challenging policy choices lie ahead, nationally and internationally.

In dealing with the obstacles along the way and carrying out the reform agenda, policymakers need to focus on five key tasks: (1) ensure effective and globally consistent regulation, (2) improve the effectiveness of supervision, (3) develop coherent resolution mechanisms at national and international levels, (4) establish a comprehensive macroprudential framework, and (5) cast a wide net to cover risks in the entire financial system.

Private sector ownership of the reforms will be key to a successful implementation of the new rules. In particular, business models and practices will need to be aligned with the new financial structure, governance and risk measurement/management will need to be improved to rein in excessive risk taking, and market discipline will need to be restored along the lines discussed above by correcting misaligned incentives and enhancing transparency.

SHAPING THE NEW FINANCIAL SYSTEM

Figure 1.1 Financial Reform Proposals in the Aftermath of the Global Crisis

Financial institutions will adjust their business strategies as they try to meet the tighter requirements and mitigate their effects on the profitability of their

©International Monetary Fund. Not for Redistribution
business; in fact, they have already started doing so. Chapter 3 explores the likely effects of the ongoing regulatory reforms on a sample of LCFIs with a range of business models. It notes that the gradual phase-in period for higher and better quality capital and liquidity rules under Basel III would allow most banks to meet the requirements through earnings retention, assuming a modest economic and earnings outlook. Should banks generate strong earnings in the coming years and distribute lower dividends, they could in fact rebuild the required capital faster than under the current phase-in periods.

The new capital standards will have a greater effect on banks with significant investment-banking activities, compared with those that focus on traditional commercial banking. The former derive earnings primarily from trading, advisory, and asset management income and are therefore more affected by the higher risk weights for securitization and trading activities that came into effect in late 2011. In contrast, traditional banking institutions have a simpler business focus and are subject to a gradual phase-in period. Investment banking activities will also be impacted by a host of other regulatory initiatives, including those that limit the scope of their activities. Yet, because LCFIs with an investment banking focus have more flexible business models, they also can adjust more easily to mitigate the effects of the regulations. A key challenge, then, is to ensure that tighter bank regulations achieve material reductions in systemic risk while avoiding an unintended shift of risks to the shadows of less regulated sectors and locations. Chapter 3 discusses some safeguards (e.g., widening the regulatory perimeter, strengthening supervision, and coordinating policies) to mitigate these and other unintended consequences.

EXPANDING THE PERIMETER, BUT WHERE AND HOW, AND AT WHAT COST?

With the crisis showing how significant credit risks, often highly concentrated, had accumulated in unregulated entities, concerns have been expressed that the coverage of prudential regulation has been too narrow. In reviewing the scope of financial regulation, it was found that special emphasis is warranted in regulating institutions, instruments, and markets that are currently unregulated, including systemically important institutions (G-20, 2008). These concerns have gained greater importance with the possibility that tightening the regulation of banks would create new arbitrage opportunities and leave the risks within the broader financial system. The relatively unregulated financial activities that were a major part of the global crisis had, after all, grown in the shadow banking system, in large part to avoid regulatory requirements affecting banks.

Chapter 4 in this volume reviews the lessons learned from the crisis as to why the perimeter of regulation should be reconsidered and discusses the objectives, content, and scope of expanded regulation. It calls for wider scope in the regulation of institutions, products, and markets to ensure that all financial activities that may pose systemic risk are appropriately overseen, and discusses the modalities of doing so. However, it also warns that, even if new regulation is carefully designed to be proportionate to the risks in each new area, there will be increased
costs to the system in the form of greater regulatory burden, which will also carry risks of unintended consequences. Nonetheless, it notes that the cost of the alternative is also high, as the current crisis has clearly shown.

GOOD REGULATION, EVEN EXTENDED, WOULD NOT BE ENOUGH WITHOUT GOOD SUPERVISION

Good regulation is essential, but it must be supplemented by effective supervision to enforce compliance with the rules. In fact, the quality of financial sector supervision has emerged as a key issue from the financial crisis. Although most countries operated broadly under the same regulatory standards before the crisis, there were differences in supervisory approaches.

Chapter 5 in this volume argues that to be effective supervision must be intensive, skeptical, proactive, adaptive, comprehensive, and conclusive. These key elements, in turn, require a willingness and ability to take timely and effective action, which then calls for appropriate resources, skills, mandate, operational independence, and accountability for supervisors. In a world of an ever-adapting industry, complex instruments, and interconnected markets and institutions, supervision must be proactive, anticipating that the adjustment of some banks’ business strategies in response to tighter regulation may increase systemic risk. These attributes gain even greater importance in the supervision of SIFIs.

ENHANCED TRANSPARENCY IS EQUALLY IMPORTANT TO MAKE FAILURES LESS LIKELY . . .

Regulators and supervisors cannot do their job effectively without access to adequate data and information. Transparency and disclosure are essential in enhancing the ability of supervisors to capture emerging risks on time, as well as in promoting market discipline. Disclosure of timely and accurate data on individual firms’ condition and exposures vis-à-vis other financial institutions and instruments also helps creditors, counterparties, and shareholders better assess and identify risks, thereby acting as a natural restraint on excessive risk taking. Enhanced disclosure is aimed at both banks and the shadow banking and non-bank universe. Its purpose is to limit the likelihood that activities and accompanying risks could migrate to less-regulated parts of the financial system following the tightening of standards for banks, which in the end would add to systemic risk.

Significant progress is needed to close the existing gaps in information and help identify the buildup of systemic risks (see Johnston and others, 2009, and IMF/FSB, 2010). Efforts are ongoing to fill these information gaps through the joint efforts of the Bank for International Settlements (BIS), the FSB, and the IMF, including through the design of a data template for global SIFIs that would contain information on the structure, exposures, and interconnectedness of their activities. These issues are discussed in greater detail later in this volume.
BUT NOT ALL FAILURES CAN BE ELIMINATED, SO EFFECTIVE RESOLUTION REGIMES ARE KEY

Severe problems in individual financial institutions, although hopefully infrequent, are inevitable, regardless of the quality of supervision and regulation. Well-designed resolution frameworks that allow authorities to deal smoothly with the insolvency of financial institutions are essential ingredients of any strategy to maintain financial stability, both at national and global levels, and to minimize the extent and cost of the disruption that failures can cause. Moreover, orderly resolution must be a credible option if market discipline is to work.

Although some progress has been made on resolution frameworks at the national level, many challenges remain, including at the international level. These challenges include the design of mechanisms to ensure that losses are borne by the creditors of the institutions, rather than by taxpayers, and the design of infrastructures to wind down systemically important nonbank financial institutions and banking groups that operate across borders. Much less progress has been made in agreeing on the design of resolution frameworks at the cross-border level. That lack of progress reflects, among other things, operational and legal impediments deriving from differences in national resolution frameworks, the absence of mutual recognition and agreements for coordinating home-host regimes, and the lack of enforceable burden-sharing arrangements.

Chapter 6 proposes a framework for enhanced coordination as an intermediate option for reaching global solutions on resolution regimes for cross-border banks. The framework recognizes the need for significant political will to surrender national sovereignty to an international treaty and the efficiency costs implied by some nationalistic approaches. It calls for amending national laws to remove existing legal impediments to international cooperation, allowing participation by only those countries that satisfy core coordination standards (e.g., measures to harmonize resolution laws, rescinding national legislation that discriminates against overseas creditors, developing effective resolution tools and creditor safeguards, and strengthening regulatory cooperation). These core standards would establish the principles for burden sharing between cooperating authorities, where a resolution required the use of funds, and for legal/operating procedures to facilitate the cross-border effects of national resolution actions.

WHAT DOES THIS ALL MEAN FOR SIFIs?

All the policies discussed above (effective regulation, supervision, disclosure, and resolution) are essential to fix the cracks in the financial system, but more needs to be done, particularly for its systemically important players. Although making progress, the global financial community is not yet equipped to allow SIFIs to fail when they are in trouble or save them without agonizing taxpayers. Before the crisis, implicit government backing permitted SIFIs to take on greater risks without adequate exposure to market discipline and to enjoy competitive advantage over systemically less important institutions. When the crisis broke, their size, complexity, lack of substitutability, and interconnectedness within and

©International Monetary Fund. Not for Redistribution
across borders proved too significant to let them fail. The large-scale public support provided during the crisis has reinforced moral hazard and allowed SIFIs to grow even more complex and larger (with some exceeding multiples of the size of their home economies—Figure 1.2).

Chapter 7 provides an overview of the various proposals put forward to mitigate the risks SIFIs pose and presents IMF staff views of these proposals. The proposed actions aim to make failures less likely, or at least less devastating when they occur, to eliminate the moral hazard that would nurture risk taking,
From Crisis to a New Financial Architecture: Taking Stock and Looking Forward

and to restore a level playing field. They seek to limit firms’ ability to become systemic by restricting their size, structure, and scope of activities; or to lower firms’ odds of failing through stricter regulatory and supervisory rules; and/or to enhance firms’ resolvability to reduce the cost/impact of their failures. The policy framework necessary to achieve these goals, the chapter argues, contains:

• more stringent capital and liquidity requirements (compared with those required by Basel III), commensurate with institutions’ contributions to systemic risk;
• intensive supervision consistent with institutions’ complexity and riskiness;
• enhanced transparency and disclosure requirements to strengthen market discipline and the ability to capture risks in the broader financial system; and
• effective resolution regimes to make failures a credible option, with resolution plans and tools to require creditors to share losses.

Additional efforts are needed to reinforce these elements and limit unintended consequences, including a better monitoring of the shadow banking system so that risks are not simply shifted to entities subject to less oversight; supervisory cooperation and information sharing to contain regulatory arbitrage across jurisdictions; and a realignment of management incentives with those of the banking group to discourage inappropriate risk taking (e.g., by effective compensation practices). Although work is progressing on these building blocks, implementation could take several years, so credible actions in the interim are called for, including significantly more loss-absorbing capital for SIFIs, combined with enhanced supervision and global coordination.

IS CONTINGENT CAPITAL PART OF THE SOLUTION?

Contingent capital instruments, the so-called contingent convertible bonds (CoCos), have gained some support as a potential (market-based) option to reduce the need for public bailouts. CoCos can be automatically converted into equity or written down upon a predetermined trigger event, enabling a fresh injection of capital into distressed banks to absorb ensuing losses.

Chapter 8 argues that, although not likely to be effective as a stand-alone tool, CoCos could be part of a comprehensive crisis management framework if they are designed properly, with appropriate conversion triggers and rates and in a way that avoids adding procyclicality during crises and complexity to the capital structure. Policies that support contingent capital should be geared toward reducing the risk and cost of systemic crises, for example, to be used where market access is difficult and to discourage excessive risk taking by financial institutions. Making SIFIs less likely to fail and increasing the possibility of burden sharing with the private sector in the event of a failure would also help improve market discipline. Still, these instruments are untested, so they need careful scrutiny to avoid potentially adverse effects on market dynamics.
LIVING WILLS—A KEY TO ENDING THE TITF PROBLEM OR ENSURING SIFI SURVIVAL?

A silver lining of the crisis has been the encouragement of policymakers to think outside of the box and offer some novel solutions to the TITF problem. Living wills, or recovery and resolution plans (RRPs), are one such idea. Applied to financial institutions, living wills “provide a guide for the undertaker [resolution authority] to handle the deceased [the bank] in a way that will stem any contagious effects across the broader population [the financial system]” (Bovenzi, 2010). Given that most large banks are highly interconnected with other financial companies and have complex internal operating structures that often cut across and obscure their own legal structures, living wills could help resolution authorities deal with the significant operational challenges they could face over a very short period of time during severe systemic stress.

Globally active SIFIs are now required to have sustained RRPs, or living wills, to improve their resolvability. Chapter 9 reviews living wills in more detail. It argues that such plans can make valuable contributions to effective resolution frameworks for SIFIs by requiring firms and regulators to jointly develop systematic and holistic plans that facilitate recovery and an orderly wind-down in the event of failure. Living wills can help individual firms prepare for contingencies and authorities prepare for effective resolutions, and they can provide essential information on a firm’s assets and liabilities, commitments, exposures, and legal/operational structure. This information can facilitate supervision and resolution efforts. However, living wills may also be challenging to implement, especially for complex cross-border firms, and this highlights the need for effective cross-border cooperation, information sharing, and decision making when dealing with a failing institution. Further work is needed on methods and criteria to assess institutions’ resolvability and to ensure consistent implementation across jurisdictions.

WHY NOT BREAK UP SIFIS TO PUT AN END TO THE TITF PROBLEM?

At first glance, the most obvious solution to dealing with the TITF problem is to prevent institutions from becoming systemic in the first place, including by breaking them up into smaller, more manageable pieces so that no individual institution is too big or too interconnected to be allowed to fail. Some of these direct measures to address the TITF problem are discussed in Chapter 7 and Chapter 10. For example, caps can be put on an institution’s future growth, or its current balance sheet can be reduced in absolute or relative terms by selling assets or breaking them up, so as to limit the impact its failure has on the financial system and the economy. Restrictions on a bank’s scope of activities attempt to separate its core activities from presumably riskier ones that could destabilize bank funding, making the system less interconnected, and/or avoiding the conflicts of interest that arise from bundling services together.
Although they provide a direct way of dealing with the TITF problem, such measures could be difficult to implement and adopt on a globally consistent basis. Neither capping banks’ size and breaking them up nor restricting their scope has gained broad international support. Some have argued that limiting size alone would not prevent “systemic-ness” and that it might cause fragmentation between many smaller market participants (e.g., FINMA, 2011). The measures could also be costly due to a loss of potential gains from diversification, as well as having large adjustment costs, if applied retroactively. And there may be nontrivial implementation challenges in separating the prohibited activities from legitimate ones. These activities, if moved to less regulated or unregulated parts of the financial sector, could leave the risks in the system if they resulted in systemically important nonbank institutions that maintain an umbilical cord connected to the banks.

**COULD WE AT LEAST MAKE SIFIS SELF-SUFFICIENT?**

If policymakers cannot break up SIFIs or constrain their activities, could they at least structure SIFIs to make them less interconnected and more self-sufficient so as to reduce the likelihood and impact of a failure? With these objectives, some policymakers have proposed to force large cross-border banks to operate outside their home markets as subsidiaries (the so-called subsidiarization), rather than as branches of the parent bank, as one part of the solution to dealing with the TITF problem. In the absence of effective cross-border coordination, adequate information exchange, and effective resolution and burden-sharing arrangements, some host authorities have chosen to isolate the local operations of foreign banks from possible problems in distressed foreign parents or affiliates. Measures include requiring subsidiaries to hold sufficient capital and liquidity and imposing tight limits on intragroup operations. More recently, the geographical subsidiarization concept has been applied to split groups by function, such as by ring-fencing retail from investment banking operations.

Chapter 11 examines the merits of such proposals from the perspectives of banking groups and home-host authorities, and argues that there is no one size that fits all. The subsidiary structure can shield a business from losses in the group, make it easier to spin off businesses and affiliates individually, facilitate implementation of RRPs by simplifying the legal and financial structure of the group, and help an orderly restructuring of the affiliates of a troubled entity. But imposing self-sufficiency constraints regardless of business models could be costly for some banks, such as those with a wholesale focus. It could also impose additional costs on a bank group’s ability to manage risks given the limits on intragroup operations. In fact, a bank forced to subsidiarize has been likened to a general fighting a battle in one country who cannot benefit from his own ample troops since they are locked up in other countries (see Ludwig, 2011). The chapter encourages policymakers to accelerate progress toward the first best solution—with harmonized cross-border resolution regimes accompanied by equitable burden-sharing mechanisms, adequate risk management, strong capital/liquidity buffers, and supervisory coordination—in order to limit the need for such nationalistic approaches.
HOW IS THE FINANCIAL SYSTEM LIKELY TO BE SHAPED BY THESE REGULATORY INITIATIVES?

As the numerous regulatory reform discussions take their course, some initiatives will assume their place in a pile of proposals that will never see daylight, whereas others will reshape the contours of a new financial system through the combined efforts of policymakers and the private sector’s responses to the probable outcomes. Global consistency in regulation and financial sector taxation will be essential to mitigate systemic risks, avoid unintended distortions, and help ensure a level playing field.

The last chapter in this volume discusses how the financial system is likely to be shaped by the probable changes in the regulatory environment. It suggests that the future contours of the financial system will likely include the following:

- banks that are expected to return to their more traditional function as stricter regulation limits the risks and activities they can undertake;
- a nonbanking sector that will likely have a greater competitive advantage—both in supplying credit and in providing investors with nonbank services—and will thus grow;
- an expanded perimeter of regulation to take into account the risks in the nonbank sector;
- a market infrastructure that is reinforced to protect investors and, consequently, must provide needed simplicity and transparency to make risks clearer and the financial system safer; and
- a global financial system that is smaller and less leveraged than in the recent past and could well be less innovative and dynamic, at least for a while.

LOOKING AHEAD

Four years after the onset of the global financial crisis, much has been done to reform the financial system, but there is still much left to do. The authors of this book believe the current reforms are moving in the right direction toward the objective of restoring the stability and resilience of the financial system so it can support strong and sustainable economic growth, but further challenges lie ahead. This has not been an easy journey. The ride has certainly been bumpy, with many setbacks, as policymakers have attempted to boldly go where none had gone before, while fighting many fires along the way and striving to revive economies battered by the crisis.

Large, complex, integrated cross-border banking groups have been key players in this journey. Such groups are major components of the global financial system in many ways. They provide efficiency gains associated with the scale and diversification of their operations, but they also have a great capacity to transmit distress to the broader financial system and the global economy. It is with the objective of safeguarding these groups’ potential efficiency gains and ensuring their sustainability for the good of the economies in which they serve that one
should seek measures that make them less likely to fail or that make such failures less painful and catastrophic when they occur.

To ensure that no institution is too big, too complex, or too interconnected (hence, too important to fail), the only way forward is to address the moral hazard risks such institutions pose, given their TITF status, and to restore market discipline. The features of being too big, too complex, or too interconnected have proven to be a deadly trio in the absence of a sound risk-management culture, market discipline, effective oversight, and safety nets to deal with failures. A variety of measures and proposals have been put on the table to deal with them. Some have failed to stimulate the appetite, whereas others have been swallowed but with a bitter aftertaste. Some still face many challenges to being effectively implemented in the fragile economic environment, with the threat of the shadows undermining their success. The authors of this book, where the various proposals are assessed, believe that swallowing the bitter medicine is the only road to recovery, to maintaining a healthy life going forward, and to avoiding exposure to further viruses, especially in an environment where even the doctors are falling sick and the willingness to take bitter medicine is diminishing.
Chapter 2

Shaping the New Financial System

José Viñals, Jonathan Fiechter, Ceyla Pazarbasioglu, Laura Kodres, Aditya Narain, and Marina Moretti

INTRODUCTION

The global financial crisis has provided the impetus for a major overhaul of the financial regulatory system. No other financial crisis since the Great Depression has led to such widespread dislocation in financial markets, with such abrupt consequences for growth and unemployment, and such a rapid and sizable internationally coordinated public sector response. Behind this response was the acknowledgment that these costs have been imposed partly as a result of systemic weaknesses in the regulatory architecture and the failure of supervisors to rein in excessive private sector risk taking.

The G-20 agenda for financial reform gives both the IMF and the Financial Stability Board (FSB) a key role in maintaining global financial stability and preventing a repeat of the errors preceding the recent crisis. The FSB’s role in this process stems from its unique capacity as a forum for the international standard setters and other international bodies, as well as for officials from the regulatory agencies, central banks, and treasuries of its member countries. The IMF, for its part, also has a unique role to play, given its universal membership, its macro-financial mandate, and its well-established roles in the areas of bilateral and multilateral surveillance and technical assistance.

This chapter makes a case for an oversight framework that ultimately would enhance the stability of the financial system and provide the basis for strong and stable economic growth. It describes the reforms that we think are still needed to achieve this goal. A fundamental principle underlying the analysis provided here is that the private sector plays an important role—and that the role of regulators cannot be to “build” the financial system but rather must be to influence its direction by providing appropriate rules and incentives.

The authors would like to thank Tam Bayoumi, Stijn Claessens, Jennifer Elliott, Karl Habermeier, Sean Hagan, Nicole Laframboise, Ross Leckow, David Marston, İnci Ötker-Robe, Chris Towe, and other IMF colleagues for their helpful suggestions and comments. Moses Kitonga provided able research assistance and Charmane Ahmed and Sean Culhane editorial support. An earlier version of this chapter appeared as an IMF Staff Position Note (SPN/10/15) on October 1, 2010.

The IMF and the FSB also collaborate on providing early warnings to senior policymakers about macroeconomic and financial risks and the actions needed to address them.
The chapter provides a summary of the key vulnerabilities in the run-up to the crisis and lays out a vision for a better global financial system in the future—see below, “What Needs to Be Fixed.” The next two sections take stock of the pace and direction of the current reform agenda and the IMF’s contribution to this process: “Making Individual Firms More Resilient” focuses on microprudential policies, and “Making the Financial System More Resilient” discusses macroprudential policies. The appendix provides a summary of IMF contributions to the regulatory reform agenda.

WHAT NEEDS TO BE FIXED?

It is now widely recognized that in the run-up to the crisis there was a significant underappreciation of systemic risk, so much so that many viewed policymakers as having established an era of sustained and stable expansion—labeled “the Great Moderation.” With the benefit of hindsight, we see that low nominal interest rates, abundant liquidity, and a favorable macroeconomic environment encouraged the private sector to take on ever-increasing risks. Financial institutions provided loans with inadequate checks on borrowers’ ability to pay and they developed new and highly complex financial products in an attempt to extract higher returns. Many financial regulators and supervisors were lulled into complacency and did not respond to the building up of vulnerabilities.

As a result, financial systems and transactions became distorted along several dimensions:

• The financial system grew highly complex and opaque. Lack of transparency and limited disclosure of the types and locations of risks made it difficult to assess the extent of exposures and potential spillovers. This opacity magnified the shock to confidence as the crisis unfolded. As the financial sector expanded as a fraction of GDP (Figure 2.1), an increasingly large portion of financial activity did not seem to serve the needs of the real economy.

• The financial system became over-leveraged and heavily interconnected. Short-term incentive structures undermined good governance and encouraged excessive risk taking. Actual leverage was even greater than was apparent, in part because it was embedded in instruments in ways that were not transparent and in part because regulatory requirements did not capture key risks. This meant that capital was inadequate as a buffer against the drop in asset prices. The interconnectedness of institutions meant that the shocks were propagated across the system, both domestically and globally.3

• Liquidity risk was also higher than recognized. Financial firms and key markets relied increasingly on short-term, wholesale funding and took on excessive maturity mismatches while failing to build adequate liquid asset buffers.

3Haldane, Brennan, and Madouros (2010) report levels of leverage averaging more than 50 times equity among the major global banks at the peak of the boom, compared with about 20 times equity in the late 1990s.
Large complex institutions enjoyed the benefits of being “too important to fail.” The lack of market discipline allowed them to borrow at preferential rates, operate with higher levels of leverage, and engage in riskier activities.

In addition to traditional capital market instruments, financial intermediation increasingly shifted to the “shadow” banking sector. Relatively unregulated nonbank financial institutions and markets thrived in large part because they avoided the more stringent requirements imposed on banks (Figure 2.2).

Some of these distortions are being unwound as part of the deleveraging process. Financial institutions have been rebuilding capital and liquidity buffers and have been required to bring some of their off-balance-sheet activities back onto their balance sheets. The concern remains, however, that many of the structural characteristics that contributed to the buildup of systemic risks are still in place today. Perhaps most worrisome is that the large-scale public support provided to both large institutions and markets—a contingent liability equivalent to about one-fourth of
advanced economies’ GDP—has exacerbated the moral hazards and the perceptions that certain institutions and markets are “too important to fail.” The challenge therefore remains to establish a policy framework that can both sustain growth and reduce the severity of boom-bust cycles (Kodres and Narain, 2010). Some argue that less volatile economic growth is likely to come at the cost of fewer risk-taking opportunities and less innovation in the financial system and, therefore, be associated with a lower growth path. But, encouragingly, recent empirical work suggests that the trade-off is nearly absent if the large output costs of financial crises are taken into account (Basel Committee on Banking Supervision, 2010a). Although this may lead to consistently lower risks and lower returns in the financial system, these need not be associated with substantially lower output in the short term and may yield significant net output gains as well as stability in the medium term.

In our view, looking ahead, financial regulatory policies should aim to ensure

- financial intermediation that delivers products better geared to satisfy the needs of households and firms;
- a better governed and more transparent financial system—in terms of corporate structures, instruments, and markets;
- institutions endowed with higher, better quality, and globally consistent capital and liquidity buffers that weigh systemic risk appropriately and discourage procyclical lending behavior;
- institutions—even systemically important ones—that can be resolved in an effective and timely way and with minimum cost to the taxpayer;

Figure 2.2 Growth of Nonbank Financial Institutions in the United States (in trillions of U.S. dollars)
Source: Pozsar and others (2010), based on data from Flow of Funds Accounts of the United States as of 2010:Q1 (Federal Reserve Board) and Federal Reserve Board of New York.
Note: Shadow banking liabilities include commercial paper, medium-term notes, asset-backed commercial paper, asset-backed securities, repurchase agreements, total return swaps, hybrid and repo/TRS conduits, ABS CDOs, ABS CDO-squareds, bonds, capital notes, and 15 NAV shares (shadow bank “deposits”).
• a financial system that is competitive and allows for ease of entry and exit; and
• a better understanding and oversight of risks in the nonbank financial sector and
  greater transparency about the risks institutions are taking and the resulting
  protections they are receiving—extending the regulatory perimeter to include all
  systemically important institutions, markets, and instruments (IMF, 2009).

The financial oversight framework should be strengthened to help reach these
end goals in terms of depth, breadth, and global consistency. The framework
should comprise five key goals:4
• Strong microprudential regulation that is globally coordinated. It should
  strengthen the resilience of financial institutions, ensure as much as possible
  a level playing field of regulations, and minimize regulatory arbitrage that
  could be damaging to global financial stability.
• Effective supervision. The IMF’s work on assessing financial sector standards
  suggests that countries often lag behind in meeting good practices for super-
  vising key risks, taking corrective action in a timely manner, and enforcing
  and sanctioning noncompliance.
• A robust and globally consistent cross-border resolution framework. An
  enhanced international coordination framework for cross-border resolution
  is essential. Such a framework is also needed to ensure that financial
  institutions that are “global in life” do not become “national in death.”
• A macroprudential dimension. A macroprudential approach is needed to
  reduce the contributions to systemic risk made by individual institutions
  and markets and to encourage the buildup of strong buffers of capital and
  liquidity in good times, buffers that can be run down during periods of
  stress. An effective macroprudential framework will depend critically on
  addressing the flaws in the microprudential regime.
• A larger regulatory perimeter. The perimeter should be enlarged to cover
  banks and nonbanks alike so that weaknesses in the entire financial system
  can be addressed. Consistency in the application of regulations across
  different types of financial institutions producing similar products is critical
  to prevent risk from being shifted into the shadows.

MAKING INDIVIDUAL FIRMS MORE RESILIENT

The remainder of this chapter examines the current regulatory reform agenda
against the goals just laid out for the regulatory framework and discusses what needs
to happen to meet those goals. The focus of this section is on microprudential
measures that aim to either make individual financial institutions more resilient or
allow them to fail smoothly. The next section discusses macroprudential policies
that aim at making the overall financial system more resilient.

4The sixth goal, improving governance and risk management practices in financial institutions, is not
covered explicitly in this chapter.
Microprudential Regulations: Bank Capital and Liquidity

Banks entered the crisis with inadequate capital buffers and suffered severe losses, some of which only became evident as events unfolded. From the start of the crisis, the IMF has been providing objective assessments of the size of write-downs in global banks in an effort to keep the international agenda focused on reforming the capital framework for banks.5

At the core of the reform program endorsed by the G-20 are measures aimed at making individual banks less likely to fail through actions to reduce leverage, build more robust capital and liquidity buffers, and limit maturity mismatches. Key measures proposed by the Basel Committee on Banking Supervision (BCBS) include these:

- improving the quantity and quality of capital so that it can absorb losses more easily;
- ensuring that capital requirements are more closely associated with the risks they are meant to protect against and, in particular, that they more fully capture market risk, counterparty credit risk, and risk in securitized portfolios;
- introducing a leverage ratio as a credible supplementary measure to the risk-based requirements; and
- introducing measures to protect against liquidity shortages by holding more assets that can be liquidated rapidly and lowering rollover risks by limiting asset/liability maturity mismatches and less secure forms of funding (BCBS, 2009b and 2009e).

The IMF has been supportive of BCBS proposals. In particular, the adoption of an enhanced market-risk framework for internal models is critical to reduce incentives for regulatory arbitrage between banking and trading books. Banks are expected to comply with the revised trading book requirements for better risk recognition and capital coverage by end-2011 (originally proposed for end-2010, but subsequently revised).

A key concern with the proposals has been whether the reforms would lower the availability, or raise the cost, of credit and, hence, harm economic growth before the recovery is well established. A study of the macroeconomic impact of the reforms, recently published by the BCBS and the FSB and conducted in collaboration with the IMF, suggests that higher bank capital and liquidity requirements would have only a modestly adverse temporary impact on aggregate output and clear net long-term economic benefits.6 According to the study, a phasing-in period for the reforms of at least four years would minimize their transitory impact on output.

---

6See BCBS (2010a) and FSB-BCBS (2010). The Macroeconomic Assessment Group report concludes that, if higher requirements are phased in over four years, each 1 percentage point increase in a bank’s actual ratio of tangible common equity to risk-weighted assets will lead to a decline in the level of GDP relative to its baseline path by about 0.2 percent after implementation is completed. The report concludes that the long-term benefits of higher capital and liquidity requirements accrue from reducing the probability of financial crisis and the output losses associated with such crises. The benefits substantially exceed the potential output costs for a range of higher capital and liquidity requirements.
The BCBS has finalized certain aspects of the new standards on which there is consensus and has allowed a more gradual phase-in of some aspects that require more calibration work. The leverage ratio will be introduced alongside current regulations on a trial basis starting in 2013, with implementation by January 2018. On liquidity, the introduction of a new global liquidity standard aimed at ensuring adequately stable funding (Net Stable Funding Ratio) will be delayed until January 2018, which is important to allow for further calibration and refinement although it will extend regulatory uncertainty. This makes it all the more critical to address systemic liquidity risks—perhaps the defining characteristic of the crisis—to encompass markets, nonbanks, and cross-border issues. In this context, the merits of introducing some type of surcharge or insurance premiums to protect against a system-wide liquidity shortage should be further investigated.

We welcome the decisions of the BCBS, which represent a substantial improvement in the quality and quantity of capital in comparison with the precrisis situation (Table 2.1 provides a summary). Common equity will represent a higher proportion of capital and thus allow for greater loss absorption. In particular, the required minimum will increase to 4.5 percent from the 2 percent under existing standards and will be complemented by an additional 2.5 percent capital conservation buffer (composed of fully loss-absorbing capital) which would restrict distributions as banks approach the minimum. Also, the amount

<table>
<thead>
<tr>
<th>TABLE 2.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase-In Arrangements for Capital and Liquidity Standards</td>
</tr>
<tr>
<td>(In percent, all dates are as of January 1)</td>
</tr>
<tr>
<td>Leverage ratio</td>
</tr>
<tr>
<td>Minimum common equity capital ratio</td>
</tr>
<tr>
<td>Capital conservation buffer</td>
</tr>
<tr>
<td>Minimum common equity plus capital conservation buffer</td>
</tr>
<tr>
<td>Phase-in deductions from CETI (including amounts exceeding the limit for DTAs, MSRs, and financials)</td>
</tr>
<tr>
<td>Minimum Tier 1 capital</td>
</tr>
<tr>
<td>Minimum total capital</td>
</tr>
<tr>
<td>Minimum total capital plus conservation buffer</td>
</tr>
<tr>
<td>Capital instruments that no longer qualify as noncore Tier 1 capital or Tier 2 capital</td>
</tr>
<tr>
<td>Liquidity coverage ratio</td>
</tr>
<tr>
<td>Net stable funding ratio</td>
</tr>
<tr>
<td>Supervisory monitoring</td>
</tr>
<tr>
<td>Parallel run 2013–17 Disclosure starts January 1, 2015</td>
</tr>
<tr>
<td>Migration to Pillar 1</td>
</tr>
</tbody>
</table>

Source: Based Committee on Banking Supervision, Press Release, September 12, 2010.

Note: CETI = common equity Tier 1 ratio; DTAs = deferred tax assets; MSRs = mortgage servicing rights.
of intangibles and qualified assets that can be included in capital will be limited to 15 percent. Phase-in arrangements have been developed to allow banks to move to these higher standards mainly through retention of earnings.

As the global financial system stabilizes and the world economic recovery becomes firmly entrenched, phasing out intangibles completely and scaling back the transition period should be considered. This will further improve the banking sector’s resilience so it can absorb any future shocks that may lie ahead. In our view, it would have been desirable to provide for the eventual exclusion of all intangible assets from capital. Shorter phase-in periods would not have placed undue pressure on the banking system and the economy under the then-concurrent baseline scenario of the IMF’s World Economic Outlook (see Chapter 3 in this volume). The longer financial institutions remain with lower buffers, the higher the burden will be on supervisors.

**Strengthening Supervision**

Since the outset of the crisis, the focus of near-term policy action has been on strengthening the regulatory framework. But regulations are only part of the solution. It is through supervision that the authorities enforce compliance with the rules.

Good supervision requires both the ability and the will to act—both of which had often been missing in the run-up to the crisis. In no jurisdiction will this ever be an easy task. It may sometimes require forcing the board of a financial institution to direct its management to cease an activity or to replace key managers. Proactive supervision is adaptive to changing conditions and can observe when activities are taking place on the fringe of the regulatory perimeter. The supervisory mandate must carry over to systemic concerns—so that supervisory bodies are given the authority and mandate to act not just when individual institutions pose undue risks, but also when the entire system is behaving in a manner that jeopardizes systemic stability.

So far there has been little progress on this front. It is therefore encouraging that the Toronto G-20 Summit declared supervision to be a key pillar of the financial reform agenda and gave an explicit mandate to develop it. This focus on strengthened supervision is very important, not just for banks but for the broader financial system. Indeed, evaluations of national oversight frameworks as part of the Financial Sector Assessment Program (FSAP) show that countries often do not meet good practices in supervising key risks, taking timely corrective action, or enforcing and sanctioning noncompliance (Figure 2.3; see Chapter 5). Thus, it is critical that supervisory agencies be provided with the mandate, resources, and authority, along with the accountability, to carry out their tasks. Adopting guiding principles for supervision would be helpful in this respect; doing so would help supervisors carry the burden of preventing a new cycle of excessive leverage and risk taking while the new Basel rules are being phased in (Box 2.1).

---

7 These include deferred tax assets, mortgage servicing rights, significant investments in common shares of financial institutions, and other intangible assets.
The following framework should guide effective supervision of financial firms (see Chapter 5 in this volume).

**Mandate:** Each supervisory agency must have a clear legal mandate to supervise financial institutions and markets, with priority given to maintenance of financial stability and the safety and soundness of the financial system.

- **Resources and capacity:** Each supervisory agency must have access to adequate funding arrangements that enable it to make budgetary, staffing, and operational and enforcement decisions without making it beholden to any political or commercial interests.

- **Risk assessment:** Individually, each supervisory agency must have the capacity to assess risks in its sector and the legal ability to share this information with other domestic regulators and foreign counterparts. Collectively, there should be arrangements at the national level to monitor activities in all segments of the financial systems.

- **Accountability:** Supervisors must be required to make regular public reports of their use of resources, their key decisions, and their own evaluation of their effectiveness. In addition, they should be periodically subject to an independent evaluation of effectiveness.

- **Supervisory strategy:** Supervisors must develop and implement a clear strategy for supervision and have robust internal systems in place to ensure that decision-making processes are well defined and understood; that staff is empowered to make judgments and take actions; and that individual supervisors are supported in the case of adverse reactions from the supervised entity.
Resolution

The failure of Lehman Brothers and the near-failure of other large cross-border firms demonstrate the need for effective policies and procedures for resolving financial institutions. Well-designed resolution frameworks that allow authorities to address the insolvency of financial institutions—not just banks and not just within national borders—are therefore necessary ingredients of a strategy to maintain global financial stability. For market discipline to work, orderly resolution must be a credible option.

G-20 leaders have agreed that public funds should not be used to cover the costs of resolving failing institutions and that the costs of resolution should be borne first by the owners and creditors of the failed institutions, with any shortfalls covered by the industry itself. In response to the request of the G-20 leaders, the IMF has proposed a “financial stability contribution,” linked to a credible and effective resolution mechanism, to pay for the fiscal cost of any future government support to the sector (IMF, 2010d). This could either accumulate in a fund to facilitate the resolution of weak institutions or be paid into general revenue.

Proposals discussed in international forums—BCBS, FSB, and IMF—have focused on improving the capacity to resolve large cross-border financial firms. They include the following:

- **recovery and resolution plans**—also called “living wills”—as a tool to identify the steps that firms and authorities should take to address contingencies and to improve resolvability in the event of failure;
- **effective resolution regimes**—to resolve systemically important financial institutions (SIFIs) in a way that minimizes risks to financial stability and the public sector. This may include statutory powers or contractual arrangements to convert debt into equity or impose haircuts on creditors as an institution approaches insolvency, so that losses are absorbed by the private sector;
- **cross-border resolution frameworks and burden-sharing arrangements**; and
- **absent an effective cross-border resolution process, the ability of host governments to require foreign banks to operate as “stand-alone” subsidiaries in their jurisdiction.**

Recovery and resolution plans are an important step forward and, if properly executed, should allow for better preparedness by individual firms for contingencies and effective resolution by authorities, including by helping to identify weaknesses in authorities’ resolution powers (discussed further in Chapter 9). Resolution plans should also be used to inform action by authorities to deal with institutions that are found to be “too complex to resolve.” However, as a means of enhancing resolvability, the benefits of forcing banks to simplify their structures—by creating stand-alone subsidiaries, removing operational interdependencies, and linking business products to legal entities—need to be carefully weighed against potential inefficiencies and costs (see Chapter 11).

Discussion is ongoing to develop “bail-in” procedures that would seek to maintain an institution as a going concern through a reliance on debt-for-equity conversions, achieved either through contract or forcibly through regulatory intervention. Although this approach deserves further consideration, it raises a number of complex issues that need to be resolved, such as how to avoid
triggering early termination and acceleration clauses. Further analysis of this approach and of new capital instruments to encourage private sector involvement, such as convertible capital at the point of nonviability, will be necessary before these can become part of the toolkit for resolution.\(^8\) In any event, these mechanisms should be seen as a complement to and not a substitute for the establishment of an effective resolution framework.

Reform work on resolution frameworks, particularly cross-border resolution, has yet to gain critical momentum among key global financial centers. In this context, the IMF has recently proposed a pragmatic approach to cross-border resolution, including the resolution of nonbanks. It focuses on establishing an enhanced coordination framework, which would be put in place through non-binding multilateral understandings reached among those countries that are in a position to adhere to the following four elements (further discussed in Chapter 6):

- Adoption of legislation to permit local authorities to cooperate in an international resolution whenever such cooperation is viewed to be in the interest of creditors and financial stability.
- Adherence to “core coordination standards” to ensure that national supervisory and insolvency frameworks are sufficiently robust and harmonized in key areas and that the treatment of domestic and foreign creditors under national bank insolvency regimes is nondiscriminatory.
- Agreement on the criteria and parameters that would guide the burden-sharing process among members of the coordination framework. These principles could reflect features such as the relative systemic importance of the bank group across jurisdictions, the relative contribution from deposit guarantee schemes or resolution funds, and the relative distribution of losses across jurisdictions.
- Agreement on procedures for coordinating resolution measures across borders that would enable the resolution process to take place in a rapid and predictable manner.

Our proposed enhanced coordination framework is intended to address a number of fundamental problems. First, many national regimes effectively preclude the authorities from cooperating in an international resolution exercise by requiring that local assets of a foreign bank branch or subsidiary be ring-fenced for the benefit of local creditors. Second, authorities in many countries lack the tools to deal effectively in the early stages with a failing financial institution. Finally, with the recent exception of the Nordic countries, there is no international agreement on the principles that should be applied on an institution-by-institution basis to guide burden sharing.

Work should now focus on making this approach operational among the seven or eight countries that are home to the majority of cross-border banks, which are also highly interconnected. These countries should follow through on putting in

---

\(^8\)See BCBS (2010a). This proposal converts Tier 2 into Tier 1 capital instruments to enhance the quality of capital.
place the above elements with solid determination and by an agreed date (for example, by end-2012). This is critical to achieve a more effective and value-preserving international resolution framework.

**MAKING THE FINANCIAL SYSTEM MORE RESILIENT**

The crisis has shown that focusing on the safety and soundness of individual institutions is not enough. Policies must be within a framework that can deal with the system-wide interactions of institutions and markets and their roles vis-à-vis the macroeconomy. Because the system is not just the sum of its parts, a macroprudential overlay must accompany the traditional microprudential policy. Although this dimension of reform has been acknowledged by the various policymaking bodies, their reform formulations have focused on institutions. It is crucial, therefore, that the reform agenda be realigned with a holistic view of the financial system. Because the policy proposals on which one can form a clear opinion are more limited in this area, we outline below the direction needed for this next push to the reform effort.

Work on addressing the stability of the financial system as a whole tries to address two features of financial systems: (i) the systemic risk arising from financial institutions and their interactions, bilaterally and through markets; and (ii) the tendency for regulations and market practices (and macro policies, to some extent) to behave in a procyclical manner, with system-wide vulnerabilities building up during good times and then translating into widespread financial sector losses and real economy stress in bad times.

**Regulations for Systemically Important Financial Institutions**

Regulatory initiatives to date have sought to improve the existing sets of bank regulations with a view to building up larger individual buffers to withstand shocks. This is important, but it is not sufficient to address a key lesson from the crisis: that the crisis was a global systemic event in which some institutions were interconnected not only through their bilateral relationships but also through the markets in which they operated and the instruments they traded.

Addressing systemic risks and drawing the right perimeter of regulation requires, as a first task, determining which institutions and markets are systemically important. The IMF has contributed to this work, in partnership with the Bank for International Settlements (BIS) and the FSB, by developing a framework for the assessment of systemic importance (IMF, BIS, and FSB, 2009). The framework defines systemic risk as a risk of disruption to financial services that (i) is caused by an impairment of all or parts of the financial system; and (ii) has the potential to have serious negative consequences for the real economy. It then identifies three key criteria behind systemic importance:

- **size**—the volume of financial services provided by the individual component of the financial system;
• **substitutability**—the extent to which other components of the system can provide the same services in the event of a failure; and

• **interconnectedness**—linkages with other components of the system.

This work has served as a basis for identifying information gaps (see section “Improving the Resilience of Markets”), because much of the information needed remains unavailable to those overseeing financial stability.

Assessments of systemic importance are also instrumental in determining the appropriate boundaries of regulation (Carvajal and others, 2009). Enlarging the regulatory perimeter will help avoid a repeat of the buildup of systemic risk outside the boundaries of official oversight. Consistency in the application of regulation across financial subsectors producing similar products is equally critical. For instance, money market mutual funds proved to be of systemic importance during the crisis and, to the extent that they provide bank-like services and perform maturity transformation like banks, they should be overseen in a manner that is consistent with the oversight of banks.

Specific proposals aimed at lowering systemic risk have focused to date on SIFIs. A number of measures are under consideration by the FSB and BCBS, which were finalized in November 2011 (see Chapter 7 for a detailed discussion of these proposals). A few of them still lack the details needed for full implementation. The following broadly describes the proposed measures.

**Prudential Requirements**

These cover prudential rules that are assessed on an individual institution but reflect the greater risks these institutions pose to the financial system. Within this group of requirements are systemic risk-based (solvency) capital surcharges and use of contingent capital instruments. The former uses a measure of an institution’s contribution to the risk of the system as a whole to compute additional capital charges. The latter provides an institution with additional loss-bearing capacity and enhances market discipline by automatically converting debt into equity to provide more capital when needed during periods of stress. A third issue that is critically important, although there has been much less discussion of it, is the potential effectiveness of surcharges to minimize institutions’ contribution to “systemic liquidity risk” (via a surcharge or insurance premiums that could be based on wholesale funding risks).10

**Systemic Levies**

Another approach is to link a financial institution’s systemic importance to a levy whose receipts could either accumulate in a resolution fund or be paid into general revenue. Such a levy (a “financial stability contribution” as described in

---

9A specific methodology to compute such a risk-based capital surcharge is proposed in the April 2010 GFSR (IMF, 2010e), based on a network model of interconnectedness of institutions to assess their contribution to systemic risks.

the previous section) could be imposed on all financial institutions, with the rate initially flat but refined over time to reflect institutions’ riskiness and contributions to systemic risk—such as those related to size, interconnectedness, and substitutability—and variations in overall risk over time (see IMF, 2010d).

*Systemic capital surcharges and levies* can be structured to induce changes in behavior by discouraging activities that contribute to the buildup of systemic risk. Both a capital charge and a risk-based tax have unique but complementary merits. A key differentiating factor is that capital surcharges would remain on institutions’ balance sheets, thereby strengthening the resilience of the banking sector. By contrast, funds collected under a systemic levy, which could be used to finance a resolution fund, could make it more likely that, in the future, the financial system rather than the taxpayer would bear most of the costs of crises. Setting funds aside in advance of a crisis would also allow for risk sharing across time and across all financial institutions. To ensure that funds are not used to bail out institutions, such a contribution should be linked to the development of a credible and effective resolution mechanism.

Regarding the use of *contingent capital*, the jury is still out on whether the overall benefits of this tool outweigh the costs, because the trigger for converting debt to equity prior to the point of nonviability may cause adverse market dynamics. One option is to base the conversion trigger on a combination of market conditions and supervisory stress tests. The rating and pricing of contingent capital instruments, however, would likely be highly complex because of the difficulty of predicting when a trigger event will occur. It is therefore necessary to conduct further analytical work in this area as well as on operational aspects, including identifying the implications for the investor base and market dynamics. It is also important to view contingent capital as a complement to, not a substitute for, an effective resolution regime. Contingent capital will be most effective in an environment in which the threat of resolution is credible. A more detailed discussion of the rationale and design features of this instrument is provided in Chapter 8.

*Structural and Price-Based Constraints*

These proposals put constraints on the size, legal structure, or activities of financial firms to limit their complexity and risk taking, with a view to reducing both the probability and the impact of an institution’s failure. One of the most prominent is the so-called Volcker Rule, which bans proprietary trading, private equity, and hedge funds from being housed inside a bank.

In general, price-based (capital and levy or tax) instruments may be more effective than quantity-based (structural constraints) instruments. Quantity-based constraints, regardless of the circumstances, can generate losses in economic efficiency that are greater than those generated by price-based methods. Furthermore, quantity constraints may be more subject to gaming (i.e., to regulatory arbitrage).

---

11As mandated by the G-20, the BCBS, FSB, and IMF have developed a framework to compare proposed regulatory and tax instruments to reduce systemic risk.
Hence, the imposition of blanket structural constraints may be a second-best solution in many situations. Chapter 11 provides further discussion of these proposals.

Improving the Resilience of Markets

One of the key lessons from the crisis is that a great deal of damage can be inflicted on the system when the market infrastructure either breaks down or is insufficient, and information on which to base financial decisions is absent. The market disruptions caused by the failure of Lehman Brothers—in the unsecured interbank market, the repurchase market, and the over-the-counter (OTC) derivatives markets, for instance—show the importance of having resilient markets. The transactions associated with Lehman that were unwound most easily were those that had been placed in formal clearing facilities, whereas sorting out bilateral contracts took months, in some cases. The inability of market participants to see the buildup of risks in the estimated $600 trillion OTC derivatives market, specifically in the smaller credit default swaps market, was in part due to the bilateral nature of the trading and the absence of transparency even to those in the official sector.

Hence it is equally important for regulatory reforms to tackle system-wide problems that emerge in markets. This requires a close look at the functioning of afflicted markets—what information is provided to participants and when and how trading, clearing, and settlement are conducted. Again, there has been some progress in this area of the reform agenda, but it remains centered on fixing identifiable problems in each market and does not take a holistic approach.

Repo Markets

In the run-up to the crisis, when measured risk and asset price volatility were low, margin requirements associated with repo activities were too low and collateral valuations too high—providing overly ample funding opportunities to banks and nonbanks. When risks suddenly increased, margins rose and collateral valuations fell, leading to many “fails” in bilateral transactions. This underscores the need to improve the resilience of the secured (repo) money markets through better margining practices and collateral valuation. Two main proposals have been made in this area and implementation is in train. 12

OTC Derivatives Markets

Another contributing factor to the volatile conditions in markets, particularly in derivative markets, was concern about counterparty credit risks. The G-20 have agreed to enhance the infrastructure associated with OTC derivatives, and work is underway at the FSB, with active IMF participation, to develop proposals for recording transactions in trade repositories; clearing them through central counterparties (CCPs); and ultimately moving those OTC contracts that can be standardized into exchange or electronic trading environments. This work recognizes that not all OTC derivatives need to be centrally cleared and not all cleared transactions need to be exchange traded. Some would prefer all OTC derivatives

to be cleared and exchange traded. However, such a transition could only occur once sufficient liquidity in specific contracts had been attained, so it should not be mandated. In addition, the existing standards for CCPs are being revised to take into account OTC derivatives, with the goal of making minimum standards more stringent. In addition, it is our view that central bank emergency liquidity facilities should be made available to those CCPs that have adequate capital and are deemed to be well managed.13

**Credit Rating Agencies**

In the aftermath of the crisis, there has been much discussion about the behavior of credit rating agencies and the implications of relying on their ratings. A number of steps have been taken to address conflicts of interest and to improve transparency in rating agencies through enhanced regulatory oversight. In addition, it is now recognized that to encourage better due diligence by investors and less mechanistic use of ratings, mandatory use of credit ratings in laws and regulations should be reduced wherever possible. A key concern relating to financial stability in this area is that when downgrades occur or negative “watches” or “outlooks” are issued, those securities that fall below a given threshold force investors to sell, sometimes simultaneously, causing “cliff effects,” especially if the threshold is between investment and noninvestment grade.14

The recent FSB initiative to develop principles for reducing reliance on the ratings from these agencies in the regulatory and supervisory frameworks, as well as in other official contexts, is therefore very relevant and welcome. The IMF has also argued that these rating agencies should be subject to heightened oversight when their ratings are used for regulatory purposes. This is of particular importance given the currently very small number of such agencies that have a global reach—a result of the informational needs of running a business where attaining a critical size and reputation is difficult.

**Securitization**

The private-label securitization market was at the center of the crisis. Structured credit products were poorly understood and complex, and risks came to the fore when real estate prices began to fall. In general, however, securitization allows banks to economize on capital by removing some loans from their balance sheets, packaging them into securities, and selling them to investors, thereby allowing more credit to be originated.

A number of reforms have been put into place to curtail the flaws in the “originate-to-distribute” model of securitization, including increasing the amount of information about the underlying pools of loans and the techniques

---

13See the April 2010 GFSR (IMF, 2010e) for an analysis of the usefulness of centralized counterparties as well as the costs associated with moving OTC transactions to CCPs. The report also stresses that the fewer the central counterparties, the better, so as to maximize their ability to mitigate systemic counterparty risks through multilateral netting of exposures.

used by credit ratings agencies to rate securitized products; requiring originators to have “skin in the game” by retaining a minimum proportion of loans; and using accounting rules that consolidate the risks of off-balance-sheet entities where securitized risks were housed. There remain hurdles to restoring the market, including poor credit demand and high credit standards that have limited the take-up of mortgages. The efforts to date suggest that when securitization does return it will be on a safer basis than prior to the crisis, but accelerating the restart of securitization may require further action, including a reexamination of the totality of the reform efforts as the potential cumulative effect of these initiatives may discourage the resumption of the market.

**Transparency and Disclosures**

Finally, a key feature of a healthy and dynamic financial system is accurate and timely reporting and public disclosure. Lack of transparency is inconsistent with a market-based financial system, which relies on accurate pricing of risk. It makes market discipline difficult to attain and places a significant burden on the public sector to monitor and address financial sector excesses. In addition, it means much of the information needed to identify a buildup of systemic risks remains unavailable to those overseeing financial stability. In the latter area, the BIS, FSB, and IMF are working closely to identify and fill information gaps—the black holes in the financial system. The progress of actual information gathering under this initiative (and deciding what to gather and to whom to disclose) remains slow, due in part to confidentiality concerns. Such concerns, however, should not limit the ability of the official sector to gather information if it is deemed critical to identifying and addressing systemic risks.

**Addressing Procyclicality**

The likelihood that vulnerabilities in institutions or markets will reach a level where a systemic event can occur is heightened by the amplification of cycles—credit cycles, and more broadly, business cycles. This is another critical element that must be considered in reform efforts, particularly because some of the procyclicality arises from financial regulation, accounting standards, and business practices (Financial Stability Forum, 2009; Andritzky and others, 2009). Work is underway to design and calibrate specific macroprudential tools that will address procyclicality, but more analysis is needed (CGFS, 2010b). The BCBS has requested comment on the proper basis for computing countercyclical risk weights and, more generally, how to construct countercyclical capital charges. In addition, further work is needed to calibrate microprudential measures, such as loan-to-value ratios, so that they can effectively counter real estate booms and busts. Accounting standards also need to be reexamined (and converged internationally) to reduce the procyclicality of loan-loss provisioning and fair-value accounting for financial instruments. The FSB has introduced principles and standards to address the procyclicality of compensation, but more efforts need to be made by institutions and national authorities to effectively align pay with long-term, risk-adjusted returns.
More generally, guidance should be developed on the governance and institutional arrangements that will be needed to effectively integrate monetary and macroprudential policies into coherent frameworks. The way institutions are organized will have a bearing on whether central banks should use interest rate policy or other monetary measures to contain the buildup of financial imbalances, especially those related to excessive credit growth or asset-price bubbles (see Blanchard, Dell’Ariccia, and Mauro, 2010).

Four principles can help guide and frame the debate (see IMF, 2010e):

i. The financial stability objective is not always aligned with the price stability objective and thus requires a separate set of macroprudential policies and instruments.

ii. The central bank will need to play a key role in the development and use of macroprudential policies, whether or not it is the main financial regulator.15

iii. Financial stability considerations need to be better incorporated into monetary policy decision making.

iv. Official interest rates can lean in a nonmechanistic manner against financial imbalances when pursuing price stability so as to render policy more symmetric during the business cycle and thus reduce the likelihood of boom-bust cycles.

Using interest rates to counter financial imbalances may risk increasing macroeconomic volatility and thus inflict collateral damage on the real economy; in some cases it may even lead to an increase in capital inflows. Still, the high cost of systemic financial instability shown by the crisis strengthens the case for “leaning against the wind” as a supplement to macroprudential policies oriented toward preserving financial stability. Given that the mechanism by which interest rate changes translate into macroeconomic volatility is not fully understood, central banks should move with caution. Nevertheless, the combination of rising asset prices and rapid credit growth may warrant a higher policy rate than otherwise.

Substantial work is underway on developing a better understanding and design of macroprudential policies. The G-20 asked the IMF, the FSB, and the BIS to develop a coherent framework for this new policy with which national policymakers have been grappling both at the conceptual level and in practical terms. Work has been completed on clarifying the concept of macroprudential policy and its role in preserving financial stability, and further work is continuing to (i) create a comprehensive analytical framework and a consistent set of policy tools, including through rigorous back-testing; (ii) establish macroprudential authorities, where they are not already in place, with clear mandates to enhance their accountability and reduce the risk of political pressures; (iii) ensure that all systemic risks are addressed and all potential policy conflicts are managed through cooperation among national authorities; and (iv) increase international cooperation to ensure the consistent application of national macroprudential policies (IMF, BIS, and FSB, 2011; Viñals, 2011).

15See Chapter 2 of the April 2010 GFSR (IMF, 2010e) for a discussion of the placement of a systemic risk regulator within the regulatory and monetary policy architecture.
CONCLUSIONS

Today's regulatory choices will have a material impact on whether the financial system and its oversight framework end up fostering stable and sustainable growth or are rendered ineffective by compromises and omission. This chapter lays out a vision for a better future global financial system and, on that basis, takes stock of progress in the regulatory reform agenda, including areas where more forceful action or more emphasis is needed.

We have argued that the regulatory reform agenda agreed upon by the G-20 has provided impetus for an important set of countries to move in the right direction. Considerable progress has been made in correcting the weaknesses that led us into the crisis, notably in the area of banking regulation. The reform agenda now stands at a critical juncture where difficult policy choices have to be made—both to conclude international agreement on the new microprudential standards and to advance national implementation.

There are also areas of reform that merit more attention, especially macroprudential policies and the perimeter of regulation, the treatment of nonbanks, and the development of strong supervisory and resolution frameworks both across and within countries.

Clearly, financial reforms will affect the macroeconomy in various ways, and work is needed to examine the macroeconomic impact of the cumulative effect of reforms, including at the global level. So far, studies have attempted to estimate the growth effect of the recent Basel proposals on liquidity and capital, but there are a host of other reforms, both of institutions and of markets, that will affect the functioning of the economy. The interaction of regulatory reforms with monetary policy and its effectiveness is particularly important given the changes to market infrastructures and practices. Likewise, the planned structural reforms (in labor markets, product markets, and so on) designed to enhance the growth potential of economies will affect the functioning of financial markets. Indeed, the positive impact of structural reforms may allow more rapid implementation of some financial sector reforms. Gaining a comprehensive view of such interactions between the financial sector and the economy will be important to crafting more balanced policies and ensuring more stable economic growth.

The combined effect of the various reform measures, when they are phased in, will depend on how financial institutions react to the additional costs imposed on them. A cumulative impact assessment should be conducted to assure that the burden on the financial sector will not unduly depress credit and real activity. It is also important to ensure global consistency of these regulatory measures. If they are allowed to develop piecemeal, a de facto fragmentation of global financial markets could lead to regulatory arbitrage and a buildup of systemic risks in countries or regions where such measures are absent or oversight is lax.

Although this chapter has focused on the response of the official sector, it is ultimately the banking and finance industry that will translate rules into actual changes in practice. For reform initiatives to succeed, regulatory efforts should continue to be directed toward improving the internal operations of financial firms, including their risk management and governance. These efforts should seek

©International Monetary Fund. Not for Redistribution
to restore the credibility of market discipline in the face of past failures. Current proposals aim to do so, both directly, for example through improved oversight of credit rating agencies, better and more harmonized accounting standards, and enhanced disclosures, and indirectly, for example by addressing the moral hazard posed by institutions that are too important to fail.

In the years ahead, we anticipate key challenges in moving the reform agenda forward. The first challenge will be filling the gaps in international policy development and ensuring that the international community remains alert and responds promptly to emerging risks to global financial stability. The second challenge will be achieving national implementation consistent with a level playing field across countries that takes due account of the global implications of large cross-border financial institutions.

The IMF will continue to play a key role in these areas:

- **promoting a global approach to regulatory reform** that is both nationally relevant and internationally consistent through the IMF’s multilateral and bilateral surveillance, its recently enhanced Financial Sector Assessment Program (FSAP), its financial support for members’ programs of economic reform, and its technical assistance activities;

- **helping spot trends in financial systems that have important implications for regulatory policy** (including through the IMF-FSB Early Warning Exercise), as well as gaps in international policy initiatives, through bilateral and multilateral surveillance;

- **providing the analytical foundations for regulatory developments** and identifying the implications of alternative (micro) regulatory approaches for the financial system and, more broadly, the macroeconomy; and

- **helping design a framework for macroprudential regulation** that takes into account macro-financial linkages and examines their interaction with macroeconomic policies.

Global regulatory reform should remain a top priority. Governments should put in place supervisory and regulatory frameworks that deliver a safer and more efficient global financial system. Acting promptly is essential to reduce the likelihood of another crisis, alleviate regulatory uncertainty, and promote strong and sustainable growth.
## APPENDIX 2.1. FINANCIAL SECTOR REFORM AGENDA: IMF CONTRIBUTIONS

<table>
<thead>
<tr>
<th>A. Making Banks More Resilient</th>
<th>B. Making the Financial System More Resilient</th>
<th>C. Promoting International Consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimates of capital needs in the financial sector (GFSR)</td>
<td>Measuring “systemic risk” (GFSR)</td>
<td>Modernizing the FSAP by introduction of Stability Modules and Risk-based Assessments (with WB)</td>
</tr>
<tr>
<td>Macroeconomic impact of reform proposal (BIS-IMF)</td>
<td>Identifying SIFIs (IMF-FSB-BIS report to G-20)</td>
<td>Monitoring policy consistency through G-20 MAP</td>
</tr>
<tr>
<td><strong>2. Strengthening supervision proposals to enhance supervision (SPN)</strong></td>
<td>Early Warning Exercise (IMF-FSB)</td>
<td>Revising assessment methodology for IOSCO Objectives and Principles (with IOSCO)</td>
</tr>
<tr>
<td><strong>2. Macroprudential regulations</strong></td>
<td>2. Macroprudential regulations</td>
<td>Developing assessment methodology for Deposit Insurance Core Principles (with IADI and BCBS)</td>
</tr>
<tr>
<td>Proposal for a financial sector levy (G-20 report)</td>
<td>Proposal for a financial sector levy (G-20 report)</td>
<td>Multilateral surveillance and analyses of macro-financial developments (GFSR and WEO)</td>
</tr>
<tr>
<td>Systemic capital surcharge (GFSR)</td>
<td>Systemic surcharges vs. levies (BCBS-FSB-IMF report to G-20)</td>
<td>Mandatory FSAPs for countries with systemically important financial sectors</td>
</tr>
<tr>
<td>Systemic risk regulator (GFSR)</td>
<td>Structural measures to limit activities (GFSR)</td>
<td><strong>3. Resolving and safety nets</strong></td>
</tr>
<tr>
<td>Macroprudential dimension of monetary policy (SPN)</td>
<td><strong>4. Improving the resiliency of markets</strong></td>
<td>Development of a pragmatic approach to cross-border resolution (Board Paper)</td>
</tr>
<tr>
<td>Rethinking macroeconomic policy (SPN)</td>
<td>Analyzing systemic liquidity (GFSR)</td>
<td><strong>5. Resolution and safety nets</strong></td>
</tr>
<tr>
<td>Monetary policy and risk taking (SPN)</td>
<td>Making OTC derivatives safer: Role of CCPs (GFSR)</td>
<td>Development of a pragmatic approach to cross-border resolution (Board Paper)</td>
</tr>
<tr>
<td>Capital inflows: The role of controls (SPN)</td>
<td>Restarting securitization (GFSR)</td>
<td><strong>5. Resolution and safety nets</strong></td>
</tr>
<tr>
<td><strong>4. Improving the resiliency of markets</strong></td>
<td><strong>5. Resolution and safety nets</strong></td>
<td>Development of a pragmatic approach to cross-border resolution (Board Paper)</td>
</tr>
<tr>
<td><strong>5. Resolution and safety nets</strong></td>
<td><strong>5. Resolution and safety nets</strong></td>
<td>Development of a pragmatic approach to cross-border resolution (Board Paper)</td>
</tr>
</tbody>
</table>

Abbreviations: BCBS, Basel Committee on Banking Supervision; BIS, Bank for International Settlements; CCPs, central counterparties; FSAP, Financial Sector Assessment Program; FSB, Financial Stability Board; GFSR, Global Financial Stability Report; IADI, International Association of Deposit Insurers; IOSCO, International Organization of Securities Commissions; MAP, Mutual Assessment Process; SPN, Staff Position Note; WEO, World Economic Outlook; WB, World Bank.
THE RECENT CRISIS REVEALED THE SIGNIFICANT RISKS POSED BY LARGE, COMPLEX, AND INTERCONNECTED INSTITUTIONS AND THE FAULT LINES IN THE REGULATORY AND OVERSIGHT SYSTEMS. DURING THE PAST TWO DECADES PRECEDING THE CRISIS, BANKS IN ADVANCED COUNTRIES SIGNIFICANTLY EXPANDED IN SIZE AND INCREASED THEIR OUTREACH GLOBALLY. IN MANY CASES, THEY MOVED AWAY FROM THE TRADITIONAL BANKING MODEL TO BECOME GLOBALLY OR REGIONALLY ACTIVE LARGE AND COMPLEX FINANCIAL INSTITUTIONS (LCFIs). THE VAST MAJORITY OF CROSS-BORDER FINANCE WAS (AND STILL IS) INTERMEDIATED BY A HANDFUL OF THESE INSTITUTIONS WITH GROWING INTERCONNECTIONS WITHIN AND ACROSS BORDERS. COMMON TRENDS BEFORE THE RECENT CRISIS INCLUDED A SHARP RISE IN LEVERAGE, SIGNIFICANT RELIANCE ON SHORT-TERM WHOLESALE FUNDING, SIGNIFICANT OFF-BALANCE-SHEET ACTIVITIES, MATURITY MISMATCHES, AND AN INCREASED SHARE OF REVENUES FROM COMPLEX PRODUCTS AND TRADING ACTIVITIES. IN SOME SYSTEMICALLY IMPORTANT COUNTRIES, REGULATORY RATIOS WERE NOT SENSITIVE TO THE BUILDUP OF VARIOUS RISKS AND CAPITAL WAS INADEQUATE OR OF INSUFFICIENT QUALITY TO PROVIDE A BUFFER.

SIGNIFICANT REFORMS ARE BEING CONSIDERED BOTH INTERNATIONALLY AND DOMESTICALLY TO RECTIFY THESE DEFICIENCIES AND FAILURES IN ORDER TO SECURE THE STABILITY OF THE

INTRODUCTION

The recent crisis revealed the significant risks posed by large, complex, and interconnected institutions and the fault lines in the regulatory and oversight systems. During the past two decades preceding the crisis, banks in advanced countries significantly expanded in size and increased their outreach globally. In many cases, they moved away from the traditional banking model to become globally or regionally active large and complex financial institutions (LCFIs). The vast majority of cross-border finance was (and still is) intermediated by a handful of these institutions with growing interconnections within and across borders. Common trends before the recent crisis included a sharp rise in leverage, significant reliance on short-term wholesale funding, significant off-balance-sheet activities, maturity mismatches, and an increased share of revenues from complex products and trading activities. In some systemically important countries, regulatory ratios were not sensitive to the buildup of various risks and capital was inadequate or of insufficient quality to provide a buffer.

Significant reforms are being considered both internationally and domestically to rectify these deficiencies and failures in order to safeguard the stability of the

1 The authors thank Jonathan Fiechter and José Viñals for their comments and guidance, and Pierluigi Bologna, Gregorio Impavido, Mohamed Norat, Scott Roger, Manmohan Singh, Jay Surti, and other IMF colleagues for their helpful input and comments. Morgane de Tollenare, Ivan Guerra, and Moses Kitonga provided able research assistance. This chapter was also issued as an IMF Staff Position Note, SPN/10/16 (November 3, 2010).

2 LCFIs could be defined as diversified cross-border financial firms with complex organizational and management structures whose large-scale activities cross national borders and sectoral boundaries. The group of LCFIs covered in this chapter includes a broader range of institutions that may be either globally or regionally systemic and is not based on the IMF view of global systemically important financial institutions (G-SIFIs).
financial system going forward. Their key objective is to promote a less leveraged, less risky (or better cushioned), and thus more resilient financial system that supports strong and sustainable economic growth. The bulk of the proposals have focused on revising the existing regulations applicable to banks and influencing the extent and consequences of their risk taking. These include enhancing the quality and quantity of capital and liquidity buffers, strengthening risk assessment, and enhancing the supervision and governance of financial institutions. Reforms are also being considered to reduce the systemic risk contribution of LCFIs. These initiatives include proposals to impose charges on systemically important LCFIs, to facilitate resolution of cross-border institutions, and to establish measures affecting the structure, organization, or scope of the activities of LCFIs. Work is also underway to design and calibrate specific macroprudential tools that will address procyclicality.

A key challenge for policymakers is to ensure that any changes in banks’ business strategies in response to tighter regulations do not result in a further buildup of systemic risks in the “shadows”; that is, either in unregulated sectors or in locations with less onerous regulatory standards. Important safeguards are therefore needed to mitigate such unintended consequences while also minimizing adverse effects on banks’ capacity to support the economic recovery.

This chapter aims to provide policy recommendations to mitigate these risks and is based on an analysis of a sample of LCFIs. Where data are publicly available, it provides a quantitative analysis of the effects of the proposals on LCFIs, assuming that their business models remain unchanged. It also provides a qualitative analysis of the impact on LCFIs’ business strategies and examines how different banking business models (commercial, investment, and universal) may react to, and be affected by, the regulations. The analysis uses publicly available data and focuses exclusively on implications for LCFIs and their business strategies. It therefore differs from the strictly confidential quantitative impact studies conducted by national authorities (unpublished, based on supervisory data) under the auspices of the Basel Committee on Banking Supervision (BCBS), as well as from other studies that aim to estimate the potential macroeconomic impact of proposed regulatory changes.3

This chapter is organized as follows. The second section, “Regulatory Reform Proposals: Background,” presents a brief overview of vulnerabilities that built up over the last couple of decades and the regulatory reforms that have been proposed to address them. The third section explores the likely effects of regulatory reform proposals on a sample of LCFIs and how different regions and banking business models (commercial, investment, and universal) may be affected by the regulations. The next section then analyzes qualitatively, based on extensive discussions with LCFIs and regulators, the likely impact of regulatory reform proposals on LCFIs’ business lines and the potential consequences of these changes for the financial system and the macroeconomy going forward. The chapter concludes with a discussion of policy implications and safeguards policymakers

---

3The recent studies include the macroeconomic impact assessments of the Institute of International Finance (IIF), Financial Stability Board (FSB), and BCBS (see IIF, 2011; FSB and BCBS, 2010; and BCBS, 2010a).
could put in place to limit unintended consequences for the soundness of the financial system and its ability to support sustainable economic growth.

**REGULATORY REFORM PROPOSALS: BACKGROUND**

The recent financial crisis revealed deep structural weaknesses in the global financial system, calling for substantial changes to the regulatory framework. This section presents a brief overview of the vulnerabilities that developed over the last couple of decades and the reforms that have been proposed to address them.

**Weaknesses Leading Up to the Crisis**

The financial landscape and the business models of financial institutions in advanced economies changed significantly in the run-up to the crisis. Financial institutions across the world, especially in advanced countries, evolved with particular intensity after 2000 in ways that made them more vulnerable to potential adverse shocks.

After 2000, LCFIs became larger, highly complex, and highly leveraged, and they relied increasingly on short-term wholesale funding (Figure 3.1). Lack of

---

**Figure 3.1** Selected Financial Indicators Leading Up to the Crisis

Sources: Bloomberg LP; and IMF staff estimates.

Note: Financial leverage = the ratio of total assets to total common equity (not adjusted for differences in accounting rules); Tier 1 ratio = the ratio of Tier 1 capital to risk-weighted assets; TCE ratio = the ratio of tangible common equity to tangible assets; wholesale funding ratio = the ratio of nondeposit to total liabilities.
transparency and limited disclosure of the types and locations of risks made it difficult to assess the extent of exposures and potential spillovers. To lower costs, institutions switched from deposits to other funding sources, such as money market mutual funds, short-term commercial paper, and repos. The trading book in LCFI assets displaced loans as the most important asset group, reducing the importance of net interest income, and raising the share of trading assets in total assets (from 20 percent in 2000 to above 40 percent in 2008 for U.S., European and U.K. LCFIs). In most countries, regulatory ratios did not capture the buildup of risks, and capital was inadequate or of insufficient quality to provide a buffer.

LCFIs also became heavily interconnected, facilitating propagation of the shocks across the system, domestically and globally. Cross-border interlinkages also increased and financial activity concentrated in a small, core set of LCFIs in the years before the crisis (Figure 3.2). In addition to the important links between (bank and nonbank) LCFIs through the funding side, asset-side interlinkages also grew due to increased sophistication and complexity of instruments, and their interconnectedness (IMF, 2010i).

Financial intermediation increasingly shifted to, and became interconnected with, the nonbank (“shadow banking”) sector as a natural consequence of securitization (Figure 3.2). These relatively unregulated financial activities grew in large part to avoid the regulatory requirements affecting banks. This increased the distance between borrowers and the ultimate debt owners and reduced banks’ incentives to monitor and screen borrowers. At the same time, banks and shadow banks have remained interconnected through funding links and activities of bank affiliates in the shadow banking system.

The global financial crisis revealed that financial sector regulation, risk assessment, and resolution authority did not keep up with these changes. Regulations did not fully capture the set of risks banks were exposed to, particularly the market, liquidity, and funding risks, and the regulatory oversight framework was not sufficiently wide to capture the buildup of vulnerabilities in the shadow banking system. Many banks lacked adequate governance practices and risk management systems, and the supervisory framework was not effective in identifying and correcting these deficiencies. Efforts to resolve weak banks were hampered by the complexity and interconnectedness of the financial institutions, both domestically and across borders. Radical reforms were therefore needed to strengthen the stability and resilience of the global financial system and prevent the recurrence of a systemic crisis.

**MAIN REGULATORY REFORM PROPOSALS**

In its April 2009 declaration, the G-20 group of countries agreed on a set of reforms to strengthen the financial system (Appendix 3.1). The regulatory reforms have focused so far on improving the resilience of individual institutions and sectors. Regarding the banking sector, in late 2009 the BCBS provided guidelines

---

4See, for example, Claessens and others (2010); and Chapter 2 in this volume.
Figure 3.2 Interconnectedness, Complexity, and Concentration of the Financial System

Sources: Bank for International Settlements; Bloomberg LP; Economist Intelligence Unit (EIU); U.S. Flow of Funds Accounts as of 2010:Q1 (Federal Reserve Board); Federal Reserve Board of New York.

1Shadow banking liabilities include commercial paper, medium-term notes, asset-backed commercial paper, asset-backed securities, repurchase agreements, total return swaps, hybrid and repos/TRS conduits, ABS CDOs, ABS CDO-squareds, bonds, capital notes, and shadow bank “deposits.”

©International Monetary Fund. Not for Redistribution
Impact of Regulatory Reforms on Large and Complex Financial Institutions

and recommendations to improve the resilience of banks, some of which were agreed upon by September 2010 (BCBS, 2009a, 2009b, 2009c, 2009e, 2010b, 2010c; and BIS, 2010b, 2010e).

The key components of the BCBS proposals are: (i) higher amounts and better quality of capital (mostly common equity, with better loss absorption features); (ii) better risk recognition for market and counterparty risks; (iii) a non-risk-based leverage ratio as a backstop measure; (iv) tighter liquidity standards, including through a liquid asset buffer for short-term liquidity coverage and a longer-term stable funding requirement to limit maturity mismatches; and (v) capital conservation buffers.

The new capital standards are a substantial improvement in comparison with the precrisis situation. Common equity will represent a higher proportion of capital and thus allow for greater loss absorption. In particular, the required minimum will increase to 4.5 percent from the generally observed 2 percent under existing standards. This minimum will be complemented by an additional 2.5 percent capital conservation buffer, composed of fully loss absorbing capital (i.e., equity), which will restrict distributions in the form of dividends or bonus payments as banks approach the minimum (Table 3.1). The amount of intangible and qualified assets that can be included in capital will be limited to 15 percent (details are provided in Appendix 3.2).5 The implementation period is phased in from 2013, with a gradual introduction of the deductions from 2014, to reach a common equity target at 7 percent by 2019 (including the capital conservation buffer).

A leverage ratio of 3 percent will be introduced alongside current regulations on a trial basis starting in 2013, with implementation and migration to Pillar 1 to occur by 2018.6

Global liquidity standards are another key element of the regulatory reform. The Liquidity Coverage Ratio (LCR) aims to ensure that internationally active banks have up to 30 days of high-quality liquid assets to meet short-term institution-specific and systemic stresses and to guard against a run on a bank’s wholesale liabilities, including secured funding.7 It will be implemented in January 2015 after an observation period beginning in 2011. The Net Stable Funding Ratio

---

5 These include deferred tax assets (DTAs), mortgage servicing rights (MSRs), significant investments in common shares of financial institutions, including insurance subsidiaries, and other intangible assets.

6 In several countries, such as Canada, Switzerland, and the United States, the leverage ratio is part of the regulatory requirements.

7 As announced by BCBS in July 2010, eligible liquid assets include Level 1 assets (cash, central bank reserves, and high-quality sovereign debt) and Level 2 assets (high-quality corporate and covered bonds and nonzero risk-weighted sovereign debt subject to haircuts and a cap). The BCBS also announced that a carve-out should be granted to countries where banks face structural constraints in meeting the minimum LCR because of low government debt. The rules provide for some flexibility, while limiting country-specific exemptions and minimizing regulatory arbitrage opportunities.
(NSFR) is designed to promote longer-term funding of assets in times of stress to reduce banks’ dependence on volatile funding sources. It will become a minimum standard by January 2018, after an observation period starting in 2012 and further calibration of the underlying parameters (details are provided in Appendix 3.3).8

However, much less progress has been made overall in developing regulations with a macroprudential approach. These would be needed to dampen the tendency for financial institutions to behave procyclically and to properly account for the systemic risks posed by individual financial institutions, including nonbanks. The BCBS has requested comments on how best to compute countercyclical risk weights and, more generally, how to construct countercyclical capital charges. Table 3.2 lists various proposals under consideration for reducing the contribution of systemically important financial institutions

8LCR, defined as the ratio of Stock of High Quality Liquid Assets to Net Cash Outflows over a 30-day horizon, is required to be at least 100 percent. The NSFR, defined as the ratio of Available Stable Funding to Required Stable Funding, is also required to be at least 100 percent (see Appendix 3.3 for details).
(SIFIs) to systemic risk. Some countries (e.g., Switzerland, the United Kingdom, and the United States) are already implementing policies to address the risks posed by SIFIs.

**IMPLICATIONS OF THE REFORM INITIATIVES FOR LCFIS**

This section provides an illustrative analysis of the impact of the new capital and liquidity requirements on a sample of LCFIs. The key objective is to explore how banks and their business strategies are affected by the proposed regulations given the structure of their main activities and business lines. The analysis covers the impact of the regulations on capital (definition and market risk) and liquidity requirements (NSFR). The potential implications of the Leverage Ratio and the LCR are not analyzed quantitatively due to a lack of access to detailed data required to estimate these ratios. The sample includes 20 countries with a total

---

*Given limited publicly available data on a consistent basis, especially on components of bank capital, a standard set of assumptions common to all banks was used where needed. Further details on the methodology are provided in Appendix 3.2.*

©International Monetary Fund. Not for Redistribution
of 62 banks from three regions (15 from Asia, 33 from Europe, and 14 from North America), and three business models (34 commercial banks, 19 universal banks, and 9 investment banks).\textsuperscript{10,11} The sample banks account for more than $24 trillion of risk-weighted assets and more than $2.6 trillion of Tier 1 regulatory capital as of year-end 2009.\textsuperscript{12} Appendix 3.2 provides sample and definitional details.

Impact of the Capital Requirements

The underlying quality and comparability of the capital structure differ significantly across the sample LCFIs and countries. The total amount of assets with weak going-concern loss-absorbency characteristics is high on average, if compared to banks’ core Tier 1 capital, varying significantly across banks and countries.\textsuperscript{13} As of end-2009:

- Such assets represent, on average, about 35 percent of banks’ core Tier 1 capital, ranging from 5 to 60 percent of core capital across countries.
- European banks have the highest ratio of these assets (38 percent), followed by North American banks (33 percent), and Asian banks (32 percent), though with wide variations within each region.
- By business models, universal banks with a range of different business lines have the highest average ratio (45 percent of total core Tier 1), followed by investment banks (32 percent), and commercial banks (26 percent).

According to the new standards, banks will be required to deduct most of such assets from the common equity component of capital, which will improve the quality of capital. Assets with low absorption capacity will be limited to 15 percent of core Tier 1 capital. Based on an analysis of the individual LCFIs, about 24 percent of core Tier 1 of the sample LCFIs, on average, will be eliminated from the definition of regulatory capital—a substantial strengthening of the quality of capital (Figure 3.3). The shares vary widely across countries, from less than 5 percent to more than 30 percent, reflecting banks’ business characteristics. For example, some banks have large investments in unconsolidated subsidiaries, reflecting a universal banking model, and others have large minority interests, reflecting sizable operations abroad. Universal banks that carry out a range of different business activities (subject to deductions for minority interests, insurance subsidiaries, and mortgage servicing rights) experience the largest deductions

\textsuperscript{10}Geographies are mapped based on each banking group’s country of residency: Asia (Australia, China, India, Japan, Korea); Europe (Austria, Belgium, France, Germany, Greece, Italy, Nordics, Portugal, Spain, Switzerland, United Kingdom); and North America (United States and Canada).

\textsuperscript{11}Business models are based on banking groups’ principal source of income (commercial banks: lending activity; universal banks: lending, insurance, and other services; and investment banks: trading/advisory/asset management activity).

\textsuperscript{12}End-March 2010 in the case of Japanese banks (which have a different reporting cycle).

\textsuperscript{13}These assets include goodwill, minority interests, investments in unconsolidated subsidiaries, and the value of DTAs, MSRs, and other intangible assets (see Appendix 3.2).
from capital (31 percent), compared with commercial and investment banks (17 percent and 21 percent, respectively).

If applied immediately, the proposed deductions would lower the core Tier 1 capital ratio of the average sample LCFI from 8.6 percent in 2009 to 6.7 percent, and, after incorporating changes in market risk provisions, to 5.8 percent (Figure 3.4). Investment banks are impacted the most by the regulation on market

### Figure 3.4 Breakdown of the Impact of Various Deductions on Core Tier 1 Capital

Source: IMF staff estimates.

Note: RWA = risk-weighted assets.
risk weights (given the significant share of trading and securitization in their business mix), followed by universal banks, which also carry out investment-bank-type activities (Figure 3.5). The effect on capital ratios from the two sources (capital definition and market risk) could be partially offset if banks retain the earnings that they can accumulate over the next few years until the start of implementation.

The dispersion of the likely impact of the Basel capital regulations across different regions and business mix suggests the following:

- The new regulations would have the largest effect on European and North American banks overall, followed by Asian banks. In North America, the drop in core capital would reflect the significant impact of increased market risk-weighted assets, whereas in Europe the most significant impact would come from asset deductions (given the large concentration of universal banks with significant subsidiaries in the region and involvement in bank-insurance businesses).14

- The proposals would more significantly affect the investment and universal banks, reducing the differences across core capital ratios for different business models (Figure 3.5). For the sample of banks, following the adjustments the core capital ratios of investment, universal, and commercial banks would fall from 9.9 percent, 8.8 percent, and 7.8 percent (respectively) to 7.0 percent, 6.2 percent, and 7.1 percent (respectively). Traditional commercial banks, with their simpler business focus, would be the least affected, whereas banks with significant investment banking activities would experience larger reductions, owing particularly to higher market risk-weighted assets. Universal banks would also be affected by a combination of increased risk weights associated with their trading business and deductions related to minority interests and insurance business.

14The low impact of the deductions across Asian banks is not homogeneous, with Japanese banks affected more than other Asian banks, given the large deductions related to minority interests and net DTAs.
The phased implementation of the BCBS proposals should allow most banks sufficient time to close the capital gap through earnings retention. BCBS has allowed for a gradual phase-in period to avoid the need for abrupt adjustments to banks' balance sheets (see Table 3.1). During the first years of implementation, the new regulation would therefore have a minimal impact. The number of banks failing to meet the new target (including the 2.5 percent of capital conservation buffer) would reach about 10 by 2019 (Table 3.3). These estimates, however, are based on assumptions of relatively modest earnings growth and do not take into account the possibility that banks that expect to fall short of requirements could raise new capital or increase the proportion of earnings applied to building up capital.

The capacity of banks to meet the capital requirements will thus depend on their starting level of capitalization and their ability to either rebuild capital through earnings retention or acquire fresh capital. Under a scenario of no earnings retention, the banks in the sample would require about $360 billion in additional capital to comply with the 7 percent core capital ratio. The number of banks failing to meet the 7 percent target would increase to 48 banks by 2019 under this scenario (see Table 3.3 and Figure 3.6). Universal banks would need the greatest amount of additional capital, whereas banks with significant investment banking activities would benefit from high starting capital levels following the recent rounds of capital raising.

Table 3.3: Impact of the Gradual Phase-In Period

<table>
<thead>
<tr>
<th>Year</th>
<th>Without Retained Earnings</th>
<th>With Retained Earnings</th>
<th>Thresholds: Capital to Reach Minimum Common Equity Cap Ratio + Cap Conservation Buffer</th>
<th>Phase-In Deductions from CET1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>0</td>
<td>0</td>
<td>3.50%</td>
<td>0%</td>
</tr>
<tr>
<td>2014</td>
<td>0</td>
<td>0</td>
<td>4.00%</td>
<td>20%</td>
</tr>
<tr>
<td>2015</td>
<td>1</td>
<td>0</td>
<td>4.50%</td>
<td>40%</td>
</tr>
<tr>
<td>2016</td>
<td>4</td>
<td>1</td>
<td>5.125%</td>
<td>60%</td>
</tr>
<tr>
<td>2017</td>
<td>17</td>
<td>2</td>
<td>5.75%</td>
<td>80%</td>
</tr>
<tr>
<td>2018</td>
<td>32</td>
<td>6</td>
<td>6.375%</td>
<td>100%</td>
</tr>
<tr>
<td>2019</td>
<td>48</td>
<td>10</td>
<td>7.00%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note: Estimates with earnings at 50 percent of average 2004–07 earnings per bank, and earning retention rate at 60 percent.

1-Banks could issue new capital, reduce balance sheet size through further deleveraging, increase product pricing, rebuild capital through earning retention and limited dividend distribution, or use a combination of these different options to meet the higher requirements. During 2009–10, several of the large banks in the sample, both in Europe and in the United States, issued additional capital to raise their capital ratios and continued to deleverage.

16-Bloomberg market consensus estimates suggest that by 2012, the LCFIs in the sample would generate earnings in excess of the 2004–07 average.

17-For the purposes of this analysis, risk-weighted assets are kept constant over the phase-in period.

©International Monetary Fund. Not for Redistribution
A number of messages can be drawn from the analysis:

- Most banks in the sample should be able to meet the higher target mainly through earnings retention, provided a modest earnings outlook. As some banks have already done, banks can issue additional capital and/or reduce dividend payments to further build their capital buffers. Should banks generate good earnings in the coming years and distribute lower dividends, they could rebuild common equity capital ratios even faster than required under the current phase-in periods. This is important for increasing the banking sector’s resilience and, therefore, enabling it to absorb any potential shocks ahead.

- An eventual phasing out of the permanent “15 percent allowance” for qualified and intangible assets might be considered to further enhance the quality and comparability of capital; first, however, a careful analysis would be needed of its implications for banks’ earnings and capital generation capacity.

- These implications should be considered as part of the overall reform package, which includes other aspects of the Basel and other regulatory proposals (e.g., countercyclical buffers, systemic surcharges, and levies), as well as various national reform proposals that would also introduce additional capital requirements on banks.

Impact of the Liquidity Proposals

Industry estimates, covering a limited set of U.S. and European banks, suggest that most banks would meet the LCR criteria, and for banks that do not yet meet
the criteria, the liquidity gap may be limited and manageable (Table 3.4, panel 1). A comprehensive staff analysis of the impact of the LCR has proven difficult given the lack of publically disclosed information, particularly data on short-term cash flows. Using the ratio of Liquid Assets (cash plus government securities) to Total Assets as a proxy measure of liquidity coverage shows that Asian banks have the best short-term liquidity position, followed by European banks. The favorable position of Asian banks broadly reflects their simpler balance sheet structures, limited amount of complex securities, and stronger funding profile skewed

### TABLE 3.4

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>JPMorgan February 17 and July 29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU</td>
<td>12</td>
<td>130.6%</td>
<td>155.3%</td>
<td>$56</td>
<td>$12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>4</td>
<td>148.1%</td>
<td>189.5%</td>
<td>$140</td>
<td>$17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>134.4%</td>
<td>163.4%</td>
<td>$196</td>
<td>$29</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Effects of Basel III Regulatory Changes on the Liquidation Coverage Ratio in Large Global Banks

### IMF and Analyst Estimates of the Impact of Liquidity Proposals

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IMF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>34</td>
<td>74.2%</td>
<td>89.0%</td>
<td>NA</td>
<td>$3,549</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td>14</td>
<td>90.8%</td>
<td>112.0%</td>
<td>NA</td>
<td>$164</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North America</td>
<td>14</td>
<td>109.1%</td>
<td>127.0%</td>
<td>NA</td>
<td>$72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JPMorgan February 17 and July 29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU</td>
<td>12</td>
<td>90.7%</td>
<td>104.3%</td>
<td>$1,165</td>
<td>$410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>4</td>
<td>133.0%</td>
<td>139.6%</td>
<td>$0</td>
<td>$0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>98.6%</td>
<td>112.5%</td>
<td>$1,165</td>
<td>$410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS January 27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU</td>
<td>40</td>
<td>87.0%</td>
<td>NA</td>
<td>$2,161</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS May 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU</td>
<td>29</td>
<td>85.6%</td>
<td>NA</td>
<td>$1,873</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barclays June 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EU</td>
<td>18</td>
<td>85.0%</td>
<td>NA</td>
<td>$1,881</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HSBC July 27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>3</td>
<td>NA</td>
<td>96.7%</td>
<td>NA</td>
<td>$88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: Various analysts’ reports; and IMF staff estimates based on sample LCFIs.
toward deposits. Within these regions there is variation, with some countries having low ratios due to structural shortage of government securities. Across business models, commercial banks tend to have the lowest ratios, likely reflecting the duration of their loan portfolio.

An illustrative analysis of the impact of NSFR on the sample of LCFIs suggests a wide variation in banks’ ability to meet the required 100 percent level (see Figure 3.7 and Appendix 3.3 for a description of the methodology). European banks would be most affected by the NSFR requirement, in part reflecting greater reliance on wholesale funding and high loan-to-deposit ratios (Figure 3.8). Most North American banks and some Asian banks already meet the 100 percent NSFR criterion. The average NSFR is 89 percent for European banks, 112 percent for Asian banks, and 127 percent for North American banks, compared to the 100 percent requirement under the Basel proposals. Compared to other banks in the sample, North American banks, on average, have a high share of securities on the asset side and an above-average share of deposits.

The regional aggregation masks the variation within the regions. In Europe, a majority of the sample banks does not meet the 100 percent criteria, but some banks have much lower ratios than others, for example those with large amounts of long-term lending on the asset side of their balance sheets and high dependence on wholesale funding. A similar structure is observed in some Asian banks that have a high share of wholesale funding to finance long-term assets.

To improve their funding profiles and meet the NSFR requirement, banks could change their funding mix, by issuing term funding and/or raising more customer deposits and/or they could reduce their assets. It is likely that banks will adopt a combination of the three options in meeting the requirements. Changing the maturity structure toward long-term debt will require banks to pay the term premium. Attempts to fill the funding shortfall with deposits would be a challenge given competition in local deposit markets and difficulties associated with building branch networks. Shrinking assets may be costly in terms of foregone market share and profitability. The ultimate choice of the funding mix will likely depend on individual circumstances and ongoing market conditions.

Going forward, some banks may face challenges in meeting the new regulatory requirements as market conditions change.

Increase in Funding Costs
Globally active banks need to roll over a large amount of debt in the coming years. The IMF estimates that nearly $4 trillion of bank debt is due to mature in the next 24 months (IMF, 2010e), which is likely to put upward pressure on borrowing costs for banks, thereby making it costlier to issue term debt. Furthermore, part of the debt maturing in the coming years is government-guaranteed and will likely be refinanced at a higher cost as authorities wind down monetary policy support measures. Finally, banks’ refinancing and balance sheet restructuring efforts could face competition from heavy government and corporate debt issuance.
A more robust regulatory framework coupled with stronger capitalization should lead to a lower risk premium for debt issuance. However, increased burden sharing of losses with bondholders (e.g., due to private-sector involvement in burden sharing via instruments that convert debt to equity) may be associated with a higher...
cost of debt, as the severity and probability of losses increase (BCBS, 2010e). If senior bondholders are impacted by the final regulation, banks may either have to pay a greater premium to investors or face increased competition for deposits.

**Risk Management**

Banks, particularly those that are globally active, may face additional funding challenges if tighter liquidity requirements lead to a greater tendency toward decentralized operations and limit their ability to move excess liquidity within banking groups. Also, in jurisdictions where banks manage their liquidity risks by holding liquid assets other than government bonds, their liquidity risk profiles may be affected by the LCR, which treats such assets less favorably than government

---

©International Monetary Fund. Not for Redistribution
securities, although some arrangements are being considered for countries where banks face structural constraints in meeting the minimum LCR given low government debt. Finally, increased holdings of government securities to meet the LCR target may raise challenges in an environment of increased sovereign risk.

**IMPLICATIONS FOR BANKS’ BUSINESS STRATEGIES**

The new Basel package is not “business model neutral” and, as intended, will have a greater direct impact on investment banking activities. The final proposal, with a long phase-in period for capital and a deferred introduction of the liquidity ratios, should allow for a smoother implementation of the tighter rules, put less pressure on banks’ ability to do maturity transformation, and reduce the calls for substantial deleveraging or passing the associated higher cost of funding on to customers. Meeting the requirements of the Basel package will, therefore, be relatively less difficult for banks that focus on commercial banking activities, providing them with more time to adjust. In contrast, banks’ derivatives, trading, and securitization activities, which will be subject to tighter capital requirements from end-2011, will be more costly under the Basel requirements, as intended, ensuring a better reflection of the associated risks by the liquidity and capital requirements.  

Investment banking activities will also be affected by a host of other regulatory initiatives in addition to the Basel requirements, which will add to the need for higher capital (Figure 3.9):

- **Securitization**—The securitization business is affected by the new accounting rules, which require originators to consolidate some securitized transactions onto bank balance sheets, and by reforms that reduce issuer incentives to securitize (e.g., the 5 percent risk retention rule for originators to maintain “skin in the game”). Combined with higher Basel risk weights, these reforms are expected to limit the profitability of and incentives for riskier securitization business.

- **Derivatives**—Similarly, the derivatives business will also be more affected by various global proposals (e.g., exchange trading and CCP clearing of OTC derivatives) and national initiatives (e.g., pushing banks’ derivatives business to separately capitalized nonbank subsidiaries, as envisaged in the U.S. Dodd-Frank Act). These regulations will affect the investment and universal banks most active in derivatives business, while attempting to limit adverse effects on legitimate transactions (e.g., hedging) through various exemptions.

- **Trading**—Finally, the cost and profitability of the trading business are also affected by higher Basel risk weights for the trading book, as well as by various global and national proposals (including, for example, the Volcker Rule, which limits proprietary trading and investment in, or sponsorship of, private equity and hedge funds [see Box 3.1], and market infrastructure reforms that regulate OTC derivatives trading).

---

18See Appendix 3.4, Table 3.7 for industry views on the potential impact of various regulatory proposals on banks’ business models.
The regulatory reforms also affect banks with a universal banking focus; that is, those carrying out an array of activities ranging from retail banking to insurance, leasing, and investment banking. Banking groups undertaking a combination of commercial and investment banking activities will be affected by various other reform measures (e.g., those that propose to break up banks or prohibit certain activities). Although limiting these activities may not be costly from an economic point of view, the reduced ability to benefit from diversification and compensate low-margin activities with investment income could reduce banks’ ability to generate retained earnings and their resilience to adverse economic shocks.

Groups undertaking insurance and banking business under one roof (the bancassurance model in Europe) could also be pressured by the combined impact of the Basel rules and Solvency II, which is likely to lower the capital benefits associated with this model—an intended consequence of the reform measures. Partial recognition of insurance participation in common equity may serve to smooth out the real sector implications for banking systems that are heavily reliant on the bancassurance model.

19Solvency II, the updated set of regulatory requirements for insurance firms that operate in the European Union, is scheduled to come into effect in late 2012 and is likely to increase insurance capital needs and reduce the fungibility of insurance capital.
Potential Implications for U.S. Banks of Selected Provisions in the Dodd-Frank Act

The Volcker Rule, an important component of the U.S. Dodd-Frank Act (passed in June 2010), may have implications for the riskier investment banking business. The rule imposes a ban on proprietary trading and a curb on sponsoring or investing in private equity, hedge funds, and other alternative investment funds, subject to certain transition periods and exemptions. It also contains provisions related to derivatives clearing, trading, margins, and infrastructure. The ban on proprietary trading will affect banks with significant investment banking activities, assuming a narrow definition of proprietary trading in the supplementing regulations. The curb on sponsoring or investing in private equity, hedge funds, and other alternative investment funds and the other provisions related to derivatives would also have a strong impact on such banks’ revenues if supplementing regulations are restrictive. However, LCFIs may reorganize their business activities in response (for example by locating businesses in their asset management companies or to hedge funds). Thus it is too early to judge the overall impact of the new rules. The Dodd-Frank Act will affect not only U.S. banking institutions but also foreign banks’ affiliates in the United States that are organized as bank holding companies (or subsidiaries of foreign banks), especially those with investment banking activities.

The impact of the ban on proprietary trading on U.S. and foreign banks’ profitability will depend on the stringency of its implementation. For U.S. banks, as the figure below illustrates, in 2009 total investment banking revenues—comprising trading and investment income revenues—represented 57 percent and 12 percent of gross revenues in investment and universal banks, respectively, while commercial banks relied much less on investment banking revenues, which represented only 7 percent of gross revenues. If 10 percent of total investment banking revenues consists of proprietary trading revenues in all U.S. banks, as estimated by bank analysts, the restriction on proprietary trading would affect mostly investment and universal banks.

The curb on sponsoring or investing in private equity, hedge funds, and other alternative investment funds may have an impact on investment bank revenues by capping bank exposures to such activities. U.S. banks cannot have more than 3 percent of the fund’s equity after its inception. Moreover, U.S. banks cannot hold more than 3 percent of their Tier 1 capital in investments in private equity and hedge funds. The disclosure of U.S. banks’ principal investments in annual reports, shown in the figure below, indicates that investment banks are over the 3 percent aggregate cap of Tier 1 capital by a very large extent, whereas universal and commercial banks are closer, implying that the loss of revenues from alternative investments will be much more pronounced for banks with significant investment banking activities compared with other banks.

Other provisions in the Dodd-Frank Act involving derivatives activities may also add some pressure on investment banking revenues and limit the leverage embedded in derivatives (in particular, provisions requiring mandatory margins for uncleared swaps, mandatory clearing and trading of eligible standardized swaps, registration, and regulation of swap market participants and facilities). At end-2009, revenues from trading in fixed income, exchange rate, commodities, and credit instruments (FICC) amounted to 39 percent of gross revenues in investment banks and a smaller percentage...
Living wills are recovery and resolution plans for large banks that map out how to safely wind down institutions in case of failure, encouraging, in effect, simpler and more streamlined corporate structures. Stand-alone subsidiarization requires banking groups to be organized as constellations of self-sufficient national subsidiaries, with effective firewalls between the parent and the affiliates, each holding sufficient capital/liquidity to survive alone. The key objective of the two proposals is to facilitate easier and less costly resolutions of large banking groups by compartmentalizing risks and making individual group parts more resilient to shocks, respectively.
business model and are more decentralized (see Chapter 11). While encouraging a more streamlined corporate structure, living wills may limit the diversification benefits of groups with different business lines.

Ultimately, the impact of the reforms on LCFIs will depend on the flexibility of their business models and how they adjust to the changes. Banks with limited flexibility on the asset side of their balance sheets and with less diversified sources of earnings may have a harder time adjusting to the new regulatory environment. By contrast, banks with a major investment banking focus may be able to restructure their activities to reduce the effects of the regulatory reforms, notwithstanding a multitude of regulations affecting their activities. With their flexible balance sheet structures, they can capture the most profitable segments to generate robust cash flows and earnings, buy or sell assets with relative ease, shift their operations rapidly, and manage capital by shrinking assets and repositioning them away from the most capital-intensive activities.

Such adjustments in banks’ business strategies could have unintended consequences that could potentially increase systemic risk. Some activities may move toward the less regulated shadow banking sector as the regulatory cost to banks to undertake such activities increases (e.g., certain types of loans, leases, trading, and derivatives). However, there is the possibility that the risk to the banking system would remain given the interconnectedness of banks with nonbank entities through the funding relationships and their nonbank subsidiaries. Although supervision could help contain these vulnerabilities, its ability may be limited without a widening of the regulatory perimeter.

Moreover, absent careful global coordination of the implementation of stricter rules, some businesses may be prompted to move to locations with weaker regulatory frameworks. In some countries, the slow progress in reaching international consensus, combined with domestic policy concerns, have resulted in the adoption of national regulatory reform packages (e.g., taxation and compensation regimes in Europe and the U.S. Dodd-Frank Act). Lack of coordination of reform actions may encourage global banks that are active in various jurisdictions to consider moving their activities to minimize regulatory costs, affecting, in turn, the capacity to monitor and manage systemic risks.

21Shadow banks are intermediaries between investors and borrowers, profiting either from fees or differences in interest rates between those paid to the investor and received from the borrower; for example, securities broker-dealers, hedge funds, special purpose vehicles (SPVs), conduits, money market funds, monolines, and other nonbank financial institutions that do not accept deposits and are not subject to the same regulations as depository banks (Adrian and Shin, 2009). Shadow banks have high levels of leverage and maturity mismatches and are subject to similar market, credit, and liquidity risks as banks, but with no direct or indirect access to a lender of last resort. They could fail if they are unable to refinance their short-term liabilities.

22There are press reports that suggest, for example, that a number of LCFIs have been closing and/or transferring their proprietary trading activities to asset management arms or to hedge funds.

23There are some press reports that some global universal banks may move their operations out of jurisdictions that introduced tougher measures to others that do not have such regulations.
SUMMARY AND POLICY IMPLICATIONS

The current BCBS proposals on capital requirements represent a substantial improvement in the quality, quantity, and comparability of bank capital. Illustrative calculations suggest that most banks can meet the more stringent capital requirements through earnings retention, provided a modest earnings outlook. As the global financial system stabilizes and the world economic recovery is firmly entrenched, there may be room to phase out intangible and qualified assets completely and scale back the transition period (both subject to a careful impact analysis of the possible implications). This would further increase the banking sector’s resilience so that it can better absorb any shocks that may lie ahead, while limiting incentives to take excessive risks in the interim. The implications of these reforms, nonetheless, need to be considered as part of the overall package, including other aspects of the Basel proposals (e.g., countercyclical buffers), as well as other ongoing reform proposals that could introduce additional costs to banks. Careful assessments of the cumulative and joint impact of the overall reform package need to be conducted.

Going forward, some banks may face challenges in meeting the liquidity requirements in the current global environment. Although for most banks the adjustment may be manageable, given that implementation will take place over a number of years, a number of factors may put pressure on funding costs, including funding pressures from a large amount of debt coming due in a few years, higher interest rates as authorities wind down monetary policy support measures, and competition from government debt issuance.

A key challenge for policymakers is to ensure that potential adjustments in business strategies to the tighter capital and liquidity requirements do not generate systemic risks. Overall, the new rules are more stringent on the investment banking business. Although this is intended, it is likely that, to create cushions appropriate to the risks taken, banks with a major focus on such activities may shift some activities to the unregulated shadow banking sector or move their businesses to jurisdictions with less onerous regulatory requirements.

These factors argue for a number of safeguards to ensure that recent reforms are consistent with the objective of mitigating systemic risk:

• There is a continuing need for policymakers to restructure or resolve weak banks. To strengthen the banking system’s resilience to shocks and turn it again into an engine of global growth, policymakers need to ensure that banks are well capitalized, have access to stable funding, and can earn self-sustaining profits on core activities. This will require pursuing orderly and globally consistent regulatory reform; making progress in designing regulations with a macro-prudential focus; and strengthening oversight of the financial system.

• Supervision needs to be more intensive to prevent a new cycle of leveraging and excessive risk taking. This is particularly important during the period before banks fully build up their liquidity and capital buffers. Supervision needs to be proactive to identify and monitor systemic risks with due attention to understanding the business models and risks assumed by LCFIs.

©International Monetary Fund. Not for Redistribution
• **The regulatory perimeter needs to be widened.** Such widening should permit effective monitoring of the risks that banks and nonbank institutions may undertake, regulation of all systemically important institutions that conduct banking activities, and close monitoring of markets and instruments used by financial institutions. This will need to be accompanied by a strengthening of the market infrastructure (including through well-managed CCPs) and of the risk management capacity of financial institutions. Also, regulation and oversight need to take into account not just the safety and soundness of individual institutions but the risks they pose to the system as a whole.

• **The need for coordination of policies, as well as of their implementation, is greater than ever.** Given the global reach of markets and institutions, effective coordination among national authorities and standard-setting bodies will be critical. This will be needed to maintain level playing fields and contain regulatory arbitrage and to ensure that the cumulative impact of various regulatory initiatives does not stifle financial innovation and growth.

• **Finally, agreement on cross-border resolution regimes should be a top priority.** Despite the very positive steps that are being considered to strengthen LCFIs, future failures are inevitable. The BCBS and FSB are developing proposals to address the resolution of “too important to fail” institutions, and an enhanced cross-border coordination framework for resolution has been proposed by the IMF (2010g). Early steps should be taken to make these latter proposals operational among a small set of countries that are home to most cross-border financial institutions. The complexity of reaching agreement on effective frameworks for resolving cross-border institutions means that moving forward on these issues will require political commitment at the highest levels.
### APPENDIX 3.1. THE RATIONALE OF PROPOSED REGULATORY REFORMS

#### TABLE 3.5

Various Regulatory Initiatives, Objectives, and Instruments to Achieve Them

<table>
<thead>
<tr>
<th>Microprudential: Addressing idiosyncratic risks</th>
<th>Objectives</th>
<th>Reducing Probability of Default of Individual Banks</th>
<th>Reducing Systemic Loss, Given Default or Loss at Individual Banks</th>
<th>Reducing Unexpected Systemic Losses through Structural Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• Make all banks more resilient to idiosyncratic risks</td>
<td>• To the extent that all banks are more resilient to idiosyncratic risks, the potential for stress or failure of one bank to cause multiplicative losses to the rest of the system is reduced</td>
<td>• Make all banks more resilient to idiosyncratic risks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Improve incentives for prudent risk management at all banks</td>
<td>(Measures in column on the left)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Instruments</td>
<td>• Better quality of capital</td>
<td>• Better risk recognition</td>
<td>• Narrow banks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Better risk recognition</td>
<td>• Higher minimum risk-based CAR</td>
<td>• Limit size/scope of banks (Volcker Rule, Lincoln amendment)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Non-risk-based leverage ratio</td>
<td>• Robust liquid assets buffer (LCR)</td>
<td>• Ring-fencing at national level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Limits (NSFR)/levies on volatile funding</td>
<td>• Other direct limits on risk exposures</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Intensive, proactive, discretionary supervision (Pillar 2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Macroprudential: Addressing time dimension of systemic risk (procyclicality)</th>
<th>Objectives</th>
<th>Reducing Probability of Default of Individual Banks</th>
<th>Reducing Systemic Loss, Given Default or Loss at Individual Banks</th>
<th>Reducing Unexpected Systemic Losses through Structural Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• Recognize, earlier in the cycle, expected losses and risks building up in good times</td>
<td>• Limit the buildup of systemic vulnerabilities and contagion channels (e.g., leverage, complexity, interconnectedness) in upswings</td>
<td>• Limit banks’ scope for contributing to financial system procyclicality</td>
</tr>
<tr>
<td></td>
<td>Instruments</td>
<td>• Limit effective leverage</td>
<td>• Dampen swings in leverage and maturity mismatch over the cycle</td>
<td>• Narrow banks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reduce incentives for exuberant lending and excessive maturity mismatch in upswings</td>
<td>• Reduced procyclicality of Basel II capital requirements</td>
<td>• Limit size/scope of banks (Volcker rule, Lincoln amendment)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Macroprudential measures (see above)</td>
<td>• Capital conservation rules</td>
<td>• Ring-fencing at national level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Forward-looking provisions on loans, valuation reserves on marked-to-market assets</td>
<td>• Countercyclical capital buffers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Limits on LTV, minimum haircuts on collateral</td>
<td>• Limits (NSFR)/levies on volatile funding</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reduced procyclicality of Basel II capital requirements</td>
<td>• Intensive, proactive, discretionary supervision (Pillar 2)</td>
<td></td>
</tr>
</tbody>
</table>

©International Monetary Fund. Not for Redistribution
### TABLE 3.5
Various Regulatory Initiatives, Objectives, and Instruments to Achieve Them (continued)

<table>
<thead>
<tr>
<th>Macroprudential: Addressing cross-sectional dimension of systemic risk (network risk)</th>
<th>Reducing Probability of Default of Individual Banks</th>
<th>Reducing Systemic Loss, Given Default or Loss at Individual Banks</th>
<th>Reducing Unexpected Systemic Losses through Structural Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Make SIFIs more resilient to idiosyncratic risk</td>
<td>• Limit contagion channels across the system: complexity, interconnectedness</td>
<td>• Limit banks' scope for becoming too big, too complex, or too interconnected to fail</td>
</tr>
<tr>
<td></td>
<td>• Internalize externalities created by SIFIs (reduce implicit subsidy)</td>
<td>• Improve the resolvability of SIFIs</td>
<td>• Limit banks' scope for generating negative spillovers</td>
</tr>
<tr>
<td></td>
<td>• Improve incentives for prudent risk management at SIFIs and to lower spillover effects</td>
<td>• Lower the probability of key providers of interbank funds hoarding liquidity</td>
<td>• Force OTC derivatives to be traded through central counterparties</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide incentives to lower spillover effects and for more robust funding networks</td>
<td>• Limit size/scope of banks (Volcker Rule, Lincoln amendment)</td>
</tr>
<tr>
<td><strong>Instruments</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Capital/liquidity surcharges based on systemic riskiness/nonresolvability</td>
<td>• Other measures (in column on the left) that limit the buildup of leverage</td>
<td>• Ring-fencing at national level</td>
</tr>
<tr>
<td></td>
<td>• More intensive supervision of SIFIs</td>
<td>• Living wills</td>
<td>• Intensive, proactive, discretionary supervision (Pillar 2)</td>
</tr>
<tr>
<td></td>
<td>• Contingent capital requirements</td>
<td>• Adequate resolution powers (including to break up SIFIs during resolution)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Going-concern bail-in of creditors</td>
<td>• Power to break up SIFIs in normal times</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Intensive, proactive, discretionary supervision (Pillar 2)</td>
<td>• Cross-border resolution frameworks</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Burden-sharing arrangements</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Subsidarization</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Intensive, proactive, discretionary supervision (Pillar 2)</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 3.2. IMPACT OF NEW BASEL RULES ON BANKS’ CAPITAL ADEQUACY: METHODOLOGICAL APPENDIX

Scope and Limitations of the Analysis

The scope of the analysis is to explore the overall impact of the new BCBS capital standards for a representative group of LCFIs. The analysis is based on an array of assumptions that seek to address the lack of sufficiently detailed publicly available data on the various components of banks’ capital bases, and attempts to be as realistic as possible, basing most of the assumptions on market evidence and taking into consideration regulatory specificities. However, given the lack of access to granular country-specific data on a consistent basis, a standard set of assumptions common to all banks is used where needed. Because the exercise focuses only on a limited number of banks for each country, the results should not be taken as representative of a country’s banking system.

Furthermore, due to a lack of publicly available data, the analysis does not take into consideration the full array of the new elements introduced by the BCBS regulatory standards. Notably, defined pension assets and other minor items could not be deducted from capital, given the lack of sufficient data. Likewise, the increase in risk-weighted assets from future counterparty credit risk requirements could not be simulated.

Methodology

The analysis covers a sample of 62 banks, with appropriate representation by business model and by geography. As of year-end 2009, these banks held more than $2,400 billion in total risk-weighted assets, and more than $2.6 billion in Tier 1 equity. Banks have been clustered as follows:

• By geography: 15 Asian banks, 33 European banks, and 14 North American banks. Mapping has been based on banking groups’ country of residency: Asia (Australia, China, India, Japan, and Korea); Europe (Austria, Belgium, France, Germany, Greece, Italy, Nordics [Sweden, Denmark, Norway], Portugal, Spain, Switzerland, United Kingdom); and North America (United States and Canada).

• By business model: 34 commercial banks, 19 universal banks, and 9 investment banks. Mapping has been based on banking groups’ principal activity (for commercial banks: lending activity; for universal banks: an array of lending, insurance, and other services; for investment banks: trading activity/advisory/asset management services) (see Figure 3.10, which confirms such categorization).

For each bank, a “Basel III Core Ratio” is estimated following the proposed new BCBS rules on capital deductions and on market risk framework (BCBS, 2009c, 2009d). As a starting point, as a best approximation to the BCBS’ concept
of “Common Equity Capital Ratio,” banks’ published “Core Tier 1 Ratio” was taken (Box 3.2).

As far as market risk-weighted assets are concerned, the analysis follows the BCBS indication that “market risk capital requirements will increase by an estimated average of three to four times for large internationally active banks,” and increases them by three times, bank by bank.

As far as capital deductions are concerned, the new BCBS rules are applied by deducting, from each bank’s core Tier 1 ratio (data as of end-2009\textsuperscript{24}), the following items: minority interests, net deferred tax assets, investments in unconsolidated subsidiaries (including the insurance business), mortgage servicing assets (for U.S. banks), and residual intangibles. We try to take into account the cases where such items are already deducted from capital based on common regulatory practices—whether from Tier 1 capital or from a combination of Tier 2 and Tier 1 capital.\textsuperscript{25} Also, partial recognition is allowed into core capital of certain items,

\textsuperscript{24}End-March 2010 in the case of Japanese banks.

\textsuperscript{25}Current regulatory rules for deductions may vary on a country-by-country basis. We assumed them to be normalized based on the common practices.

©International Monetary Fund. Not for Redistribution
in line with the BCBS amendments published July 2010 (see Box 3.3). The phase-in timetable announced by BCBS in September 2010 has been used to compute the new ratios (Table 3.6).

For each year of the phase-in period, the expected retained earnings are included in each bank’s core capital ratio. To this end, given the average of what banks earned in the four years prior to the crisis (2004–07), different percentages have been used in terms of earnings performance (e.g., if banks earn on average 30 percent of what they earned in the 2004–07 period). Earnings retention is assumed to be at 60 percent of net income.

**Definition of Items Subject to Change in July 2010 Revisions**

Under the new Basel requirements, the definition of capital will contain only a limited number of certain intangibles and qualified assets. The assets and the corresponding equity components with a low absorption capacity include goodwill (representing the amount a bank has paid or would pay over book value to acquire another bank); minority interests (representing partial ownership of a part of the banking group by outside parties); investments in unconsolidated subsidiaries (including other financial institutions); the value of deferred tax assets (DTAs) arising from time differences or loss carry-forwards; mortgage servicing rights (MSRs, representing income related to servicing mortgages that banks have originated and sold to third parties); and other intangible assets. The following items are subject to partial recognition:

**Minority Interests**—The book value of third-party shareholdings in consolidated subsidiaries within a group. As specified in the July 2010 announcement, banks are required to deduct the subsidiary’s capital that is in excess of the required minimum, taking into account the respective minority shares of each subsidiary.

**Deferred Tax Assets (DTAs)**—DTAs represent the difference between current tax charges or credits recognized by tax authorities and total taxes recorded in financial statements.
Impact of Regulatory Reforms on Large and Complex Financial Institutions

DTAs usually relate only to timing differences between financial reporting and tax recognition of specific assets or liabilities, often related to unrealized gains and losses that may not crystallize in a stress scenario. DTAs can also relate to annual losses carried forward to offset against future taxable income of the bank or its subsidiaries to reduce the tax charge. DTAs relating to losses carried forward are dependent on the bank or its subsidiaries making future annual profits, so may not be available to absorb losses in stressed conditions. Under the July 2010 proposals, banks could recognize up to 10 percent of DTAs arising from timing differences as core capital (also capped at 15 percent for the aggregate of DTAs, MSRs, and significant investments in common shares of unconsolidated financial institutions). The deductions are limited only to tax losses that are carried forward, while excluding DTAs that arise from timing differences up to a limit.

Mortgage servicing rights (MSRs)—MSRs refer to income related to the servicing of mortgages that banks have originated and sold to third parties. Historically, MSRs tended to make relatively good quality capital given that MSRs’ value is tightly linked to the present value of the expected net future cash flows of servicing assets, and that there is an active market for trading MSRs. However, high concentrations of MSRs in the capital base of some banks prompted their deduction from core capital. Under the July 2010 amendment, banks could recognize up to 10 percent of MSRs, capped at 15 percent for the aggregate of DTAs, MSRs, and significant investments in common shares of unconsolidated financial institutions.

Significant investments in common shares of unconsolidated financial institutions—Such investments, similar to the MSRs, are also subject to deduction, aimed at limiting a group from having both a bank and an insurance company under one corporate roof. Such ownerships have been motivated by assumed capital benefits of banks’ owning insurers based on presumed risk diversification benefits, whereas the crisis has shown that risks to which banks and insurers are exposed were highly correlated. Under the July specifications, in line with treatment for MSRs, banks can also count up to 10 percent of significant investments in common shares of unconsolidated financial institutions.

### TABLE 3.6

<table>
<thead>
<tr>
<th>Year</th>
<th>Leverage Ratio</th>
<th>Minimum Common Equity Cap Ratio</th>
<th>Capital Conservation Buffer</th>
<th>Minimum Common Equity Cap Ratio + Capital Conservation Buffer</th>
<th>Phase-In Deductions from CET1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>Supervisory Monitoring</td>
<td>3.50</td>
<td>3.50</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>Parallel Run (Jan 1, 2013–Jan 1, 2017)</td>
<td>4.00</td>
<td>4.00</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>Disclosure starts Jan 1, 2015</td>
<td>4.50</td>
<td>4.50</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td>4.50</td>
<td>0.625</td>
<td>5.125</td>
<td>60</td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td>4.50</td>
<td>1.25</td>
<td>5.75</td>
<td>80</td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td>4.50</td>
<td>1.875</td>
<td>6.375</td>
<td>100</td>
</tr>
<tr>
<td>2019</td>
<td>Migration to Pillar 1</td>
<td>4.50</td>
<td>2.50</td>
<td>7.00</td>
<td>100</td>
</tr>
</tbody>
</table>

APPENDIX 3.3. ASSESSING THE IMPACT OF NSFR

The net stable funding ratio (NSFR) is a ratio of available to required stable funding. The available stable funding (ASF) is a weighted sum of funding sources according to their stability features. Similarly, the required stable funding (RSF) is a weighted sum of uses of funding sources according to their liquidity. To calculate the required amount of stable funding, specific RSF factors would be applied to the assets and off-balance-sheet activity (or potential liquidity exposure). The RSF factor represents the proportion of the exposure that should be backed by stable funding: the more liquid the asset, the lower the RSF factor. The table below provides a summary of definitions and coefficients defined by the Basel proposal and those used in calculating the NSFR.

<table>
<thead>
<tr>
<th>Basel Proposal</th>
<th>Available Stable Funding</th>
<th>Required Stable Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>December 2009</td>
<td>July 2010</td>
</tr>
<tr>
<td>Tier I</td>
<td>100%</td>
<td>Equity</td>
</tr>
<tr>
<td>Tier II</td>
<td>100%</td>
<td>Subordinated debt and hybrid capital</td>
</tr>
<tr>
<td>Stable deposits of retail and small business customers (residual maturity &lt;1 year)</td>
<td>85%</td>
<td>90%</td>
</tr>
<tr>
<td>Less stable deposits of retail and small business customers (residual maturity &lt;1 year)</td>
<td>70%</td>
<td>80%</td>
</tr>
<tr>
<td>Wholesale funding by non-financials (residual maturity &lt;1 year)</td>
<td>50%</td>
<td>Bank deposits</td>
</tr>
<tr>
<td>Other preferred shares, capital instruments in excess of Tier II and other liabilities with maturity &gt;1 year</td>
<td>100%</td>
<td>Saving deposits</td>
</tr>
<tr>
<td>All other liabilities and equity not included above</td>
<td>0%</td>
<td>Residual funding</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required Stable Funding</th>
<th>Required Factor</th>
<th>Required Stable Funding</th>
<th>Required Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Securities and non-renewable loans to financials with remaining maturity &lt;1 year; short-term actively traded instruments</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt issued or guaranteed by sovereign and IFIs</td>
<td>5%</td>
<td>Government securities</td>
<td>5%</td>
</tr>
<tr>
<td>Unencumbered nonfinancial senior unsecured corporate bonds rated at least AA, maturity ≥1 year</td>
<td>20%</td>
<td>Investment securities</td>
<td>20%</td>
</tr>
</tbody>
</table>

(continued)
### Impact of Regulatory Reforms on Large and Complex Financial Institutions

#### Basel Proposal

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unencumbered listed equity securities or nonfinancial senior unsecured corporate bonds rated at least A−, maturity ≥ 1 year; loans to nonfinancial corporate clients, maturity &lt; 1 year; gold</td>
<td>50%</td>
<td>Equity investment</td>
<td>50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail loans, maturity &lt; 1 year</td>
<td>85%</td>
<td>Customer loans, maturity &lt; 1 year</td>
<td>85%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortgages</td>
<td>100%</td>
<td>65%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All other assets</td>
<td>100%</td>
<td>Customer loans, maturity &gt; 1 year</td>
<td>100%</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Residual assets</td>
<td>80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Off-balance-sheet exposures</td>
<td>10%</td>
<td>Contingent liabilities</td>
<td>10%</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Basel Committee on Banking Supervision, 2009b, 2010c; and IMF staff assumptions.
APPENDIX 3.4. INDUSTRY VIEWS ON REGULATORY REFORMS

<table>
<thead>
<tr>
<th>Basel Measures</th>
<th>Business Model Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Definition</td>
<td>• In general, tighter capital definition is expected to lead to a scaling down or shift out of the activities that are more capital intensive (hence expensive),</td>
</tr>
<tr>
<td></td>
<td>• Deduction of minority interests: could reduce involvement of foreign global banks in emerging markets.</td>
</tr>
<tr>
<td></td>
<td>• Deduction of investment in insurance subsidiaries: would affect the integrated bancassurance model and could induce banks to separate their insurance business from the banking group, possibly reducing synergies.</td>
</tr>
<tr>
<td></td>
<td>• Deduction of participations in other financial institutions: may discourage holding stakes in other financial institutions, market making, and underwriting.</td>
</tr>
<tr>
<td></td>
<td>• Deduction of mortgage servicing rights: may affect mortgage lenders, raise mortgage rates, and discourage securitization.</td>
</tr>
<tr>
<td></td>
<td>• Deduction of pension liabilities: would penalize banks with large pension liabilities.</td>
</tr>
<tr>
<td></td>
<td>• Higher capital needs resulting from tighter regulations: could induce banks to pass on the cost to customers (raising lending/product rates), and reduce balance sheet size (including through cut back in lending). Banks attempt to shift focus from highly capital-intensive activities toward less capital-intensive business that is attractive from risk-return point of view.</td>
</tr>
<tr>
<td>Leverage Ratio</td>
<td>• If leverage ratio is binding, it may cause further deleveraging and lead to further cuts in lending as banks shrink their balance sheet size.</td>
</tr>
<tr>
<td></td>
<td>• May encourage banks to shift to more risky activities to compensate for lower profitability from shrinking asset size, given the lack of risk sensitivity of the measure. Banks may also only keep high quality assets and very risky assets to boost returns, and nothing in between.</td>
</tr>
<tr>
<td>Liquidity Coverage Ratio (LCR)</td>
<td>• May induce banks to reduce lending so as to hold more liquid assets eligible for LCR (mainly government securities).</td>
</tr>
<tr>
<td></td>
<td>• Like capital, would push banks to hold more liquid assets whose returns are lower and affect profitability.</td>
</tr>
<tr>
<td></td>
<td>• May lead to greater tendency toward decentralized operations in local jurisdictions that trap pools of liquidity and limit global banks’ ability to move excess liquidity across borders within a banking group—switch from more integrated centralized business models toward decentralized stand-alone banking models.</td>
</tr>
<tr>
<td>Net Stable Funding Ratio (NSFR)</td>
<td>• Limit banks’ ability to do maturity transformation—a core function of banks—hence a major shift in their business models, with corporate sector or other nonbank actors doing maturity transformation outside the banking system.</td>
</tr>
<tr>
<td></td>
<td>• May hurt retail banking, reducing capacity to lend to the private sector (for households and firms) to meet the longer-term funding requirements.</td>
</tr>
<tr>
<td></td>
<td>• Increased competition for customer deposits may reduce the stability of deposits as depositors could be tempted to “shop around” to get the best rates.</td>
</tr>
<tr>
<td>Counterparty risk regulations</td>
<td>• Reduce banks’ interactions with each other and market-making.</td>
</tr>
<tr>
<td></td>
<td>• If not calibrated appropriately, may adversely affect derivative business and hedging.</td>
</tr>
<tr>
<td>Higher risk weights for trading and for securitized products (July 2009)</td>
<td>• Reduce business in certain trading activities with complex structures toward more traditional banking activities.</td>
</tr>
<tr>
<td></td>
<td>• Potential reduction in ability of large trading firms to facilitate deep, liquid markets and provide hedging tools.</td>
</tr>
<tr>
<td></td>
<td>• Possible delay in rehabilitation of securitization markets.</td>
</tr>
</tbody>
</table>

(continued)
### TABLE 3.7
The Potential Impact of Regulatory Initiatives on Business Models: Industry Views (continued)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Business Model Impact</th>
</tr>
</thead>
</table>
| Measures on the size and scope of bank activities (Volcker Rule of the Dodd-Frank Act) | - Impact banks that have large trading (and proprietary trading) activities, and sponsorship/investment in hedge and equity funds.  
- Risk of shifting trading activity to unregulated nonbanks.  
- Shrink banks’ proprietary trading books and their stakes in hedge funds and private equity.  
- Derivatives business would become more costly for banks (if it results in banks having to “spin off” clients’ OTC books to a sub, and keep a book for their own OTC trades, this would create firewalls between the two books, raising collateral costs sizably).  
- May introduce implementation hurdles (intragroup transfers, unwinding of existing contracts, capitalization of subs), though in its final form existing swaps are grandfathered over a two-year phase-in period.  
- Would hinder hedging/risk management activities by banks and their customers. |
| Derivatives spin off to separately capitalized subsidiaries (Lincoln Amendment of Dodd-Frank Act) | - Affect the business models of investment and global banks with the largest share in derivatives business (including on European banks operating under a BHC structure in the United States); while the final bill is less onerous than initially, it may drive the activity into less regulated nonbank institutions or foreign peers (level playing field concerns with respect to foreign peers and nonbank financial institutions).  
- U.S. LCFIs would become less competitive vis-à-vis European banks because the latter will continue to have the economies of scale (i.e., OTC netting with other parts of their franchise) and continue with under-collateralization in OTC products.  
- Derivatives business would become more costly for banks (if it results in banks having to “spin off” clients’ OTC books to a sub, and keep a book for their own OTC trades, this would create firewalls between the two books, raising collateral costs sizably).  
- May introduce implementation hurdles (intragroup transfers, unwinding of existing contracts, capitalization of subs), though in its final form existing swaps are grandfathered over a two-year phase-in period. |
| OTC derivatives to CCPs | - Impact investment and global banks with the largest share in derivatives business.  
- High capital impact for collateral (initial and variation margin) and higher charges for nonstandard derivatives contracts would increase the cost of derivatives business, potentially causing banks to shrink such business and nonbank institutions to pick it up.  
- May create competitiveness considerations in the derivatives market. |
| Systemic charge | - Possible for the market to interpret it as an indicator of TBTF and reinforce implicit state support.  
- May discourage business models that seek to take advantage of efficiencies of scale or scope. |
| Levy on noncore funding based on contribution to systemic risk | - Discourage noncore funding models and create disincentives for being a SIFI.  
- International consistency and level playing field considerations (may be important when there is no coordination among national regulators).  
- Risk of double taxation in different jurisdictions (when there is no coordination).  
- Could result in efficiency losses associated with economies of scale. |
| Living wills | - May ease winding down by creating simple bank structures but risk losing diversification benefits. |
The Potential Impact of Regulatory Initiatives on Business Models: Industry Views (continued)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Business Model Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand-alone subsidiarization</td>
<td>• Implications for global banking group structure and universal model and the single passport regime in Europe.</td>
</tr>
<tr>
<td></td>
<td>• Would reduce ability to manage risk with liquidity/capital trapped locally—a significant change for global integrated centralized business model.</td>
</tr>
<tr>
<td></td>
<td>• Constraints on the ability to move capital and liquidity limit ability to serve large customers, affecting the business models of large global banks.</td>
</tr>
<tr>
<td></td>
<td>• Greater cost for global banks with substantial operations in regions with structurally higher wholesale funding requirements; if a greater proportion of capital has to be raised at the local subsidiary level, overall funding costs are likely to be higher as investors assume more risk.</td>
</tr>
</tbody>
</table>

Source: Discussions with key representatives of U.S. and European LCFIs, rating agencies, and analysts' reports.

©International Monetary Fund. Not for Redistribution
The Perimeter of Financial Regulation

**INTRODUCTION AND OVERVIEW**

In a November 15, 2008, communiqué, the G-20 called for a review of the scope of financial regulation with “a special emphasis on institutions, instruments and markets that are currently unregulated, along with ensuring that all systemically important institutions are appropriately regulated.” That call reflected a concern that the coverage of prudential regulation has been too narrow. Prudential regulation typically aims at minimizing the risk of failure by institutions (and settlement systems) that are viewed as critical to maintaining stability. Instruments of prudential regulation typically include minimum capital and liquidity requirements, supervisory inspection, mechanisms to require early intervention by regulators, deposit insurance, and similar safety nets, as well as special insolvency and resolution mechanisms.

The scale of relevant activities outside the regulatory perimeter depends on the definition of regulation. For the United States, it has been estimated that the total assets of the “shadow banking system”—that is, bank-like entities not subject to bank-like prudential regulation—were roughly $10 trillion in late 2007, about the same size as the banking system. However, it is important to recognize that this total includes the assets of entities such as investment banks, which were subject to a degree of regulation although it was often focused on assuring investor protection and appropriate business conduct.

Previously, explicit public policy considerations had been applied to argue for limiting the scope of prudential regulation. It was argued that:

- market discipline and self-regulation would provide an effective brake on risk taking by lightly regulated and unregulated institutions;
- only certain types of institutions could create systemic risk—in particular, banks should be seen as core because of their deposit-taking function and role in payment systems;

---

1 An earlier version of this chapter was also issued as an IMF Staff Position Note (SPN/09/07) on March 26, 2009.
regulation of the banks would provide an adequate instrument for ensuring that lending outside the core would capture systemic risks; and

• applying regulation to a wider range of nonbanks (and new financial instruments) would be too costly, reduce innovation, and potentially increase systemic vulnerabilities by inhibiting the ability of markets to transfer risk.

A discussion of extending the regulatory perimeter should therefore carefully weigh the experience of the past two years against those considerations. It will also be important to understand whether the assumptions underlying the existing regulatory model for banks are fatally flawed, or whether better regulation and supervision of the banks would be adequate. In addition, if a widening of the perimeter is called for, then care will be needed to weigh the compliance and economic efficiency costs as well as the risk that new regulation may create fresh arbitrage opportunities and add to moral hazard.

The experience of the crisis suggests that the prevailing pre-2008 policy considerations were flawed in important respects:

• Market discipline was apparently ineffective in constraining risk taking outside the banking sector. Some unregulated companies and vehicles, for example, were able to assume both credit risks and significant liquidity risks, funding poor-quality, long-term securities by short-term borrowings with high degrees of leverage. In these cases, market expectations of support from sponsoring banks might have played a role in limiting the effectiveness of market discipline.

• The failure of some nonbanks had systemic repercussions by disrupting key financial markets and contributing to a widespread loss of confidence—for example, the failure of Lehman Brothers and the insolvency event early in the crisis of two Bear Stearns managed hedge funds that were excessively exposed to the U.S. housing market.

• Regulation failed to take account of the systemic risks that can emerge from the interaction between regulated and unregulated institutions, activities, and markets. For example, bank regulation did not reflect risks from off-balance-sheet vehicles, monoline insurance companies, or loan originators with weak underwriting standards.

• The limited scope of regulation, combined with ineffective market discipline, appears to have helped foster innovation—for example, in the securitization process—but at a high cost when the risks on poorly understood products became apparent.

Steps are being taken to strengthen regulation of institutions already within the perimeter, including the following.

• Clearer and more stringent rules on consolidation, coupled with more effective supervision of the activities, entities, and risks of groups, will bring a wider range of risks within bank regulation, particularly bank-sponsored off-balance-sheet activities.

• Ensuring that there is an effective framework for both solo and consolidated prudential supervision of regulated securities and insurance companies,
given the systemic repercussions that have been experienced from failures in these sectors.

• It may be possible to further strengthen the oversight of counterparty risk management in regulated institutions, so as to contain their exposure to unregulated companies and, indirectly, those companies' leverage and risk—an approach that was taken to risks in hedge funds after the Long-Term Capital Management (LTCM) problems of 1998.

However, the crisis suggests that those steps will be insufficient and that an extension to the perimeter is required. In this regard, there should be several considerations:

• The key objective should be to ensure that all financial activities that may pose systemic risks are appropriately overseen. The definition of "systemic significance" should be broadened to ensure that it addresses the scope for failure to cause disruption to key financial markets and loss of confidence, as well as interconnectedness and size, and that it takes account of leverage and funding mismatches.

• All institutions that fall into a broad expanded perimeter should be subject to disclosure obligations to allow the authorities to determine potential systemic risk. Institutions recognized as of systemic importance, based on agreed and disclosed parameters, would be subject to higher levels of prudential oversight. Since this group would consist of nonbanks as well as banks, the authorities would need to decide whether access to liquidity facilities should remain limited to banks. Should access be expanded, haircuts and pricing of liquidity facilities would be crucial in minimizing moral hazard.

• Prudential requirements themselves should differ based on the type of institution or activity, but should allow for rapid corrective action in order to contain an unacceptable buildup in systemic risk. They should use incentives for behavior to be consistent with systemic stability. Capital charges can be used, for example, to favor safer exchange trading environments or use of robust clearing systems.

Extensions to the regulation of products and markets should be considered within a similar framework for the regulation of institutions. The next section of this chapter discusses the lessons learned from the crisis as to why policymakers should reconsider the perimeter of regulation. The third and fourth sections describe the objectives and content of expanded regulation, and extensions of the regulation of institutions to the regulation of products and markets. This is followed by a discussion of the need for a new objective for regulators.

**WHY RECONSIDER THE PERIMETER OF REGULATION? CRISIS LESSONS**

The crisis has shown how significant credit risks, often highly concentrated, have accumulated in unregulated entities. These risks then generated and
amplified losses and liquidity pressures in the regulated sector through off-balance-sheet vehicles, unregulated entities within financial groups, leveraged funds, and other unregulated intermediaries. The process of risk transfer from the regulated to the unregulated entities provided the regulated sector with the means to enhance its leverage but failed to insulate the regulated entities from credit losses.2

Regulators had limited appreciation of the risks and limited powers to contain them. In most cases, regulators were aware of the risks beyond the regulatory perimeter and had taken some steps to address them, for example through consolidated supervision of relevant groups, steps toward oversight of fund managers (e.g., for hedge funds), or by supporting self-regulatory approaches (e.g., codes of conduct for private equity). However, the scale of the risks, their contribution to systemic stress, the extent to which they were driven by regulatory arbitrage, and the predominance of short-term, profit-maximizing objectives were not fully appreciated. Since the current regulatory framework hinges on self-regulation to provide oversight to the unregulated sector, regulators had limited powers to constrain the buildup of such risks.3

Regulatory arbitrage was a key driver of the proliferation of securitization and derivatives within the regulated sector. In particular, within risk-based capital frameworks, some risks were addressed inconsistently across business lines or markets. A lighter touch was adopted for certain activities and institutions, reflecting an emphasis on market discipline to limit excessive risk-taking behavior (e.g., assets held in the trading book, treatment of credit insurance, and off-balance-sheet exposures).

Some important risks to regulated firms, such as business strategy risks, were recognized by regulators but not formally captured by regulatory requirements. For example, regulation did not address the risk that market liquidity might not support all the asset sales following loan originations or the sales of assets held for hedging purposes. The risks from certain remuneration practices were also underestimated—remuneration schemes favored business strategies that created high rewards in good or normal times, while exposing institutions to large tail risks that ultimately threatened their viability.

Innovation in financial products contributed to informational asymmetries. Not only did consumers take out innovative mortgages, but investors, while focusing on short-term performance benchmarks, bought new complex securities. Since current product regulation focuses on retail investor protection (restricting access to certain products and setting market conduct standards), regulators’ powers and capacity to address the lack of risk awareness outside the retail

---

2Brunnermeier and others (2009) offer a lucid discussion, noting that any regulatory regime that is effective will tend to create incentives for arbitrage. This, in turn, necessitates a continued review and policing of the regulatory boundary.

3For example, although regulators were concerned about the leverage in certain vehicles, they had no power to require higher capital for the company-issued structured securities marketed to the general public.
segment was limited. In addition, rating agencies, which perform a central role in reducing informational asymmetries for the unregulated sector, failed to deliver independent evaluations of the risk characteristics of securities.

As mentioned earlier, four key lessons were learned from the crisis. One, market discipline was ineffective in constraining risk taking outside the banking sector. Two, the failure of some nonbanks had systemic repercussions by disrupting key financial markets and contributing to a widespread loss of confidence. Three, regulation failed to take account of the risks that can emerge from the interaction between regulated and unregulated institutions, activities, and markets. Four, the limited scope of regulation, combined with ineffective market discipline, appears to have fostered innovation, for example, in securitization, but at a high cost when the risks on poorly understood products became apparent.

Although an extension of regulation is necessary to reduce the likelihood of future crises, this needs also to take account of potential costs. Extending the perimeter is not costless and may create its own risks. There are compliance costs and opportunity costs related to business lost because of regulatory constraints. There are costs to the economy in terms of output losses. New regulation may also create fresh opportunities for arbitrage and add to moral hazard, particularly when seen as extending the scope of public safety nets.

Any extension of regulation therefore must be supported by a clear articulation of its objectives. New regulation needs to be implemented through requirements and tools that are proportionate to its objectives. For example, it is important that the regulatory framework for banks not be simply extended to particular types of nonbanks without careful consideration of its relevance. Regulation also needs to be supplemented by close monitoring of the potential arbitrage opportunities it creates. There needs to be clarity regarding the limits of the safety net, which need not coincide with the perimeter of regulation. And finally, the costs of any extension to regulation should demonstrably be outweighed by the benefits.

EXPANDING THE SCOPE OF REGULATION OF INSTITUTIONS

Objectives of Regulation

The key objective should be to ensure that all financial activities that may pose systemic risks are appropriately overseen. The definition of systemic significance should be broadened to ensure that it addresses the scope for failure to cause disruption to key financial markets and loss of confidence as well as interconnectedness and size, and should take account of leverage and funding mismatches. Specifically, entities engaged in financial activities on a leveraged basis should be regulated regardless of the legal status of the institution—to capture all entities

---

4It was not only structured products that were poorly understood. There was also a failure to understand how some relatively simple products would perform under stressed conditions (auction-rate securities, for example).
that contribute to systemic risk on a significant scale (but there would need to be some de minimis exemption). In particular:

- Most Special Purpose Vehicles, Structured Investment Vehicles, leasing, and nonbank mortgage and finance companies would be captured.
- Entities taking the legal form of a fund as well as companies would be covered, so the approach would capture some entities that are already regulated (for a very different purpose) as collective investment schemes.
- Some of the leveraged vehicles used by private equity for buyouts and other investments could also be captured.

Adopting this approach would translate into an extension of current regulatory oversight to some hedge funds. This is an option that was discussed extensively in the aftermath of the LTCM failure in 1998. At the time, the notion prevailed that prime brokers would be exercising control in hedge fund leverage via their counterparty risk management, while regulators would concentrate on close supervision of the prime brokers. However, this approach appears not to have limited risk taking by the funds, as it allowed many to accumulate significant leverage. Although no incident similar to the LTCM failure has occurred so far, the deleveraging taking place through hedge funds is amplifying downward spirals on asset prices and mark-to-market valuations, thus imposing a wider fallout from the current crisis. In this respect, controlling leverage in large hedge funds would help contain financial market distress.

This extension of regulation would have three objectives:

- To provide regulators with the widest possible view of the development of regulation in the financial system—and to enable them to set enforceable regulatory requirements that would improve reporting of exposures and, if necessary, constrain the development of leverage (through, for example, capital requirements or other measures).
- To enable regulators to better monitor and respond to risks in the currently regulated sector. Regulators need to be better placed to measure and monitor both sides of the risk transfer process—reducing the chances that new types of entities (such as Special Purpose Vehicles and Structured Investment Vehicles) would again develop unnoticed by regulators of the sponsoring bank or insurance company.

---

5 The precrisis debate on this issue is well summarized by Jean-Pierre Roth, Swiss National Bank chairman (Roth, 2007).
6 While not generating a systemic crisis on its own, the trigger for the current crisis was the insolvency event of two Bear Stearns hedge funds greatly exposed to the U.S. housing market. The event undermined investor confidence in a number of similar funds in the summer of 2007, triggering widespread asset sales. The cost to Bear Stearns of supporting and, ultimately, liquidating the funds was over $2.7 billion, an amount comparable to the LTCM bailout that, ultimately, weakened Bear Stearns’s liquidity positions and balance sheet.
To give regulators early warning of the development of potentially large and systemically important entities—so that they can ensure these are subject to appropriate regulatory requirements (see below).\(^7\)

The exact definition of the extended perimeter needs careful consideration. In principle, all institutions that individually or collectively can contribute to systemic risk may need to be caught. One option is to extend coverage to all institutions that provide financial services on a significant scale. Another is to recognize that leveraged financial institutions are most likely to contribute to systemic risk, because leveraged institutions are more likely both to contribute to aggregate deleveraging processes and individually to fail in a disorderly way.

Whatever the extended perimeter for prudential regulation, all financial institutions need to continue to be subject to appropriate conduct-of-business regulation. It is important that all institutions that have a significant role in financial markets—including unleveraged funds and brokers as well as rating agencies—be subject to conduct-of-business regulation, so as to protect investors and to ensure the fair and efficient functioning of markets (see further below). Moreover, providers of clearing and settlement infrastructure need to continue to be subject to appropriate oversight.

**Content of the New Prudential Regulation**

It will be important to develop an approach to the regulation of funds and financial companies that reflects the objectives of bringing them into regulation. One approach would be to apply the same or similar requirements as those applying to banks. This would respond well to some of the recent problems particularly affecting Special Investment Vehicles, where the mismatch between short-term funding and long-term assets was clearly akin to the maturity transformation performed by banks and exposed them to severe liquidity pressures. However, the funds and companies coming within the widened scope also differ significantly from banks. They do not take deposits. They have different liability structures (especially funds), which can reduce the liquidity risks to which they are subject. They are not involved in payment systems and are otherwise not core to the wider economy in the same way as banks.

Most importantly, the objectives of the extended regulation overlap with, but also differ from, those applying to banking regulation. The emphasis would be more on enabling authorities to monitor and constrain total leverage in the system rather than (except for the largest firms) to prevent failures or to cushion their impact. The key elements of the regulatory approach would therefore comprise the following:

- Information and disclosure requirements, with as much public reporting (within a consistent framework) as possible, in order to enhance market discipline as well as to enable effective monitoring by regulatory agencies.

\(^7\)The recent report by the de Larosière Group on Financial Supervision in the EU (de Larosière, 2009) recommends a similar approach.
• An approach to leverage that would constrain the degree to which entities could expand their balance sheets and take on risk. In this case, the approach to constraining leverage, if not its calibration, could have regard to any approach that is applied in future to banks, taking into account the distinct liability structure of funds.

• Liquidity requirements to constrain maturity transformation and liquidity risks arising from business models, such as “originate-to-distribute,” that are predicated on the assumption of continued high levels of market liquidity.

• Requirements relating to governance, risk management (including the management of reputation risk), and remuneration schemes.

• Supervisory arrangements. Here a full risk-based approach could apply, with only the larger firms subject to regular supervisory contact and onsite work. The aim of the oversight would be as much to gather intelligence as to monitor compliance.\(^8\)

A tiered approach to the application of these requirements would seem appropriate. It remains to be considered whether the above requirements should apply to all firms brought within the scope of regulation. Collectively, all such entities, regardless of scale, contribute to the total leverage in the financial system. However, a tiered approach that increases the degree and intensity of regulation according to the systemic importance of an entity seems preferable to ensure that regulation does not become unduly burdensome.

• All institutions within the expanded perimeter would be subject to information and disclosure obligations so that authorities can determine what potential the institution and its activities have to contribute to systemic risk.

• Only institutions that are recognized as being of systemic importance, based on broadly agreed and disclosed parameters, would be subject to higher levels of prudential oversight—capital, liquidity, and supervisory arrangements.

The first key element to achieve this would be the extension of the licensing regime to cover all institutions within the extended perimeter.

• Firms could be required to report simple measures of total leverage, as well as their largest exposures, to other leveraged financial institutions. Regulators may also need to be given powers to tighten the regime, if necessary, by setting limits on these measures.

• The establishment of this regime would not be meant to imply the extension of the safety net. Regulators would need to take care to clarify this to firms and market participants.

The second element is a mechanism to identify and apply tighter regulation to systemically important firms. This would be designed to ensure that as and when any particular institution within the broader set becomes systemically

\(^8\)For relevant funds, there would continue to be oversight of the fund manager and service providers (custodians, etc.), where already regulated.
important, it would be brought into a regime of heightened regulation and supervision.

- The mechanism should work dynamically, such that when a business ceases to be systemically important it is released from the enhanced regime and when a firm grows (or changes its business) to become systemic it is brought in.
- The enhanced regime needs to include elements that reduce the likelihood of systemic failure. For example, systemically important firms could be subject to enhanced capital requirements, relative to nonsystemic institutions.
- There also is a need for an early resolution framework: this would seem desirable for all systemically important firms, in order to reduce the impact of failure and to enhance market discipline.

The basis for defining the threshold for the application of the additional requirements should be more than simply size. Although size will be an important consideration, additional criteria should be brought to bear to determine the degree to which an institution’s failure has the potential to disrupt broader financial markets (e.g., interconnectedness and the degree of substitutability of services offered by a particular firm). This means that it may be necessary to treat certain businesses as systemic, even where they are not large. (Monoline insurance companies were an example of such a critical business.) Exchanges, clearing houses, and major settlement systems would continue to be regarded as systemically significant and subject to appropriate oversight.

For the systemically important firms, there is also a need to consider:

- **Access to liquidity facilities.** Since systemically important firms would include nonbanks as well as banks, the authorities would need to decide whether access to liquidity facilities should remain limited to banks. Should access be expanded, the haircuts and pricing of liquidity facilities would be crucial in minimizing moral hazard. If access is denied, expectations to the contrary that would be caused by the extension of regulation would need to be managed firmly, by making this point explicit in amended laws and regulations.
- **Protection for liability holders.** Although existing protections (such as investor compensation schemes) that apply to institutions currently regulated mainly for business conduct purposes would continue to apply, protection for liability holders in the event of failure (akin to deposit insurance in respect to banks) does not seem appropriate, because the objective is systemic risk reduction. Again, this would have to be transparent.

The design of the requirements should incorporate incentives for behavior that are consistent with systemic stability. For example, capital charges may be used to favor safer exchange-trading environments or more robust clearing systems—by taking into account the greater risks arising when trading occurs in markets that lack adequate arrangements for clearing and settlement. This approach would support wider efforts to improve the infrastructure of markets, particularly the extension of clearing arrangements to a wider range of instruments.

Any business falling within the expanded scope of regulation would be required to separate financial from nonfinancial activities. This would ensure that
regulatory requirements could be applied in practice. So, for example, a primarily manufacturing entity that also wanted to engage in proprietary trading using debt finance and/or derivatives, such that it came within the extended perimeter of regulation, would be required to locate financial activities in a separately capitalized company. Similar requirements apply to existing regulated activities.

The organization and governance of regulation of the expanded perimeter would need to be considered. There is no reason for a specialist regulatory authority for institutions to come within the perimeter for the first time, and there are many reasons for that regulation to be undertaken by authorities already responsible for prudential regulation, at least where the entities are not already regulated for other purposes. However, it may be appropriate to develop a new set of regulatory core principles to address the particular issues in businesses that are coming into the scope of prudential regulation for the first time, drawing on core principles from Basel and the International Organization of Securities Commissions (IOSCO) where appropriate. This would also help to ensure consistent implementation across countries—including in offshore centers, where many funds are registered.

**PRODUCT AND MARKET REGULATION**

Extensions to the regulation of products and markets should be considered within a similar framework. For example, regulation could be considered for financial products that may be particularly complex and prone to information asymmetries, especially if the instruments have systemic importance or their users are so dispersed as to fall outside the existing perimeter. Examples of such products are collateralized debt instruments and credit default swaps.

The nature of such regulation should include

- broader disclosure requirements for all types of marketed securities, taking account of administrative and procedural costs to issuers to avoid excessive compliance burdens;9
- supervisory access to information on the structure of more complex securities and the nature of the underlying risks.

Direct product regulation could be considered, but costs are likely to outweigh benefits. It is no longer clear that market participants on their own can be relied on to identify and act on the risks of complex products. However, product regulation generally contributes to increased transaction and compliance costs, particularly for those who promote more than one product at the time. It can restrict innovation, for example, where product standardization is required or there are restrictions on the sale of the assets. The extension of regulatory oversight to the credit-rating process for products should help achieve a better

---

9The expectation should be that even after this proposed extension of product regulation, there should continue to be differentiation in the extent of regulation applying to investors according to their levels of expertise, that is, expert investors should still be subject to less protection than retail investors.

©International Monetary Fund. Not for Redistribution
balance between addressing the informational asymmetries and avoiding intrusive oversight.

Product sales and distribution also need more extensive regulation. Although extending the scope of prudential regulation is the priority, the crisis exposed the impact that informational asymmetries can have on the distribution of mortgages—with adverse impacts, in some cases, on credit quality at the banks. Regulation of sales and distribution varies by country. Gaps should be filled to ensure that business conduct regulation covers the ways in which risk products are sold or transferred, if necessary, bringing within the scope of regulation agents, brokers, advisers, and originators of all types of financial products, including mortgages.

Many over-the-counter (OTC) markets for securities and derivatives have been subject to relatively limited regulation. For certain securities issues, even basic requirements on issuer disclosure have not been applied. Post-trade transparency (i.e., reporting and publication of the details of trades in the market) has been limited, and clearing and settlement arrangements have been wanting for some products, as evidenced by confirmation delays and settlements backlogs. While fears over counterparty risks and risks on underlying instruments have been major causes of the drying up of liquidity in some of the OTC markets, light regulation appears also to have contributed to the problems. Regulatory changes should be considered that would

• extend issuer disclosure requirements to the widest range of securities; 10
• enhance post-trade transparency in OTC markets; and
• reduce counterparty credit risk arising from inadequate clearing and settlement processes.

One way of delivering the regulatory change would be to extend certain of the core IOSCO principles on the promotion of trading transparency (pre- and post-trade), as well as the proper management of large exposures, default risk, and market disruption to OTC markets.

Consideration could also be given to extending market-maker obligations in markets—that is, requiring dealers to quote continuous two-way prices within a certain maximum spread as a way to improve liquidity. It is not clear that such requirements could deal with underlying liquidity problems of the severity experienced recently. There would also be challenges in designing such requirements, especially for markets in relatively less commoditized instruments, in ways that did not create such onerous obligations as to deter most entrants from entering the market. However, it is clearer that where particular products or markets are explicitly marketed on the premise of ready liquidity (e.g., auction-rate securities), sponsors should be subject to regulatory requirements mandating liquidity support.

10There would need to be some de minimis exemption for essentially private offerings (i.e., securities issues offered only to small numbers of expert investors).
IS THERE A NEED FOR A NEW OBJECTIVE FOR REGULATORS?

There may be a need to review responsibilities for systemic risk reduction. A key feature of the current crisis is the extent to which aggregate risks were underestimated. Prudential regulators’ objectives, although they vary by country, already focus on delivering safety and soundness of individual firms, particularly banks, as a means of promoting system-wide stability. In some countries, financial stability or systemic risk reduction is the responsibility of the central bank.

It may be appropriate for regulators to have a specific objective relating to financial stability. This may help ensure that regulators focus not only on the safety and soundness of individual firms, but on the system-wide risks. It could reinforce the powers of regulators to enforce prudential requirements aimed mainly at safeguarding system-wide stability. Where the central bank is not also the primary regulator, further steps would be needed to ensure that its assessment of systemic risk is taken into account appropriately.

CONCLUSION

The adoption of this set of proposals would represent a major increase in the scope of regulation of institutions, products, and markets. The proposals would best be taken forward as part of a broad program of financial sector reform, including the development of a macroprudential framework for assessing and managing system-wide risk. Since the G-20 communiqué of November 2008 raised the prospects of such change, other commentators have made recommendations similar to the changes to the regulatory perimeter proposed here.11

These proposals to extend the regulatory perimeter seek to extend the application of existing regulatory standards, thereby avoiding potential conflict. However, there clearly are implications for existing standards, and the Basel Committee, International Association of Insurance Supervisors (IAIS), and IOSCO would all have an interest. There are also a number of relevant private sector codes of practice—for example, for hedge funds and private equity—and sponsors of these codes would have a particular interest in proposed regulatory perimeter extensions.

Even if new regulation is carefully designed to be proportionate to the risks in each new area, there will clearly be increased costs to the system. There would be an increased regulatory burden, which would also carry risks of unintended consequences. The current crisis has clearly shown that the cost of the alternative is also high.

---

INTRODUCTION

Why were some countries with similar financial systems, operating under the same set of global rules, less affected than others in the recent global financial crisis? Although there may be more than one reason, one that has been offered is simply “better supervision.” In some of the crisis-affected countries supervision has not proved to be as effective as it should have been—hence, looking ahead what is needed is not just better regulation, but also better supervision. Supervision is not only about the tasks of implementation, monitoring, and enforcement of the regulations. No less crucially, it is about the tasks of figuring out whether an institution’s risk management controls are adequate and whether the institution’s culture and appetite for risk significantly increase the likelihood of solvency and liquidity problems.

What then constitutes better supervision, and how can countries identify and provide the right set of incentives and the institutional and operational framework to enable “better supervision”? This is a difficult question to answer. The international response to the crisis has focused on the need for more and better regulations in areas such as capital, liquidity, provisioning, accounting, and compensation (G-20, 2009a). Although these changes are necessary, they also must be accompanied by better oversight of the financial sector, because expanding the rule book will not be sufficient in itself to solve the problem. Unfortunately, what has been less prominent so far in the global response is an examination of the role of the other established pillars of oversight: supervision, governance, and market discipline. An institution can never have enough capital or liquidity if there are material flaws in its risk management practices. As the rule book becomes more detailed and complex, the supervisory approaches and skills required to implement the rules will become more challenging. (Box 5.1 discusses what makes financial sector supervision different from supervision in other industries.)

1The authors are grateful to senior staff in several national supervisory agencies for sharing their insights and for providing comments and suggestions on this chapter. They also thank Ceyla Pazarbasioglu, Michael Moore, and other IMF colleagues for their helpful comments and Moses Kitonga for data support. This chapter was also issued as an IMF Staff Position Note, SPN/10/08 (May 18).
What Makes Financial Sector Supervision Different?

Supervision is not unique to the financial industry. What makes it different is the nature of the relationship between supervisors and industry, particularly in the context of prudential supervision. There is near-continuous involvement of supervisors in the birth, life, and death of the institutions they supervise. They license them; make sure that the people who own and run them are up to the task; lay out the rules that they must follow; guide them on how they should manage and disclose risks in their activities; continuously monitor their actions; impose penalties for bad behavior; and then take a leading role in the resolution of these institutions when they fail—be it finding new owners or leading creditors through bankruptcy. In other industries, these functions are divided across a host of agencies. Moreover, supervisors’ successes are unknown and unheralded, while their failures are dramatic and headline-grabbing, and, as we have seen, may have serious consequences for the global economy. The varied expectations that this range of roles places on supervisors makes supervision an extremely challenging and often underappreciated task.

As the financial system has evolved, so has the regulatory and supervisory framework. In its earlier forms, the supervisory approach was more “compliance based” or “enforcement based,” with the main supervisory task being to ensure that all the rules laid out for safety and soundness (or conduct of business) were adhered to. There are risks in taking a mainly compliance-based approach, particularly where associated with relatively detailed rules-based regimes. It can lead to excessive focus on more easily observed noncompliance—such as breaches of capital adequacy requirements and demonstrable cases of customer mistreatment—and to insufficient understanding of key business drivers and flaws in risk management practices. It tends to be backward looking and can fail to identify the major risks that institutions are facing in the future. It can deal poorly with innovation. Equally, an element of compliance monitoring and use of enforcement powers is necessary in any system to ensure that essential minimum standards are met and that the overall regulatory and supervisory regime has credibility.

The compliance approach worked well so long as the banking business was straightforward deposit-taking and loan-making and the key risk was credit risk. Supervisors focused on examining the loan book and ensuring that banks held sufficient capital and provisions for credit risk losses. After the waves of deregulation and the technology revolution of the 1970s and 1980s, financial institutions, and their activities and products, underwent a profound change. In banks, there was a veritable explosion of off-balance-sheet items triggered by forays into more complex financial products, such as derivatives and securitizations. The boundaries between banks, securities firms, investment banks, and insurance companies blurred and their products began to straddle the different market segments. Bank books took on market risks arising from their trading activities, including positions in equity, debt, commodities, and foreign exchange. The changing scenario led to a shift in approach by many supervisors, referred to as risk-based or risk-focused, where supervisors focused their limited supervisory resources on major risks. Risk-based supervisory approaches vary, as do the methodologies for measuring risk for these purposes. They comprise a combination of rigorous risk assessment and a careful management of resources to ensure that they are in practice allocated as far as possible to the major risks. To be effective, risk-based approaches need to ensure that resources are committed not simply to the highest risks but to those that the supervisor has the best chance of mitigating.
This chapter focuses on lessons that can be drawn from failures in supervision in this crisis that may help prevent future crises, and it discusses how the function of supervision needs to adapt to the new regulatory framework. It confirms that much of the international consensus on the elements of supervision does work well, and then discusses how this consensus failed to deliver in the lead-up to the crisis in some circumstances. Examining this failure, we can then draw out some additional elements of good supervision and identify what more may need to be done to ensure that supervisors have the will and ability to act in all situations. To be effective, supervision needs to be intrusive, adaptive, skeptical, proactive, comprehensive, and conclusive. For this to happen, the policy and institutional environment must support both the supervisory will and the ability to act.

Although our discussion is mainly focused on microprudential supervision, the issues presented are relevant to macroprudential supervision (the operational framework, which is still evolving) as well as to market conduct supervision.

2The crisis has shown that the financial supervisory framework should be reinforced with a macroprudential orientation, which should provide a system-wide approach to financial regulation and supervision, and hence help in mitigating the buildup of excess risks across the system.
SUPERVISION AND THE FINANCIAL CRISIS: WHAT WENT WRONG?

What caused supervision to take its eyes off the ball in several countries? The regulatory framework certainly was part of the reason. Regulations did not adequately capture the risks that banks were exposed to, for example in the regulatory approach to market risk capital for trading book positions. Also, the regulatory perimeter was not expansive enough and did not take into account the buildup of risks in the shadow banking system. Yet while the legal and regulatory framework may not always have facilitated the exercise of needed supervisory action (e.g., the ability to perform consolidated regulation and supervision in some countries), it did not impede supervision.

In this context, it is worth recalling how supervision failed to recognize and/or address some growing risks and thus contributed to the financial crisis. An important caveat here is that the events and the reasons were different in different jurisdictions, and what is presented here is a generalized description based on these separate occurrences. As various examinations of the crisis have revealed, there were abundant examples of supervision failures that turned out to be costly.

- **Staying on the sidelines and not intruding sufficiently into the affairs of regulated institutions.** In some cases, supervisors were too deferential to bank management. The high degree of reliance placed by many supervisors on institutions’ internal controls, internal risk management systems, and management’s perceptions of risk (or lack thereof) was not matched by a focus on ensuring that governance was sufficiently robust to justify this. Therefore, failures of internal oversight and risk governance at firms were in effect transmitted through supervisors. Reliance on market discipline also turned out to be misplaced in some cases. Institutional investors did not do their own due diligence and relied on rating agencies. Rating agencies, in turn, ignored the conflicts of interest in their business models, which provided incentives to overrate products and clients.

- **Not being proactive in dealing with emerging risks and adapting to the changing environment.** Supervisors did not in all cases have a capacity to identify risks or to act on them when identified. In some cases, they did not look ahead and anticipate the effects of emerging risks on the financial system or the larger economy. In others, they did not respond strongly enough to the movement of some institutions toward higher-risk strategies and innovative products, or to the buildup of leverage and high-risk exposures. They did not dig deeply enough into the implications of some complex products, nor did they satisfy themselves that the boards of the institutions packaging or investing in such products understood their risk. They did not react appropriately to the increased dependence of many institutions on short-term wholesale funding or to the risk that was building up in off-balance-sheet entities.

- **Not being comprehensive in their scope.** Supervisors confined their interest to risks faced by their regulated entities from within the regulated system and did not go beyond to examine risks posed by other parts of the system or
the risks that systemically important institutions posed to the others. Filling this gap goes beyond supervisory arrangements, encompassing strengthened rules and regulation and a reconsideration of the regulatory perimeter—which must be wide enough to facilitate risk identification.

- Not taking matters to their conclusion. In some cases, supervisors were aware of the risks that were building up as underwriting standards deteriorated and the markets were flooded with misrated financial products of questionable quality. They did not move quickly enough to put together their supervisory conclusions and develop a view of risks emerging system-wide. The lack of timely and effective coordination and information sharing among supervisors contributed to creating opportunities for regulatory arbitrage and excessive risk concentrations.

HOW DO COUNTRIES FAIRE AGAINST SUPERVISORY STANDARDS?

The IMF (with the World Bank) routinely comments on the effectiveness of supervisory systems in member countries through assessments of national systems’ compliance with financial sector standards and codes. The relevant standards and codes are the Basel Committee’s Core Principles for Effective Banking Supervision; the International Organization of Securities Commissions’ (IOSCO) Objectives and Principles for Securities Regulation; and the International Association of Insurance Supervisors’ (IAIS) Insurance Core Principles (see Appendix 5.1 for a listing), which are conducted as a peer review with the support of supervisory experts. To date, more than 150 assessments under the Financial Sector Assessment Program (FSAP) have been conducted (including updates). The observations in this paper draw on the experience that staff have gained in the course of these assessments.

We have learned from our financial sector work that the implementation of a regulation (including regulatory guidance on risk management) matters as much as the regulation itself, and that implementation is more difficult to carry out and more difficult to assess. In response, recent revisions in the methodologies used to assess the effectiveness of supervisory frameworks place more emphasis on implementation and therefore will deliver more robust assessments regarding implementation than earlier.

Our analysis of the findings of the assessments of financial sector supervisory and regulatory standards conducted since 2000 shows us that although most countries have the necessary legislation, regulations, and supervisory guidance appropriate to their national systems, a significant proportion of them do not do as well when it comes to the nuts and bolts of supervision across the different sectors. An important caveat when interpreting these results is that they reflect the position at the time the assessment took place and do not incorporate any improvement that countries may have made since the assessment.

See IMF (2004a, 2004b) for an early evaluation of cross-sector issues brought out by FSAP assessments. These identify the main weaknesses to be regulators’ independence, regulatory objectives, and governance arrangements between the regulator and self-regulatory organizations; and the conduct of regulation, such as enforcement, consistent application of rules and laws, and the effective and timely application of regulatory powers.
The analysis of weaknesses in this crisis mirrors what we find in our FSAP work. Observations from 120 assessments of banking supervision, which used the methodology developed by the Basel Committee in 2000 to assess compliance with its 25 Core Principles (1997 version), suggest that most countries were largely in compliance with international standards on the legal and institutional framework for supervision and the authorization and conduct of banking business (Figure 5.1). However, in more than one-third of the assessments, countries did not meet the standards relating to the supervision of risks (other than credit risk) (Basel Core Principle [CP] 13), consolidated supervision (CP 20), adequate resources and operational independence (CP 1.2), and enforcement powers (CP 20),4 reflecting key dimensions of both supervisory “will” and supervisory “ability” (discussed in the section later in this chapter on “Advancing the Supervisory Agenda”).

Among the deficiencies in risk supervision were a lack of supervisory awareness and training, inadequate and dated tools and methodologies to evaluate banks’ risk management approaches, and an absence of authority to require banks to hold capital against such risks. For consolidated supervision, weaknesses identified included a lack of reliable consolidated information, a lack of ability and skills to examine and supervise some financial activities, and a lack of direct access to nonconsolidated subsidiaries and holding companies. In the case of enforcement powers, although most countries had a range of legal powers to take action, generally there was a lack of clarity as to the means by which sanctions were to be matched to the severity of the infringement—resulting in the powers not being applied consistently and in regulatory forbearance, so that supervisory actions were not seen as credible.

The methodology used by assessors was revamped by the Basel Committee in 2006, with a strengthened focus on implementation aspects. Recent assessments

---

4See for example, IMF (2008b).
of 24 countries using the revised methodology identified a high incidence of deficiencies in consolidated supervision (CP 24), operational independence (CP 1.2), powers to take corrective action (CP 23), and comprehensive risk management (CP 7). (See Figure 5.2.) This last principle summarizes the supervisory review process laid out in the Basel II framework, with supervisors required to satisfy themselves that banks have an appropriate and comprehensive risk management process, including board and senior management oversight and encompassing all material risks.

**IOSCO Objectives of Securities Regulation**

Assessments of countries against the 30 Core Principles that comprise the IOSCO Objectives and Principles for Securities Regulation reveal similar weaknesses. The weakest areas of compliance with these standards are in the areas of operational independence (CP 2); adequate powers, resources, and capacity (CP 3); and credible use of inspection, investigation, surveillance, and enforcement powers (CP 10). (See Figure 5.3.)
A 2007 IMF working paper, which presents this analysis for a group of 74 countries, summarizes the situation as follows:

Enforcement of compliance with rules and regulations emerged as the overriding weakness in regulatory systems. Regulators rely on a continuum of operations to effect regulation: beginning with routine inspections and reporting and culminating in special investigations and enforcement actions. We observed a chronic lack of skill and knowledge in the practice of inspections and the use of reporting tools. Further, there was a lack of resources, skill, and legal authority required to effectively undertake investigations and bring enforcement actions. While the regulator may be able to react to market needs with new laws and new regulatory guidance, it appears it is much more difficult to ensure these laws are complied with and the lack of ability to do so undermines the whole regulatory process. (Carvajal and Elliott, 2007)

**IAIS Principles of Insurance Supervision**

The assessments of 26 countries against IAIS’s revised (2003) 28 Insurance Core Principles also identify similar weaknesses. The key areas where countries have the most work to do to meet the standards are CP 3 (adequate powers, legal protection and financial resources, operational independence and accountability, and skilled and professional staff); CP 9 (supervisory compliance of governance standards); CP 13 (on-site inspection); CP 17 (group-wide supervision), and CP 18 (risk assessment) (Figure 5.4).

**THE MAKING OF GOOD SUPERVISION**

**What Is Good Supervision?**

Drawing on the shortcomings exposed by the crisis, we articulate what the key components of a good, effective supervisory framework should be and what the focus of further reform should be. These components are well recognized and are embedded in existing supervisory standards. What follows is a reiteration
rather than a discovery. The challenge is to institutionalize these elements in national structures.

- **Good supervision is intrusive.** Supervision is premised on an intimate knowledge of the supervised entity. It cannot be outsourced and it cannot rely solely or mainly on off-site analysis. Supervisors in the financial sector should not be viewed as hands-off or distant observers but rather as a presence that is felt continuously, keeping in mind the unique nature of financial supervision. Perhaps differently from any other industry, supervisors of financial institutions and markets are involved in the day-to-day monitoring of industry operations. The intensity and periodicity of this intrusiveness may differ depending on the institution’s risk profile.

- **Good supervision is skeptical but proactive.** Supervisors must question the industry's direction or actions, even in good times. They cannot act only after operations have gone off the rails. In a sense, supervision must be intrinsically countercyclical, particularly in good times. Prudential supervision is most valuable when it is least valued; restricting reckless banks during a boom is seldom appreciated but may be the single most useful step a supervisor can take in reducing failures.

- **Good supervision is comprehensive.** Even while recognizing the limitations of their scope, supervisors must be constantly vigilant about happenings on the edge of the regulatory perimeter to identify emerging risks that may have systemic portents and draw the proper implications for the institutions they supervise. This includes unregulated subsidiaries, affiliates, and off-balance-sheet structures associated with regulated institutions. This also includes the systemic risks posed by systemically important financial institutions (SIFIs) and those arising from interconnectedness and cyclicality. The emerging body of work on macroprudential supervision will provide additional tools to deal with these challenges.

- **Good supervision is adaptive.** The financial sector is a constantly evolving and innovating industry, and this has great benefits to the real economy. Supervisors must be in a constant learning mode—new products, new markets, new services, and new risks must be understood and responded to appropriately. They should closely follow changes in the business models of financial institutions to determine whether any potential systemic risks are building up during such changes. Supervisors also must adapt to changes at the perimeter of regulation, with an eye to new or unregulated areas. They must form a view not only of how institutions are currently placed but of how they will be able to cope with changing circumstances.

- **Good supervision is conclusive.** Supervision has many facets, from off-site reporting to on-site examinations to enforcement actions. Supervisors must follow through conclusively on matters that are identified as these issues progress through the supervisory process. As anyone who has been involved with the supervisory process can affirm, the work of following up on inspection findings to their final resolution is laborious, painstaking, and
un glam orous, but in the long run it is critical to bringing about change. Every identified issue, however small, needs follow-up and no matter can be left without conclusion.

**Bringing About Good Supervision**

Of course, realizing a supervisory system that lives up to this constant, intensive, and “through-the-cycle” task takes some effort. Borrowing from the two dimensions of credit risk, we identify two pillars that support good supervision: the ability to act and the will to act. The will to act has been prominently featured in discussions of the supervisory response to crisis, present and past.5 This will is predicated on the ability to act, that is, having the right people and the right tools, but neither is alone sufficient—and both must act in tandem—to bring about effective supervision.

**The Ability to Act**

Supervisors also must have the ability, in law and in practice, to act. They must have authority to be intrusive and authority to challenge management’s judgment in a proactive way. They must have the skill to adapt to innovation and the ability to follow through on an issue until its resolution. Elements of the ability to act may be summarized as follows.

- **Legal authority.** Supervision should be enshrined in an enabling legal framework that provides for adequate powers. To fulfill their mandates and their unique list of tasks, agencies need strong regulatory capacity to make rules and issue guidance, as well as an established legal framework that allows for a range of swift regulatory responses to both ongoing and emerging situations. In addition, agencies need to be able to mount and fund substantial legal actions, where necessary.

- **Adequate resources.** Supervisors need to have sufficient funds and stable funding sources to be able to carry out their mandates, as much in good times (when supervisors can be at their most effective) as in bad. Supervision is resource intensive. Off-site reporting and surveillance requires access to technology and data sources. On-site inspection requires significant human capital. Together, they require constant skill development to keep pace with market developments. The follow-through on issues can be particularly resource intensive, which is why this is often observed to be a problem for supervisory agencies. Technical skills require sufficient compensation to attract and support to retain. Adequate resources are also a key determinant of will—they demand a degree of budgetary autonomy, which in turn drives operational independence.

5While discussing the last major crisis, the Bank for International Settlements (BIS; 1998) wrote that “What is also needed is the vision to imagine crises and the will to act preemptively,” and “it may be asked whether the proper incentives are in place, in both lending and borrowing countries, for supervisors themselves to act expeditiously before a crisis erupts.” Speaking after this crisis, J. Dickson (2009), the head of Canada’s Office of the Superintendent of Financial Institutions (OSFI) said, “Regulators do not eliminate the possibility of failure but they reduce it; that said, they must constantly demonstrate the will to act, not only in taking steps to minimize the risk of failure but also proactively taking steps to cause an institution to exit from the system when necessary.”

©International Monetary Fund. Not for Redistribution
Clear strategy. Supervisory agencies consciously need to consider and decide on a strategic approach to supervision and to communicate it both internally and to institutions. At its most basic, developing a strategy may mean no more than deciding how often institutions are to be assessed on-site, that is, setting a standard examination cycle. The key drivers of the choice of strategy will include the nature of the industry, the resources at hand, and the institutional framework. For example, a mature financial sector with a high degree of innovation is likely to force certain choices on supervisors—that is, an emphasis on the proactive approach that focuses on getting ahead of emerging risks and challenging risk managers, rather than a reactive stance that relies on analysis of past developments. A clear strategy is also needed for addressing activities, operations, and markets that can create systemic risks, for which enhanced supervision is necessary.

Robust internal organization. Decision-making processes need to be well defined and accountability of supervisors needs to be clear. There is a need to balance the desirability of supervisors being able to make judgments and take actions with the need for appropriate challenge and oversight within a good governance framework. The latter goal may be achieved by peer review of key decisions or by committee structures, provided that the approach is sufficiently flexible to allow, for example, for urgent action to be taken where necessary. Internal processes also should support the supervisor in case of adverse company reaction.

Effective working relationships with other agencies. Supervisors cannot go it alone. They have to forge effective coordination and cooperation mechanisms with other domestic agencies, national authorities, and international organizations. In some countries, the regulatory and supervisory functions may be divided between different agencies, and the supervisor’s role is only to monitor compliance. Such an approach may be necessitated by broader legal or constitutional arrangements. In principle, however, there are far more advantages to one agency having both regulatory and supervisory responsibility. Supervisors are likely to have a fuller understanding of the regulations that they are enforcing; practical supervisory experience is more likely to inform regulatory policy.

Beyond the regulatory and supervision divide, it is crucial that bank regulators have excellent relationships with their central bank and their finance ministry. Averting, and where necessary managing, major bank failures and systemic crises is a challenge for the government, not just for supervisors. Finally, when supervising groups that have cross-sector and cross-border operations, coordinating with other domestic supervisors and overseas supervisory agencies become imperative, both in normal times and during crises.

The Will to Act

Very simply, there must be a willingness to take action and fulfill the supervisory role. On its face, this seems like an easily obtained consensus; however, supervisors find themselves under almost constant criticism for getting in the way of innovation
and for being stodgy and “anti-market.” Without a clear expectation that their role is to second-guess the industry, this criticism may win the day. As mentioned earlier, the relationship between supervisors and the financial industry is a unique blend of familiarity (supervisors are in constant dialogue with the industry) and authority (the right and responsibility) to say no. The elements needed to create the will to act are as follows:

- *A clear and unambiguous mandate.* The supervisory agency must have clear objectives, ideally in relation to financial stability and systemic soundness, as well as the safety and soundness of particular institutions. Objectives should be realistic—supervisors cannot be expected to detect, prevent, or take enforcement action against every instance of noncompliance. Potential conflicts between objectives should be identified and managed; competing conflicts that push actions in opposite directions should be avoided.

- *Operational independence.* Supervisory agencies should be able to resist inappropriate political interference or inappropriate influence from the financial sector itself. This needs to be reflected in the processes for appointment and dismissal of senior staff, stable sources of agency funding, and adequate legal protection for staff. For example, provisions that require that key decisions on individual companies be referred to the government should be avoided. Supervisory agencies should not manage or otherwise run the enterprises they supervise; and the boards of supervisory agencies should not have directors who represent the industry.

- *Accountability.* To balance independence, supervisory agencies should have to report to the public on their use of resources, key decisions, and as far as possible, the effectiveness of their supervision in relation to their supervisory objectives. This last element is challenging, not least because of the need to avoid disclosure of confidential examination and enforcement information. However, it is important to ensure that agency performance can be assessed.

- *Skilled staff.* This is an issue that straddles both dimensions—the will and the ability to act. Staff must be able to respond to changes in industry practices with confidence. They often are parodied as always being one step behind the market, but this is only a reflection of the reality that markets are continuously innovating and have stronger incentives to do so. The skill set required for supervision has expanded as financial services have become more complex. Rigorous hiring processes are required, as well as scope to offer competitive remuneration packages to attract and, equally important, retain expert supervisory staff. Some of the more successful supervisory agencies during the crisis tended to have a blend of long-term supervisory staff and experienced industry professionals, recruited in mid- or late career.6

---

6A 2007 IMF survey of governance practices in 140 supervisory agencies in 103 members discusses findings on supervisory remuneration practices and ability to hire and set staffing and salary levels. It finds differences in these abilities based on location and function, with supervisors inside the central bank and stand-alone bank supervisors usually faring better than those in consolidated and integrated agencies (Seelig and Novoa, 2009).
• *A healthy relationship with industry.* Supervisors should be able to dialogue with industry but maintain an arm’s-length relationship. Agencies should have policies on the turnover of staff devoted to the supervision of individual institutions and on the movement of their staff into employment with regulated institutions. Relationships between supervisors and institutions benefit from the depth of understanding that can be developed over time. Equally, such relationships can add to risks of “regulatory capture.” Where supervisors move frequently, or with no significant interval, between employment with an agency and an institution, conflicts of interest arise that, even if managed, may damage agency credibility. Strict ethics codes are necessary to protect and preserve the will to act.

• *An effective partnership with boards.* Regulated entities are not monolithic. Boards of directors, not supervisors, are the first line of defense against excessive risk taking by management. Supervisors should hold boards responsible for the performance of the institutions they oversee. As a matter of course, they should ensure that boards and individual directors are sufficiently empowered and informed both to understand emerging risks within an institution and to respond appropriately to those risks.

**ADVANCING THE SUPERVISORY AGENDA**

The shortcomings discussed above are being recognized, and some supervisory agencies have begun to take action in response. They are in the process of expanding their risk analyses to include all activities within a group and to better develop their emerging-risk capacities to analyze new products and business lines, so as better to understand what risks these might present.7

The Financial Stability Board (FSB) and the standard setters also have taken several steps in this direction, for example by issuing strengthened guidance on risk management elaborated by the Basel Committee as part of the supervisory review process (Pillar 2) in July 2009. Revised principles for enhancing corporate governance for credit institutions are currently under public consultation, and work is ongoing to develop a framework of macroprudential supervision as a critical tool to mitigate risks arising from systemically important financial institutions.

However, much more needs to be done. Putting together the lessons from the crisis, the findings from the FSAP, and the demands of the impending regulatory agenda, we are faced with a challenging task ahead. The failures in these areas suggest that the scope and nature of supervisory action needs to be broader and more intrusive than in the past. Supervisors need to focus more on strengthening institutions’ internal governance, for example by raising expectations from

---

7In a 2009 report, the Senior Supervisors Group (SSG) representing supervisors from seven countries that oversee major global financial firms evaluated the progress these firms had made since the start of the crisis in implementing changes in their risk management practices and internal controls. The challenges in this task are evident from the fact that many of the weaknesses continued even a year after they had been identified by the firms and reflected in an earlier SSG report (SSG, 2009).
boards of directors. But they also need to directly address issues previously viewed as mainly a management responsibility, such as remuneration practices—an area in the past not focused on by supervisors but now seen as requiring supervisory intervention to constrain financial institutions’ incentives to take excessive risk.

Supervisors need to supplement reliance on internal controls with more of their own direct and thorough assessments and independent analysis. They need a forward-looking assessment of risks and a range of responses that includes requiring companies to make significant changes in strategy (perhaps pulling out of particular lines of business) or to replace senior management. All of these will require the determination to act.

Supervisory skills will have to be supplemented to incorporate new skill sets into the existing portfolio. A particular challenge may arise from implementing a macroprudential dimension to regulation. A new framework and tools are in the offing, and supervisors will have to deal with new sets of issues, ranging from setting countercyclical capital buffers to supervising living wills. A suggestion that merits further action is to make supervision a more defined profession and, for this purpose, to provide more professional training and targeted college programs aimed at creating a cadre of supervisors.

In the cross-border dimension, supervisors will have to further strengthen the effectiveness of their cooperation, pursuing clear agreements on specific information to be shared through efficient communication channels and working together for a common supervisory approach to improve joint monitoring of the main risks facing the financial system.

How should the international community and national governments support this strengthening of the supervisory framework so that it can perform its unpopular role the next time an asset bubble begins to get out of hand and a crisis begins to ferment? In their London Declaration, the G-20 leaders stated their commitment to strengthening both the regulation and the supervision of the financial sector. Going forward, countries should recognize this priority by reaffirming the key elements of will and ability that underlie effective supervision (e.g., as reflected in financial standards and laid out in this chapter) as an essential ingredient of their financial systems. They should commit to providing an enabling framework with a clear mandate, adequate resources, and sufficient authority to take a range of corrective actions. Adequate funding to hire and train skilled staff and equip them with the requisite tools they need for the complex tasks they must perform is critical. This funding is an essential input into creating a breed of independent naysayers.

The international financial institutions engaged in the task of financial sector surveillance also have an important role to play. They should include discussions of the components of both will and ability to act as a matter of course in their work and in their assessments. Agencies that are engaged in the provision of technical assistance should focus their capacity-building efforts on strengthening the components of both supervisory will and supervisory ability, because neither by itself would be sufficient to prevent the next crisis.
CONCLUSION

In this crisis, supervisors in some of the most advanced economies with strong traditions of independent and well-resourced institutions were unable to act in an effective and timely manner. The discourse must now move from influencing the incentives of industry behavior (i.e., regulation) to understanding and addressing the incentives for supervisory behavior and understanding why the will and ability to act in some countries dissipated over this period of extreme exuberance.

To be effective, supervision must be intrusive, adaptive, proactive, comprehensive, and conclusive. For this to happen, the policy and institutional environment must support both the supervisory will and the supervisory ability to act. A clear and credible mandate, which is free of conflicts; a legal and governance structure that promotes operational independence; adequate budgets that provide sufficient numbers of experienced supervisors; a framework of laws that allows for the effective discharge of supervisory actions; and tools commensurate with market sophistication are all essential elements of the will and ability to act. However, making all this come together is the more intangible and difficult part. In the coming years, the IMF should place increased emphasis in its bilateral surveillance and technical assistance on the issues identified in this chapter, which provide the foundations on which effective financial sector supervision can be built.

Supervisors are expected to stand out from the rest of society and not be affected by the collective myopia and consequent underestimation of risks associated with the good times. Society and governments must support them in this approach and stand by their supervisors as they perform this unpopular role.
### APPENDIX 5.1 FINANCIAL REGULATION AND SUPERVISION STANDARDS

<table>
<thead>
<tr>
<th>Basel Core Principles 1997</th>
<th>Basel Core Principles 2006</th>
<th>IAIS Core Principles</th>
<th>IOSCO Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP 1.1 Objectives and responsibilities</td>
<td>CP 1.1 Responsibilities and objectives</td>
<td>ICP 1. Conditions for effective insurance supervision</td>
<td>1. The responsibilities of the regulator should be clear and objectively stated</td>
</tr>
<tr>
<td>CP 1.2 Independence and resources</td>
<td>CP 1.2 Independence, accountability, and transparency</td>
<td>ICP 2. Supervisory objectives</td>
<td>2. The regulator should be operationally independent and accountable in the exercise of its functions and powers</td>
</tr>
<tr>
<td>CP 1.3 Legal framework for authorizing and supervising</td>
<td>CP 1.3 Legal framework</td>
<td>ICP 3. Supervisory authority</td>
<td>3. The regulator should have adequate powers, proper resources, and the capacity to perform its functions and exercise its powers</td>
</tr>
<tr>
<td>CP 1.4 Legal framework for compliance and soundness</td>
<td>CP 1.4 Legal powers</td>
<td>ICP 4. Supervisory process</td>
<td>4. The regulator should adopt clear and consistent regulatory processes</td>
</tr>
<tr>
<td>CP 1.5 Legal protection</td>
<td>CP 1.5 Legal protection</td>
<td>ICP 5. Supervisory cooperation and information sharing</td>
<td>5. The staff of the regulator should observe the highest professional standards, including appropriate standards of confidentiality</td>
</tr>
<tr>
<td>CP 1.6 Information exchange</td>
<td>CP 1.6 Cooperation</td>
<td>ICP 6. Licensing</td>
<td>6. The regulatory regime should make appropriate use of self-regulatory organizations (SROs) that exercise some direct oversight responsibility for their respective areas of competence and to the extent appropriate to the size and complexity of the markets</td>
</tr>
<tr>
<td>CP 2. Permissible activities</td>
<td>CP 2. Permissible activities</td>
<td>ICP 7. Suitability of persons</td>
<td>7. SROs should be subject to the oversight of the regulator and should observe standards of fairness and confidentiality when exercising powers and delegated responsibilities</td>
</tr>
<tr>
<td>CP 3. Licensing criteria</td>
<td>CP 3. Licensing criteria</td>
<td>ICP 8. Changes in control and portfolio transfers</td>
<td>8. The regulator should have comprehensive inspection, investigation, and surveillance powers</td>
</tr>
<tr>
<td>CP 4. Significant ownership</td>
<td>CP 4. Transfer of significant ownership</td>
<td>ICP 9. Corporate governance</td>
<td>9. The regulator should have comprehensive enforcement powers</td>
</tr>
<tr>
<td>CP 5. Major acquisitions</td>
<td>CP 5. Major acquisitions</td>
<td>ICP 10. Internal control</td>
<td>10. The regulatory system should ensure an effective and credible use of inspection, investigation, surveillance, and enforcement powers and implementation of an effective compliance program</td>
</tr>
<tr>
<td>CP 6. Capital adequacy</td>
<td>CP 6. Capital adequacy</td>
<td>ICP 11. Market analysis</td>
<td>11. The regulator should have authority to share both public and nonpublic information with domestic and foreign counterparts</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Basel Core Principles 1997</th>
<th>Basel Core Principles 2006</th>
<th>IAIS Core Principles</th>
<th>IOSCO Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP 7. Credit policies</td>
<td>CP 7. Risk management process</td>
<td>ICP 12. Reporting to supervisors and off-site monitoring</td>
<td>12. Regulators should establish information-sharing mechanisms that set out when and how they will share both public and nonpublic information with their domestic and foreign counterparts</td>
</tr>
<tr>
<td>CP 8. Loan evaluation and loss provisioning</td>
<td>CP 8. Credit risk</td>
<td>ICP 13. On-site inspection</td>
<td>13. The regulatory system should allow for assistance to be provided to foreign regulators who need to make inquiries in the discharge of their functions and exercise of their powers</td>
</tr>
<tr>
<td>CP 9. Large exposure</td>
<td>CP 9. Problem assets, provisions, and reserves</td>
<td>ICP 14. Preventive and corrective measures</td>
<td>14. There should be full, accurate, and timely disclosure of financial results and other information which is material to investors' decisions</td>
</tr>
<tr>
<td>CP 10. Connected lending</td>
<td>CP 10. Large exposure limits</td>
<td>ICP 15. Enforcement or sanctions</td>
<td>15. Holders of securities in a company should be treated in a fair and equitable manner</td>
</tr>
<tr>
<td>CP 14. Internal controls/audit</td>
<td>CP 14. Liquidity risk</td>
<td>ICP 19. Insurance activity</td>
<td>19. Regulation should require disclosure, as set forth under the principles for issuers, which is necessary to evaluate the suitability of a collective investment scheme for a particular investor and the value of the investor’s interest in the scheme</td>
</tr>
<tr>
<td>CP 15. Abuse of financial services</td>
<td>CP 15. Operational risk</td>
<td>ICP 20. Liabilities</td>
<td>20. Regulation should ensure that there is a proper and disclosed basis for asset valuation and the pricing and the redemption of units in a collective investment scheme</td>
</tr>
<tr>
<td>Basel Core Principles 1997</td>
<td>Basel Core Principles 2006</td>
<td>IAIS Core Principles</td>
<td>IOSCO Principles</td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------------------------</td>
<td>----------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>CP 17. Bank management contact</td>
<td>CP 17. Internal control and audit</td>
<td>ICP 22. Derivatives and similar commitments</td>
<td>22. There should be initial and ongoing capital and other prudential requirements for market intermediaries that reflect the risks that the intermediaries undertake</td>
</tr>
<tr>
<td>CP 18. Information requirements</td>
<td>CP 18. Abuse of financial services</td>
<td>ICP 23. Capital adequacy and solvency</td>
<td>23. Market intermediaries should be required to comply with standards for internal organization and operational conduct that aim to protect the interests of clients, ensure proper management of risk, and under which management of the intermediary accepts primary responsibility for these matters</td>
</tr>
<tr>
<td>CP 19. Validation of supervisory information</td>
<td>CP 19. Supervisory approach</td>
<td>ICP 24. Intermediaries</td>
<td>24. There should be a procedure for dealing with the failure of a market intermediary in order to minimize damage and loss to investors and to contain systemic risk</td>
</tr>
<tr>
<td>CP 20. Consolidated supervision</td>
<td>CP 20. Supervisory techniques</td>
<td>ICP 25. Consumer protection</td>
<td>25. The establishment of trading systems including securities exchanges should be subject to regulatory authorization and oversight</td>
</tr>
<tr>
<td>CP 21. Accounting standards</td>
<td>CP 21. Supervisory reporting</td>
<td>ICP 26. Information, disclosure, and transparency toward the market</td>
<td>26. There should be ongoing regulatory supervision of exchanges and trading systems which should aim to ensure that the integrity of trading is maintained through fair and equitable rules that strike an appropriate balance between the demands of different market participants</td>
</tr>
<tr>
<td>CP 22. Formal powers of supervisors</td>
<td>CP 22. Accounting and disclosure</td>
<td>ICP 27. Fraud</td>
<td>27. Regulation should promote transparency of trading</td>
</tr>
<tr>
<td>CP 23. Global consolidated supervision</td>
<td>CP 23. Corrective and remedial powers of supervisors</td>
<td>ICP 28. Anti-money laundering, combating the financing of terrorism (AML/CFT)</td>
<td>28. Regulation should be designed to detect and deter manipulation and other unfair trading practices</td>
</tr>
<tr>
<td>CP 24. Contact and information exchange</td>
<td>CP 24. Consolidated supervision</td>
<td></td>
<td>29. Regulation should aim to ensure the proper management of large exposures, default risk, and market disruption</td>
</tr>
<tr>
<td>CP 25. Supervision over foreign banks</td>
<td>CP 25. Home-host relationships</td>
<td></td>
<td>30. Systems for clearing and settlement of securities transactions should be subject to regulatory oversight, and designed to ensure that they are fair, effective, and efficient and that they reduce systemic risk</td>
</tr>
</tbody>
</table>
Resolution of Cross-Border Banks: A Proposed Framework for Enhanced Coordination

ROSS LECKOW AND CEYLA PAZARBASIOGLU

INTRODUCTION

The recent financial crisis has given renewed urgency to the need for resolution systems for financial institutions that both safeguard financial stability and limit moral hazard. However, experience demonstrates that these systems will not be effective unless progress is also made in developing a framework that applies on a cross-border basis. Since many systemically important financial groups operate globally, an uncoordinated application of resolution systems by national authorities will make it much more difficult to both secure the continuity of essential functions (thereby limiting contagion) and ensure that shareholders and creditors bear the financial burden of the resolution process.

This chapter responds to calls from the G-20 leaders who, at their London Summit in April 2009, agreed “to support continued efforts by the IMF, FSB, World Bank, and BCBS to develop an international framework for cross-border bank resolution arrangements.” At their summit in Pittsburgh in October 2009, the G-20 leaders called for the development of “resolution tools and frameworks for the effective resolution of financial groups to help mitigate the disruption of financial institution failures and reduce moral hazard in future” (G-20, 2009a, 2009b). The chapter builds on the work of the Basel Committee’s Cross-Border Bank Resolution Group (BCBS, 2010f).

The call for work on this issue arises from two related considerations. First, the establishment of an effective framework for the resolution of financial institutions is essential to any strategy that seeks to both secure financial stability and limit moral hazard. The recent crisis demonstrates the extent to which the existing system may force national authorities to choose between two equally unattractive options: (i) a bailout that does not fully allocate losses to shareholders and creditors; or (ii) reliance on an insolvency regime that is ill-equipped to restructure
financial institutions in a manner that both preserves value and safeguards financial stability. Accordingly, a key objective is to establish a resolution mechanism that will facilitate rapid and preemptive action by the authorities to preserve business continuity while restructuring an institution in a manner that allocates all losses to shareholders and creditors as promptly as possible, consistent with financial stability objectives.

Second, a resolution framework will be ineffective unless it is accompanied by a robust cross-border coordination mechanism. Although large, complex financial institutions operate globally, their resolution is subject to national legal frameworks. There are two possibilities in this context:

- **A far-reaching solution** to this problem would be the establishment of an international treaty that would obligate countries to defer to the resolution decisions of the jurisdiction where the financial institution or group has its main activities. There are examples in other areas of international relations where treaty frameworks of this kind have been put in place (e.g., regulation of shipping accidents) but the adoption of such an approach in the area of financial regulation would necessitate a considerable sacrifice of national sovereignty and does not appear to be feasible in the foreseeable future. Given their concerns over financial stability and the potential fiscal costs of bank failure, the authorities of many countries have been unwilling to surrender control over these issues.

- **In these circumstances, the most realistic approach**, at least in the medium term, is one that focuses on enhancing coordination among national authorities, something that has generally been lacking. Indeed, unless such coordination is achieved, it may be argued that financial stability concerns may require a “de-globalization” of financial institutions so that they fit within the existing local resolution frameworks. But such de-globalization would result in significant efficiency losses and could undermine emerging market access to capital markets and the expansion of international trade more generally (these issues are discussed in more detail in Chapter 11).

Recognizing the benefits of globalized financial institutions and the difficulty of establishing an international treaty that would be signed by a broad range of countries, this chapter discusses key elements of a pragmatic framework for enhanced coordination. Although the implementation of such an approach is likely to require modifications to the domestic laws of some countries to give their national authorities the mandate to coordinate their resolution actions with other jurisdictions, national authorities would only be required to do so to the extent that, in their judgment, coordination is consistent with the interests of creditors and financial stability.

This chapter uses the term “resolution” broadly and generically to refer to the full range of recovery and resolution activities that involve public intervention (whether privately or publicly funded), including, for example, mergers and acquisitions, equity recapitalization, debt-for-equity conversions, transfers of assets and liabilities, temporary administration, reorganization, and liquidation.

---

2The only exception may be on a regional basis among closely integrated groups of countries.
The issues addressed in this chapter apply to the resolution of international financial groups. For some international financial groups, a banking business will be their main activity. However, many cross-border banks exist within financial groups whose activities extend far beyond simple deposit-taking and lending to cover a full range of nonbank financial activities. Moreover, some of the most systemically risky international financial groups are, at their core, investment banks and broker-dealers that conduct little or no deposit-taking activity. Although the substantive elements of resolution regimes for banks and nonbank financial institutions of course differ, in a number of respects the mechanisms for coordinating resolution actions are similar for banks and nonbanks. Although not all of the entities within a group will be regulated, it is assumed that many of them will be, given their systemic importance.

Effective supervision—whether nationally or in a cross-border context—is an essential component of any effective crisis prevention framework; however, it is not the focus of this chapter (this issue is discussed in detail in Chapter 5). No matter how effective supervision is, failures of financial institutions will continue to occur and, for this reason, supervision is not a substitute for credible resolution mechanisms. Nonetheless, it would be appropriate for a country to require that the existence of a robust supervision framework in other countries be a precondition for establishing cross-border resolution-coordination frameworks with them. Effective supervisory coordination is, therefore, a key element of the enhanced resolution coordination framework that is discussed here. In this context, the existence of an effective resolution framework will likely enhance supervision and reduce the risk of “regulatory forbearance” by giving national authorities credible resolution options.

The rest of the chapter is organized as follows. The next section examines the growth of cross-border financial services and the challenges involved in effectively supervising and resolving international financial groups. The third section identifies a possible way forward, setting out the essential features of an international framework for cross-border resolution.

THE STATUS QUO—AND ITS COSTS

The Globalization of Financial Institutions

Financial globalization has led to the emergence of a large number of international financial groups. Cross-border banking has expanded rapidly over the last decade. Many large banks now rely on a global network of branches and subsidiaries, with centralized funding that is distributed within the financial group under a global strategic plan. The activities of these groups have expanded beyond traditional deposit-taking and lending to include a range of nonbank financial activities, such as securities and insurance brokerage and fund and asset management. In addition to these universal banks, the international space is now dominated by several large financial institutions that operate across borders, in

---

3Some financial groups are also headed by large, internationally active insurance companies.
4“Universal bank” in this sense refers to the wide range of financial sector activities, irrespective of the international reach of the group.
multiple currencies and time zones, and that act as systemically important nodes within a globalized market for capital.

Several factors drive the globalization of financial services:

• **Financial liberalization.** In recent years, many countries have eliminated barriers to the entry of foreign financial institutions.

• **Risk diversification.** The opportunity for financial institutions to expand abroad allows them to diversify their risk, reduce reliance on their home markets, and seek new business opportunities in overseas markets.

• **Servicing of key corporate clients.** As corporations have expanded abroad, large banks have followed them to support and profit from their expansion plans.

• **Brand value in emerging markets.** An internationally recognized brand with a local presence in foreign markets can rapidly gain market share abroad.

The legal form of a complex financial group may not always reflect the economic substance or operational functions of that group (see also Chapter 11, which discusses in more detail the factors affecting the choice, and relative merits, of different organizational structures for efficiency and stability). Several different factors may influence its structure and organization in ways that go beyond legal considerations.

• **Commercial factors/operational efficiency.** Groups may choose to organize their operations according to business lines, using matrix management structures that do not reflect the relationships between legal entities. Often a large group will organize itself with centralized functions for the entire group, such as capital and liquidity management, risk management, and IT, so that its subsidiaries, while legally separate, may have no de facto independence.

• **Separability/location of assets.** Activities carried out in a host jurisdiction may reflect decisions taken in a remote home state rather than locally. For the group, this may be an efficient allocation of resources. For example, domestic Swedish deposits supported the expansion of Swedish banks in the Baltic region, and similarly, much of Dexia’s lending to French regional governments was funded using Belgian deposits.

• **Regulatory factors.** Formal requirements may be imposed by home or host national authorities for the establishment and development of cross-border financial activities.

• **Tax treatment.** The structure and organization of the group may be influenced by tax considerations.

In some circumstances, a financial group may effectively function as a single entity—in particular where a guarantee has been issued by the parent for the components of the group. As a result of the interconnectedness of the financial group’s legal entities, weaknesses in one entity can adversely affect the entire group. In group structures where liquidity is centralized, any sudden and material downgrading of the central entity’s credit ratings or the opening of insolvency proceedings against it would lead to the immediate illiquidity of the other entities.
in the group. The triggering of cross-default or cross-guarantee arrangements for funding purposes, whether resulting from rating downgrades or otherwise, may also lead to financial distress in other parts of the group.

Moreover, the scale of activity or the size of an international financial group may create systemic risks for either the home or the host jurisdiction when such a group enters into financial distress. Certain branches or subsidiaries may, in economic terms, be comparatively insignificant to a group, yet be of critical importance to its host country’s financial system. In the case of a subsidiary in this position, its legal separateness may as a legal matter permit the parent bank to simply “walk away” should the subsidiary encounter difficulties, irrespective of the impact on the host country economy. However, “abandoning” a subsidiary in such a manner would involve reputational risk and could be counterproductive for the stability of a financial group.

Localized Resolution Frameworks

Although international financial groups operate globally, the frameworks for addressing their distress and failure are local and apply to distinct parts of the group rather than to the group as a whole. By allowing financial institutions under their supervision to establish a presence in a range of jurisdictions, home authorities expose themselves to the reality that the legal frameworks for facilitating cross-border finance in stable periods are typically more effective than the cross-border resolution arrangements that are available in times of distress.

Although the existing fragmented approach is due to a number of factors, a fundamental one is the fact that resolution frameworks are established by national laws and, absent the cooperation of the national authorities of other jurisdictions, are only enforceable vis-à-vis those institutions—or branches of institutions—operating in their territory. In the absence of an international legal framework that empowers a supranational entity to resolve global institutions, the resolution of such institutions is subject to different national frameworks and, accordingly, national authorities must proactively coordinate their actions to avoid the significant costs of an uncoordinated approach.

Moreover, the legal frameworks of many jurisdictions do not sufficiently facilitate coordination. National frameworks in some jurisdictions do not sufficiently empower their supervisors or the relevant resolution authorities to share information with their counterparts in other jurisdictions. In the context of an ailing bank, the ring-fencing of assets by host jurisdictions may undermine an effective resolution. Home-country official administrators may face difficulties in having certain recovery operations, such as “purchase and assumption” transactions, implemented in the host jurisdictions of bank branches.

5The knock-on effects on subsidiaries of Lehman Brothers are perhaps the clearest illustration of this problem in the context of nonbank financial institutions.

6Of course, the weaknesses of many countries’ bank insolvency frameworks go beyond questions of cross-border cooperation and include other areas, including the powers of the supervisors to take prompt and effective action to restructure a failing bank.
Effective coordination is also hampered by the absence of a minimum level of harmonization. National legal and regulatory frameworks often differ in key areas. In the context of bank insolvency, there is no universally agreed approach to such questions as what triggers should be used to commence insolvency proceedings or what powers are available to the supervisors to deal with an insolvent bank.

Even where there is a minimum degree of harmonization, the multiplicity of regulatory actors may impede coordination. A financial group, whose activities might cover a range of separately regulated banking and nonbanking activities, would potentially be subject to oversight from a number of different competent authorities, even at a purely domestic level. Not surprisingly, in the context of an international financial group, overlapping competencies and difficulties in discerning the scope of various national supervisors’ responsibilities are amplified.

Finally, and perhaps most importantly, when the regulatory authorities are faced with the distress or failure of a financial institution within their territory, they tend to give primary consideration to the potential impact on their own stakeholders, namely, creditors to branches or subsidiaries located within their jurisdiction, depositors, and, in the final analysis, local taxpayers. In these circumstances, national priorities translate into a “territorial” approach that effectively precludes coordination, where in the event of the failure of a domestic branch of a foreign bank, local assets are “ring-fenced” for the benefit of creditors to the branch. The practice of ring-fencing is geared toward favoring the interests of depositors and creditors to a bank’s local presence to the detriment of stakeholders in other jurisdictions (see Box 6.1). In contrast, universality implies no ring-fencing and instead would place all similarly ranked international creditors on an equal footing.

Although the national focus of resolution frameworks appears at odds with internationally coordinated supervisory frameworks, a closer examination reveals that even these supervisory frameworks are shaped by national concerns (see Box 6.2). Moreover, the implementation of such frameworks by some countries anticipates the ring-fencing approach they rely on during the resolution phase. For example, although licensed branches of foreign banks in the United States (and in some other jurisdictions) do not, as legal extensions of a foreign entity, have separate capital of their own, they are nevertheless required to deposit cash or eligible securities at approved depository banks to satisfy a “capital equivalency requirement” established by applicable law.

---

7To the extent that an objection to ring-fencing is based on the unsettling of third-party expectations, this concern is sharper where the practice of ring-fencing is ad hoc (e.g., where it is in response to a particular crisis situation rather than part of a preestablished legal and supervisory framework).

8In the United States, for federally licensed branches of foreign banks, such requirements are set forth in section 3102 (j) of the International Banking Act of 1978 (12 U.S.C.), which also requires any receiver of a federally licensed branch to take possession of all the property and assets of the foreign bank located in the United States and to prioritize payment of claims arising out of any transactions with a U.S. branch or agency of a foreign bank over the distribution of assets to the foreign bank directly or to any foreign liquidator or receiver of the foreign bank.
Territoriality and Universality

The approaches developed by countries for dealing with cross-border insolvencies (including of banks) fall by and large in one of the following two categories.

Universality—Under a “universal” approach, the insolvency proceedings initiated against the debtor in its home country will purport to have “universal reach.” This implies that the home-country trustee will seek to gain control over all of the debtor’s assets and liabilities—including those located in other countries—to realize all assets and pay out the resulting proceeds to both domestic and foreign creditors according to their ranking. To be effective, universality of the home country depends on different host countries recognizing this extraterritorial effect of the home-country proceedings. Such recognition is, however, far from evident for the reasons set out below.

Territoriality—Many countries follow some form of “territorial” approach, under which a host country will initiate separate insolvency proceedings against a foreign debtor, instead of participating in, or deferring to, the insolvency proceedings opened by the home country. Typically, territorial jurisdictions will ring-fence the assets and liabilities of foreign entities that are located in their territory in order to satisfy the claims of local creditors. To be effective, a territorial approach requires a sufficient amount of assets (and liabilities) to be located within the country. In the case of the local branch of a foreign bank, the effectiveness of ring-fencing is buttressed by supervisory rules requiring the branch to maintain sufficient local assets relative to their local liabilities.

These categories are not absolute, and several countries have insolvency regimes with mixed features. For instance, as regards cross-border banks, the United States is universal for locally domiciled banks but territorial with respect to branches of foreign banks. In a similar vein, the EU’s so-called “Winding Up Directive” follows an EU-wide universal approach for EU banks, but member states are free to maintain a territorial approach to branches of extra-EU banks.*

---

*The “Winding Up Directive” (Directive 2001/24/EC of the European Parliament and of the Council of 4 April 2001 on the Reorganization and Winding up of Credit Institutions) provides a harmonized legal framework for the reorganization and winding up of EU banks under which the home-state authorities are exclusively responsible for the opening of insolvency procedures against the head office and all EU branches of an EU bank. Specifically, home-state authorities will steer, and home-state law will govern (with some exceptions), the insolvency procedures for all EU-wide assets and liabilities of the EU bank. The Directive does not, however, establish a common framework for the insolvency treatment of EU branches of extra-EU banks. While thus keeping national rules largely intact, the directive merely requires the various host state authorities of branches located in EU member states to “endeavor to coordinate their actions.”

This focus on national interest is also reflected in the mandates of many financial supervisors. With important exceptions (such as in the EU framework), these mandates typically emphasize the need to protect financial stability at the national—and not the international—level. Hence, when a group becomes distressed, the national supervisory authorities are likely to focus on domestic interests.
Resolution of Cross-Border Banks: A Proposed Framework for Enhanced Coordination

The costs of the application of local resolution frameworks to global institutions may be distilled as follows. First, the absence of an effective cross-border resolution framework undermines financial stability in a number of different respects. Uncoordinated actions by national authorities may hasten the failure of a financial institution in a manner that destroys value. This could occur, for example, if during a period of stress the host jurisdiction required a transfer of assets to cover the liabilities of the branch and destabilized the bank in the home jurisdiction.9

INTERNATIONAL COORDINATION IN BANKING SUPERVISION

Effective supervision at the international level has been promoted through the development of international standards and best practices that national authorities voluntarily implement through the enactment of legislation or the conclusion of memoranda of understanding with supervisors in other jurisdictions. The goal of these initiatives is consolidated supervision that aims at empowering bank supervisors with the tools necessary to understand, monitor, and, when appropriate, minimize the risks associated with an organization’s consolidated or group-wide activities.

Internationally agreed principles on the supervision of cross-border banking groups have been in place for several decades. The BCBS issued its first statement of principles or “Concordat” regarding the supervision of banks’ foreign establishments in 1975. These basic principles have been underpinned by further statements from the BCBS addressing cross-border supervision and home-host supervisory relationships. Since then, it has consistently called for international cooperation to ensure that no foreign bank operation evades proper supervision—including through the issuance of principles on cross-border supervision and home-host supervisory relationships.

These efforts have facilitated cooperation but have not been entirely successful in facilitating effective supervision at the international level. Despite progress made worldwide in the adoption of international standards on capital, risk management, accounting rules, and other prudential matters, national authorities are not yet able to construct a complete map of the key risks affecting financial firms on a consolidated basis. Problems include:

- **Legal constraints and regulatory perimeter.** In some cases, supervisors lack the legal authority to share information with foreign counterparts.

- **Divergences between supervisory approaches.** Although there may be agreement on the regulatory standards to be applied, they may be applied differently by different national supervisors.

- **Diverse reporting systems.** Different supervisory models lead to different reporting systems that hinder timely data compilation.

THE COSTS OF THE EXISTING APPROACH

The costs of the application of local resolution frameworks to global institutions may be distilled as follows.

First, the absence of an effective cross-border resolution framework undermines financial stability in a number of different respects. Uncoordinated actions by national authorities may hasten the failure of a financial institution in a manner that destroys value. This could occur, for example, if during a period of stress the host jurisdiction required a transfer of assets to cover the liabilities of the branch and destabilized the bank in the home jurisdiction.9

9Similar problems may occur in the case of subsidiaries if supervisors have imposed restrictions on intragroup transfers (BCBS, 2010f).
Moreover, recourse to uncoordinated local liquidation proceedings may prevent a recovery effort that seeks to preserve the continuity of critical functions, thereby giving rise to contagion. For example, the efforts of the national authorities to preserve continuity through a purchase and assumption transaction may be stymied if the national authority that has jurisdiction over the branch is unwilling to allow for the necessary transfer of assets and liabilities and focuses exclusively on a liquidation designed to satisfy stakeholders.

Finally, in circumstances where a financial institution or group operates in numerous jurisdictions, the uncertainty as to how the various national authorities will coordinate their actions makes it very difficult for effective action to be taken quickly. Yet quick action is essential to any strategy that seeks to both preserve value and limit contagion.

Second, the existing framework exacerbates moral hazard. Given the financial stability problems that arise from uncoordinated national approaches, as described above, it is not surprising that a more tempting approach is to provide public bailouts without any effort to ensure that action is taken to ensure that shareholders and unsecured creditors assume the necessary losses before public funds are committed. Moreover, even if national resolution frameworks are relied on, an uncoordinated approach might not maximize the value of the institution or the group and therefore might increase the amount of financing that will have to be provided by a state. For example, a financial group operating in numerous jurisdictions may lose a significant portion of its franchise value—and therefore its attractiveness to potential private investors—if it is broken up along national rather than business lines. This is also true where the liquidation of a cross-border institution is implemented in a purely piecemeal manner.

Indeed, recent experience demonstrates that the more interconnected and integrated international financial institutions and groups become, the more disruptive and value-destroying uncoordinated local resolution actions are likely to be. The cases of Fortis and Lehman (Box 6.3) demonstrate how the existing approach may fail to realize coordination benefits in either a restructuring or a liquidation of an integrated cross-border institution.

POSSIBLE ELEMENTS OF ENHANCED COORDINATION FRAMEWORK

While the inadequacies of the existing framework are manifest, several options for improving the framework for cross-border resolution are available, each with its own advantages and disadvantages. Moreover, regardless of which steps are taken in relation to resolution, measures that address prevention and preparedness, including simplifying financial group structures where necessary to facilitate resolution, will also be of critical importance in the future (see Box 6.4).
Resolution of Cross-Border Banks: A Proposed Framework for Enhanced Coordination

The Cross-Border Bank Resolution Group

Of the several international initiatives on cross-border resolution, the most important contribution to date has been that of the Cross-Border Bank Resolution Group (CBRG) of the Basel Committee on Banking Supervision (BCBS, 2010f).\(^\text{10}\)

The group published its final Report and Recommendations on Cross-Border Bank Resolution (CBRG, 2010).

---

**Box 6.3**

**Fortis and Lehman**

**Recovery of Fortis**

After the Benelux financial conglomerate Fortis Group fell into a crisis in late 2008, the group was resolved along national lines in a protracted process that failed to preserve franchise value.

In the Netherlands, the Dutch state bought Fortis’s Dutch bank and its insurance arm as well as parts of ABN Amro, which Fortis had recently acquired. In Belgium, the Belgian government bought Fortis’s Belgian bank (the largest component of the overall Fortis Group) and agreed to sell a 75 percent stake in it to BNP Paribas. BNP also bought Fortis’s Belgian insurance operations and acquired a majority stake in Fortis’s Luxembourg subsidiary.

Completion of the resolution of Fortis was delayed for nearly six months between December 2008 and May 2009 after Belgian shareholders in Fortis succeeded in challenging the deal to sell most of the Belgian bank to BNP Paribas. The Belgian Court of Appeal found that shareholders were entitled to vote on the transaction in order for it to be valid under Belgian law. Shareholders then voted against the transaction but subsequently approved it after agreeing to modifications.

The example of Fortis brings into sharp relief the problem of balancing private shareholder rights with the public interest in systemic stability through swift and decisive bank resolution. The case also illustrates the tendency for national interests to come to the fore in a crisis and the difficulty in such circumstances of achieving a cross-border consensus, even between jurisdictions whose financial regulators have a long tradition of cooperation and whose legal frameworks are considerably harmonized.

**Liquidation of Lehman**

Lehman Brothers provides an example of the potential for competing proceedings in the cross-border liquidation of a financial group.

When Lehman Brothers filed for bankruptcy protection in the United States in September 2008, the firm had operations around the globe involving dozens of different group entities (both branches and subsidiaries).

With main proceedings in the United States and the United Kingdom, insolvency officials in numerous other jurisdictions are also engaged in winding down the various international components of Lehman Brothers with little or no coordination. Complex intragroup arrangements have also impeded the return of client property; for example, large amounts of client money that had been segregated by Lehman’s U.K. broker-dealer were deposited at a German affiliate which itself entered an insolvency proceeding and moratorium.

---

\(^{10}\)For a more complete summary of the CBRG recommendations, see Appendix 6.1.
Since the start of the financial crisis, policymakers have developed several proposals to strengthen cross-border supervision and to reduce the likelihood of a large cross-border financial group falling into difficulty. Some of these proposals have already been implemented whereas others are under discussion.

Colleges of banking supervisors have been expanded now to almost 40 financial groups. Although colleges are not a new initiative, it is intended that home and host supervisors will have enhanced, direct, and frequent liaison with one another and with the banks on key issues such as risk management, capital, and liquidity, which in turn will enhance mutual trust among national authorities. To make these colleges more effective, however, amendments to national legal frameworks will in some cases be necessary—in particular to authorize the sharing of critical information between supervisors when the financial conditions of banks are deteriorating.

The Financial Stability Board (FSB) will identify jurisdictions that fail to implement internationally agreed standards concerning international cooperation and information exchange. The FSB will engage with such jurisdictions in order to bring them toward full compliance and, in some cases, may impose countermeasures.

Proposals are under consideration to: (i) discourage banks from engaging in activities that give rise to systemic risk through a systemic risk charge on “systemically important” institutions; (ii) make large complex financial institutions more resilient to shocks by increasing capital levels and buffers; and (iii) reduce the complexity of large financial groups (i.e., by “de-risking” cross-border firms and by “subsidiarization”).

Crisis management groups have been established under the auspices of the Cross-Border Crisis Management Working Group of the FSB for the major international financial firms. Formed of supervisors, central banks, and resolution authorities from the key home and host jurisdictions of the major international firms, they are tasked with developing recovery and resolution plans (RRPs) for these firms. RRPs can be useful tools for ensuring the preparedness of firms and authorities if they are used to identify measures that a firm and/or authority can undertake prior to a shock to facilitate more effective and coordinated recovery or resolution. This might include measures the firm should undertake to strengthen its capital position or liquidity buffer or to improve its ability to provide the detailed information needed quickly in a resolution. RRPs may also help identify measures the authorities should undertake to strengthen their resolution powers or incentivize structural changes in the firm.

Resolution in March 2010. Other important regional initiatives are also underway on cross-border resolution, including the European Commission’s consultations directed toward improving the EU framework for cross-border bank crisis management.

In its report, the CBRG observed that a number of alternative approaches to cross-border resolution are available:

- Full “universality” via a binding legal instrument, such as an international treaty. To be fully effective, the CBRG recognized that such a treaty would
need to include substantive obligations related to key issues such as selection of lead authority and burden sharing.

- **De-globalization of financial institutions.** At the other extreme from a pure universal solution would be a uniformly territorial approach in which institutions would be separately structured for capital, liquidity, assets, and operations within each jurisdiction. By promoting the separate functionality of financial organizations through stand-alone subsidiaries, such an approach could contribute to the resilience of host country operations (see Chapter 11).

- **A “middle ground” approach.** The CBRG recognized that enhanced coordination among resolution authorities might provide a solution that steers a path between territoriality and universality. The CBRG recommended that national authorities develop procedures to facilitate the mutual recognition of crisis management and resolution proceedings and/or measures.

When evaluating the various alternatives identified by the CBRG, it is important to bear in mind a number of considerations.

First, the ongoing debate on the merits of universality versus territoriality is somewhat theoretical and, as recognized by the CBRG, is not entirely relevant to the existing problem. It is theoretical because, at least in the short term, it is very unlikely that all key jurisdictions will agree to sacrifice the degree of national sovereignty necessary to implement full universality. It is not entirely relevant because the debate applies exclusively to single entities (e.g., a parent bank and its branches) and is not applicable to the resolution of interconnected but separate legal entities within a group.

Second, the de-globalization of financial groups and institutions is problematic on a number of different levels. It would both reduce efficiencies and could undermine access to credit to emerging market economies. Although some reduction in the scope of the international activities of large international banks may contribute to financial stability, the presence of large international banks in emerging markets has, in some cases, strengthened the resilience of these markets. As has been demonstrated recently in Central and Eastern Europe, the financial support provided by parent banks to subsidiaries operating in member countries experiencing a financial crisis plays an important role in crisis resolution.\(^{11}\)

In light of the above, this chapter proposes possible elements of a framework that would underpin the “middle ground” approach, one that would facilitate coordination across borders without requiring a surrender of national sovereignty. This framework draws on many of the achievements of the United Nations Commission on International Trade Law (UNCITRAL) in the field of cross-border corporate insolvency (see Box 6.5).\(^ {12}\) While recognizing that the specific features

\(^{11}\)This financial support has been buttressed by the European Bank Coordination Initiative ("Vienna Initiative") which was launched in January 2009 and served as a public-private sector collective action platform for dealing with home and host country issues relevant for large cross-border banking groups active in merging Europe.

\(^ {12}\)A more complete description of UNCITRAL’s initiatives in the area of cross-border corporate insolvency is set out in Appendix 6.2.
UNCITRAL and Cross-Border Corporate Insolvency

The United Nations Commission on International Trade Law (UNCITRAL) has been a driving force for progress in the development of an international framework for the coordination of cross-border corporate insolvency proceedings. An important achievement of UNCITRAL in this area is its Model Law on Cross-Border Insolvency (the “Model Law”), adopted in 1997. The Model Law is not a treaty but, as its name suggests, a model that countries may voluntarily incorporate into their domestic legal frameworks.

The Model Law applies to the insolvency of a single firm with a presence in foreign jurisdictions. It does not apply to types of entities for which special insolvency regimes may exist in national law—in particular, banks and insurance companies. Moreover, it does not apply to corporate groups comprised of legally distinct subsidiaries or affiliates. The insolvency of corporate groups is currently the subject of a separate UNCITRAL project—the preparation of a legislative guide on the treatment of enterprise groups in insolvency.

The Model Law sets out a framework for managing the insolvency of a cross-border financial firm in a fair and orderly manner. A central feature of the Model Law is the principle under which the courts of one jurisdiction will “recognize” proceedings in another jurisdiction. Importantly—and of particular relevance to the issues discussed in this chapter—recognition generally permits, but does not require, the court to grant relief to a foreign insolvency representative if it determines that the interests of the debtor and creditors would be protected. While some aspects of the framework contemplated in the Model Law may not be entirely appropriate for the insolvency of a cross-border financial group, other features are of great relevance, including the following.

• **Center of Main Interest.** The Model Law distinguishes between the “main” and “non-main” insolvency proceedings respecting an enterprise. In identifying the main proceeding, the Model Law looks to the jurisdiction in which the debtor has its “center of main interests.”

• **Cooperation.** The Model Law provides legal authority for insolvency representatives in different jurisdictions to collaborate with each other (via direct communication and information sharing) and to coordinate concurrent insolvency proceedings.

• **Discretionary Relief.** With one exception (i.e., an automatic stay on execution in connection with a foreign “main” proceeding), the granting of relief to a foreign representative is at the discretion of the court. Moreover, it is subject to conditions. In particular, the court must ensure that the debtor and its creditors are adequately protected. The Model Law forbids discrimination against foreign creditors.

• **Protocols.** The framework for cooperation set out in the Model Law has been very effectively supplemented through the negotiation of protocols on cooperation between insolvency officials in individual cases. Protocols are formal agreements typically negotiated through professionals representing major interests involved in insolvency. They are normally approved by relevant courts. Since the adoption of the Model Law in 1997, a huge body of protocols has been negotiated.
of corporate insolvency are not applicable to the financial services industry (in particular, a financial institution’s resolution will generally be led by specific resolution authorities rather than courts), IMF staff is of the view that two elements of the approach developed by UNCITRAL are of potential relevance. First, while a court is required under the UNCITRAL framework to “recognize” the existence of insolvency proceedings in other jurisdictions, it retains broad discretion as to the degree to which it will actually defer to the decisions and requests made by the courts and insolvency officials in such jurisdictions. Second, UNCITRAL addresses a number of the specific procedural issues that can hamper coordination as a matter of practice.

It is recognized that, in the context of financial institutions, the host authorities will only feel that they can cooperate with the home authorities if they have confidence that the home authorities are willing and able to take effective action. Indeed, the “universalist” framework that exists in the European Union is a product of a very high level of integration among the countries of the EU (see Box 6.1). Although it is recognized that this level of integration would be difficult to replicate outside the EU, the proposed approach recognizes the need to have some minimum commonality of resolution and supervision systems in order for cross-border cooperation to be effective. Accordingly, and as a supplement to the two elements derived from the UNCITRAL framework described above, the approach proposed here would identify certain “core coordination standards” that countries would need to have in place in order to be eligible to participate in the enhanced coordination framework.

Taking into account the above analysis, the proposed approach envisages the establishment of an enhanced coordination framework. The framework would be put in place through a nonbinding multilateral understanding reached among those countries that are in a position to adhere to its various elements. These elements would include the following:

- **Facilitating coordination.** The modification of domestic laws that would require national authorities to coordinate with foreign jurisdictions—but only to the extent that, in the judgment of the national authority in question, such coordination would be consistent with the interests of creditors and domestic financial stability.14

---

13 This approach does not preclude countries from establishing deeper coordination mechanisms in the context of single financial markets or monetary unions. Some monetary unions (e.g., in central Africa and the Eastern Caribbean) already have single bank supervisory and resolution authorities, with a common bank resolution framework. The EU similarly has a common legal framework for bank resolution, but lacks a single resolution authority (see Box 6.1).

14 As of the date of this writing, one version of legislation pending in the United States would require the Federal Deposit Insurance Corporation (FDIC) to cooperate with foreign competent authorities to the maximum extent possible on the liquidation of systemically important financial companies that have assets or operations in any country other than the United States (see Restoring American Financial Stability Act of 2010, §210(a)(1)(N), as passed by the Senate, May 20, 2010). Another version could potentially require the FDIC to coordinate with foreign competent authorities on the dissolution of foreign subsidiaries of systemically important financial companies (see Wall Street Reform and Consumer Protection Act of 2010, §1609(a)(1)(L), as passed by the House of Representatives, December 11, 2009).
• **Identification of “core coordination standards”** that would be used to identify those countries with which a more coordinated cross-border resolution would be expected to take place.\(^{15}\)

• **Funding the resolution process.** Recognizing that public funding in the resolution process may, on occasion, be needed, if only on a temporary basis, the establishment of principles that would set forth the criteria and parameters to guide the burden sharing process among the members of the enhanced coordination framework.

• **Specification of coordination procedures** to be relied on by those countries that adhere to the enhanced coordination framework. Each of these four elements is discussed in greater detail below.

**Facilitating Coordination**

The authorities of a country would be required to coordinate with resolution authorities in other jurisdictions, but only to the extent that the authorities determine that such coordination is consistent with their own national interests. More specifically, members would ensure that their domestic legislation required national authorities to coordinate their resolution efforts with their counterparts in other jurisdictions to the maximum extent consistent with the interests of creditors and domestic financial stability. In determining whether a coordinated approach is consistent with the interests of creditors, the national authorities of a host jurisdiction would assess whether, under a coordinated approach, creditors to branches or subsidiaries located in their territory are likely to receive at least what they would receive had the branch or entity been liquidated on a territorial basis by the host jurisdiction. Of course, a coordinated approach that is consistent with the interests of creditors may still involve the imposition of losses upon creditors. National authorities would continue to retain the discretion to act independently if, in their judgment, such action were more consistent with the interests of creditors and financial stability.\(^{16}\)

At present, there are cases where a country’s framework does not sufficiently facilitate coordination.\(^{17}\) For example, in some jurisdictions, existing laws may effectively prevent competent authorities from sharing information with foreign competent authorities.\(^{18}\) Moreover, local law may encourage the ring-fencing of assets of the branch of a foreign bank for the benefit of the creditors of the branch. In addition, attempts by the national authorities of the home jurisdiction

---

\(^{15}\)Although it would be possible to require such coordination through a binding international treaty, such an approach is not proposed in this chapter.

\(^{16}\)A country’s legal framework could also permit its authorities to coordinate with jurisdictions that do not meet the elements described in this chapter.

\(^{17}\)Even where the law, by its terms, may not preclude cooperation, there may be practical obstacles to effective coordination.

\(^{18}\)In some countries, a bank supervisor will only be permitted to share information with foreign bank supervisors but not with supervisors of other aspects of a foreign country’s financial system or with separate resolution authorities.
to continue critical operations of a bank through a purchase and assumption transaction may be frustrated by the regulatory actions of the host authorities with respect to branches falling under their control.

**Coordination Standards**

Even if domestic legal frameworks are modified to establish a coordination mandate, subject to the interests of creditors and financial stability, experience demonstrates that the national authorities will only be willing to coordinate their activities if they have adequate confidence in their counterparts. To that end, the objective would be to identify certain standards that countries would be expected to adhere to as a condition for cooperation. As a matter of practice, it would be presumed that all countries that meet these standards would be expected to coordinate their activities with each other in the context of a resolution, it being recognized that this presumption could always be rebutted by a national authority that had reached the judgment in a particular case that independent action was necessary to protect financial stability or the interests of creditors. Three standards would appear to be the most relevant: minimum harmonization, robust supervision, and institutional capacity. Each is discussed in turn.

**Minimum Level of Harmonization of National Resolution Rules**

Host-country authorities will only be willing to cooperate with home-country authorities if their national frameworks have a reasonable level of high quality convergence. In particular, the legal framework of the authorities involved in group-wide resolution will need to share certain key features:

- **Nondiscrimination against foreign creditors.** With respect to jurisdictions where branches of foreign banks are located, the authorities of the host countries will need to be satisfied that other countries’ resolution procedures will not discriminate against the creditors of the local branch, including depositors and, by extension, deposit guarantee schemes, and governments. Domestic depositor preference in the home country, based on the nationality or location of the depositor, would be inconsistent with this principle.

- **Effective intervention tools.** Many countries are recognizing the need for special bank resolution regimes and official administration procedures that allow competent authorities to intervene rapidly and in a manner that both preserves the critical functions of the institution and avoids contagion. Strengthening countries’ domestic legal frameworks for resolution would, in itself, represent an important step forward, and work on developing best practices in this critical area is being pursued in a number of different

---

19An analogous approach is taken in Article 21.2 of the UNCITRAL Model Law, which provides that “upon recognition of a foreign proceeding, whether main or non-main, the court may, at the request of the foreign representative, entrust the distribution of all or part of the debtor’s assets located in this State to the foreign representative or another person designated by the court, provided that the court is satisfied that the interests of creditors in this State are adequately protected.”

©International Monetary Fund. Not for Redistribution
forums, including in the FSB. Among those intervention powers that are currently considered to be the most critical are the following:

- **Early intervention authority**, that is, the existence of common triggers that allow the authorities to take action well before balance sheet insolvency.

- **Powers that would enable the authorities to unilaterally restructure the various claims of an institution**; for example, debt-for-equity conversions or the reduction of the value of unsecured creditors.

- **The authority to conclude mergers and acquisitions without shareholder consent.**

- **The unilateral power to transfer assets and liabilities to other institutions**, including a bridge bank that would be established for this purpose, without the need to obtain the consent of third parties.

- **The authority to provide bridge financing to facilitate the transactions described above.**

- **The ability to assume public ownership of an institution on a temporary basis**, once its shareholders and unsecured creditors have absorbed the necessary losses.\(^{20}\)

- **As a means of both limiting contagion and preserving critical operations**, the temporary suspension of termination provisions contained in some financial contracts.

- **Appropriate creditor safeguards.** The intervention powers described above may be exercised in pursuance of a public interest in financial stability. However, these powers potentially interfere with private contractual and property rights. Accordingly, rules on creditor safeguards and the judicial review of supervisory and recovery and resolution actions to ensure the equitable treatment of creditors are essential features of resolution regimes (see Box 6.6). Where a bank is resolved under a special resolution framework, compensation ought to be available to creditors to ensure that they are left no worse off in the resolution than if the firm had been allowed to fail and lapse into liquidation. Similarly, where resolution powers permit transfers of property, resolution regimes need to provide sufficient safeguards to stakeholders by protecting customer property rights, security interests, and financial collateral arrangements in financial contracts (including netting rights).

- **Sufficiently robust and harmonized rules on priority.** At least for banks, it is necessary to have sufficiently robust and harmonized rules on priority that

\(^{20}\)Recently, the need for early intervention tools has been recognized in a number of international forums. See, for instance, the communication of the European Commission on “An EU Framework for Cross-Border Crisis Management in the Banking Sector” (EC, 2009). Attention is also being devoted to the possibility of requiring firms to issue contingent convertible securities that would recapitalize a bank in financial distress by converting to common stock upon the occurrence of certain triggers.
recognize the interests of host-country insured depositors and deposit guarantee scheme. If these rules in the home country do not ensure equal priority for the host country insured depositors and deposit guarantee scheme, the latter’s resolution authorities will have a strong incentive to choose a domestic solution. Arguably, this may require a broader harmonization of deposit guarantee scheme features, including the categories of insured depositors and the amounts of the protection.

Robust Supervision
For any host-country authority to accept the leadership of home-country authorities and to collaborate with other host authorities, the former will also
need to be satisfied that the level of prudential supervision in the latter is of sufficient quality and that the relevant supervisors engage in consolidated supervision (e.g., including insurance firms and securities firms). It is true that for some types of financial institutions there already exists a set of broadly accepted international standards (e.g., the Basel Core Principles on Effective Bank Supervision).21 Similarly, at least for banks, the Basel Concordat already includes the principle that host countries should not grant market access to foreign banks if the latter are not well supervised in their home jurisdictions (and vice versa).

Nevertheless, in light of the crisis, it is felt by many supervisory authorities that these standards have not brought about a sufficient increase in the quality of prudential supervision and the willingness of supervisors to intervene in all relevant countries. To coordinate with foreign resolution authorities, home resolution authority might thus require higher quality supervision and greater convergence on these points. The establishment of colleges of banking supervisors and the steps being taken by the FSB to promote global adherence to international cooperation and information sharing standards are measures in the right direction.

Institutional Capacity to Implement an International Solution

For host-country authorities to accept the leadership of home-country authorities and to collaborate with other host authorities, the former must feel comfortable that the latter can effectively implement an international solution. This will require an organizational structure and staff that is capable of acting swiftly across borders. Given that several of the largest financial groups are active in more than 30 countries, this might constitute an enormous challenge to overcome in and by itself. Obviously, supervisory colleges are a tool to build up such capacity, as well as the necessary contacts with host authorities so as to facilitate cross-border interinstitutional cooperation.22 The coordination criteria described above could take the form of a set of international standards to which countries could choose to adhere. Adherence would indicate to other countries a capability to implement an international resolution.

21The establishment of colleges of banking supervisors and steps being taken by the FSB to promote global compliance with international cooperation and information sharing standards are measures in the right direction. These aim at ensuring that key core principles for effective supervision (covering licensing criteria, methods of ongoing supervision, and consolidated supervision) concerning cross-border banks and insurance and securities firms are fully complied with.

22At the same time, however, there is a risk that a supervisory college may engender "group think" among relevant supervisors and blur the delineation of responsibilities as to who should take action when an institution’s condition begins to deteriorate. These risks may be mitigated through the establishment of effective governance arrangements that, to strengthen public confidence in supervisory processes, should be made public.
The Funding of Cross-Border Resolution

Although one of the key objectives of any resolution is to minimize the need for public funding, such funding may occasionally be needed, if only on a temporary basis. The question then arises as to whether and how agreements on financial burden sharing among national authorities should be an element of any cross-border coordination framework.

As noted above, one of the key objectives of the proposed framework is that the final cost of the resolution be borne by private stakeholders. Box 6.7 gives a

**Box 6.7**

**Cost Allocation in the Domestic and International Contexts**

The insolvency liquidation of a bank typically imposes costs on pre-insolvency private stakeholders. The unencumbered assets of the insolvent bank are sold and the proceeds distributed to creditors according to their ranking. Losses are attributed consecutively to shareholders, subordinated creditors, and unsecured creditors. In practice, however, secured deposits are often transferred with a corresponding amount of unencumbered assets through a “purchase and assumption transaction,” before the shell is put into liquidation. Such transactions typically hinge on a preference granted to insured depositors and the deposit guarantee scheme (DGS). As a result, the DGS would only incur losses if the available assets were less than the insured deposits, whereas shareholders, subordinated creditors, and unsecured creditors are unlikely to recover the full amount of their claim because most of the assets would be transferred to the acquiring bank. Similarly, if central banks have provided collateralized liquidity assistance prior to the insolvency, much of the estate’s assets will serve with priority the repayment of the central bank.

The structure of a recovery operation will determine whether and how the cost is shared between pre-insolvency private stakeholders. Recoveries are typically organized through the combination of the following techniques:

- **Capital Increases**—The (private and public) providers of new capital will normally make their investment conditional to write-downs on the capital of pre-insolvency shareholders, thus significantly diluting the interest of the latter. Moreover, newly issued preferred shares will take priority over ordinary shares regarding both income and liquidation dividends. However, the pre-insolvency unsecured creditors will benefit from the capital increase as they are more likely to be repaid.

- **Issuance of New Debt**—New borrowing will impose costs upon the existing shareholders to the extent that it reduces the bank’s net profits. (In that regard, premiums paid for public guarantees are included in the cost.) The claims of preexisting subordinated creditors will be inferior to new unsecured claims. In contrast, the preinsolvency unsecured creditors will not be directly adversely affected, although indirectly their positions may suffer if the new borrowing is not coupled with a capital increase.

- **Reduction of Liabilities**—The unsecured debt of a bank can be reduced by (i) court-imposed haircuts, (ii) voluntary or forced conversion into equity, or (iii) a “leave behind” through a “purchase and assumption” transaction. Almost by definition, such operations impose losses on pre-insolvency unsecured creditors and shareholders.
brief overview of how the final costs are typically allocated in both the liquidation and recovery of banks, and illustrates that it is more straightforward to impose losses through liquidation than through recovery action. In recovery, the equity position of pre-insolvency shareholders may be significantly diluted or completely wiped out, but imposing losses on existing creditors may be more difficult. As discussed earlier, a key objective is to design recovery tools that also allow for the imposition of haircuts (including through the establishment of the necessary legal basis for such an approach).

However, even if losses are imposed on creditors at the time of recovery, temporary public funding may still be necessary for a number of reasons. First, most legal frameworks do not have the necessary underpinnings for private sector “debtor-in-possession” type financing of bank resolution processes. Second, even if such underpinnings were available, private providers of funds would often have difficulty in organizing the funding and structuring the process within the urgent context that is typical to failures of large, systemic banks. This is particularly the case in the context of systemic turmoil when other financial institutions face generalized funding pressures. Faced with such market failure, up-front public funding provided by the ministry of finance or the central bank, as appropriate (with protection against future losses by the MOF), may be the only option. A partially prefunded “orderly resolution fund” or a deposit insurance fund may contribute to such funding. To the extent that there is a risk that, at the end of the process, the recovery will fail and the national authorities will face a loss, this can be addressed through the establishment of a fund that would receive ex ante (or ex post) contributions from the private sector.

In light of the potential for temporary financing needs, the question arises as to how such needs should be coordinated in the context of the resolution of an international financial group. Home countries are likely to be unwilling to or incapable of delivering all the public funding necessary to stabilize a large international financial group. By consequence, host countries may need to contribute financing if they want to keep the international financial group intact. Moreover, a host country’s decision whether or not to financially contribute to a group-wide solution ought to be informed by the fact that funding from the host country is likely to be required even if a strictly national solution is pursued.

Some form of financial burden sharing might thus be necessary. There will be cases where reaching an agreement between national authorities after a crisis

---

23 Under debtor-in-possession frameworks, the providers of post-insolvency liquidity acquire a priority over pre-insolvency creditors.

24 Several countries have established such funds, which are funded by contributions from the financial sector and managed by the government with the aim of financing orderly resolution processes when and if needed. However, such funds need not necessarily be established. See “Draft Final Report for the Group of Twenty Ministers on a Fair and Substantial Contribution by the Financial Sector” (IMF, 2010c).
Resolution of Cross-Border Banks: A Proposed Framework for Enhanced Coordination

has occurred will facilitate the recovery of a troubled financial institution. Ideally, agreement on burden sharing should be reached by the authorities of the principal jurisdictions on an institution-specific basis before a crisis occurs, especially if such agreements are supported by institution-specific recovery and resolutions plans (RRPs) or “living wills” (see Chapter 9 for more details on RRP). However, regardless whether it is before or after the crisis has occurred, reaching agreement on these questions will never be an easy task. For this reason, it would be desirable for the enhanced coordination framework to set out the range of criteria and parameters that would guide the burden-sharing process; for example: (i) the relative systemic importance of the group across jurisdictions, (ii) the relative contribution from DGS and any other resolution funds (if available) from different countries, and (iii) the relative distribution of losses across jurisdictions.

Establishment of Coordination Procedures

Even if there is a group of countries that have satisfied the above coordination standards, their ability to actually coordinate rapidly and effectively will be enhanced if there is an established set of procedures that will serve as a road map in the context of a crisis.

Drawing on the corporate insolvency experience and, more specifically, the coordination framework established by UNCITRAL, a framework for the resolution of international financial groups could be designed in a manner that ensures that there is an understanding of (i) who will take leadership in the initiation and conduct of resolution proceedings and how such leadership will be exercised, and (ii) what the modalities of communication and consultation are that will take place during the process. The framework could apply between jurisdictions that adhere to the elements identified above. Moreover, it would need to be designed in such a manner that it could provide guidance with respect to the resolution of both a parent bank with foreign branches and an international financial group involving bank and/or nonbank subsidiaries. Although a number of issues would need to be resolved, the following general points may be made.

Leadership

Where a financial institution with branches in foreign jurisdictions falls into financial difficulty, it is important to have clear understandings as to who will play the lead role in the initiation and conduct of the resolution proceedings. It would appear appropriate for the lead role to be played by the home country authorities. This approach would be consistent with the Concordat, and would reflect the reality that the parent jurisdiction is likely to be the principal source of public funds necessary to finance a restructuring. As noted earlier, the procedural framework would need to specifically acknowledge that, although it would be presumed that a host country would accept the leadership of the home jurisdiction that adheres to the coordination framework, the host jurisdiction would reserve the right to act independently if it formed the judgment that independent
action was more consistent with domestic financial stability and the interests of creditors.\textsuperscript{25}

The modalities of leadership would depend on the circumstances. In the case of court-based proceedings, the home authorities could be given standing to launch proceedings in the host jurisdiction’s courts directly or through the host authorities acting on the basis of the guidance of the home authorities.\textsuperscript{26} In the case of administrative proceedings, the host jurisdiction’s legal framework could either permit the host authorities to conduct such proceedings on the basis of guidance provided by the home authorities, or permit the home authorities to do so directly.\textsuperscript{27} It would be expected that the home authority would design the overall resolution strategy, decide on the type of proceeding (e.g., restructuring vs. liquidation) to be launched in the home and host jurisdictions, and play the lead role in the conduct of resolution proceedings. This would be a substantial departure from current practice.

Although the above procedures are most directly applicable to a financial institution and its branches, the framework could also identify the modalities of leadership and coordination that would be applicable to the resolution of financial groups. The framework would clarify who is responsible for the resolution of each entity within the financial group. Following the approach taken at the national level in some jurisdictions (e.g., Italy), each country could designate a lead authority to initiate and conduct all resolution proceedings with respect to all bank and nonbank subsidiaries (both regulated and unregulated) and branches located within its territory and to serve as a point of contact with lead authorities in other jurisdictions. Moreover, the framework would require these authorities to coordinate their actions to the maximum extent possible. Although separate insolvency proceedings would be conducted with respect to each legal entity within the group, a host lead authority would be required to consult with the home lead authority before initiating resolution proceedings against a local subsidiary. It is also possible that the framework could require authorities to coordinate their actions on a range of issues—for example, by consolidating court proceedings involving separate entities that form part of a financial group (i.e., where the proceedings would remain separate but would be adjudicated by a single court at the same time) wherever possible, by coordinating actions taken to protect assets, by cooperating on the resolution of intragroup claims, and with creditors.

\textsuperscript{25}Of course, there may well be cases where host jurisdictions reject the leadership of the home supervisor—for example, where the banking sector of the home jurisdiction collapses as a result of a sovereign debt crisis that severely undermines the ability of the home authorities to finance a restructuring.

\textsuperscript{26}Such proceedings could involve the recognition of certain decisions taken in the context of insolvency proceedings in other jurisdictions.

\textsuperscript{27}In a restructuring, decisions on the transfer of assets and liabilities would be taken by the home authorities and, if necessary, implemented in the jurisdictions in which the assets and liabilities to be transferred are based. In the context of liquidation, the assets of the bank would be collected and realized on a global basis and in a collective fashion, with the proceeds distributed to all creditors on the basis of the priorities set out in the legislation of the home jurisdiction.
**Communication**

The implementation of such a system would require a very high level of communication and sharing of information among the supervisors and the resolution authorities. In taking key decisions on the resolution, the home authorities would be required to consult with the host authorities and to consider the impact of the decision on host jurisdictions. The relevant authorities and, in some cases, the relevant courts would need to have in place arrangements for communication and consultation and would need to have the statutory authority necessary to share highly sensitive information.

The framework should also require the sharing of information at an early stage of a financial institution’s difficulties. Such a requirement is particularly important to address the information asymmetries that exist between home and host authorities. Home authorities invariably have more information on an institution than do their counterparts in host jurisdictions. Unless host authorities have a high level of trust in the home supervisor and are confident that they will be fully informed of developments in the institution’s financial position and of the possibility of action by the home authorities, they will have every incentive not to cooperate but, instead, to ring-fence assets.

As a means of facilitating communication and consultation, consideration could be given to the establishment of institution-specific agreements. In the context of cross-border insolvency, the cooperation framework established under the UNCITRAL Model Law has been supplemented by cooperation agreements that are reached in the context of specific cases. These agreements, referred to as “protocols,” are approved by the courts and address specific modalities for communication and consultation that are relevant to the case at hand. Although such protocols would be useful in the context of the resolution of financial institutions, they would need to be reached in advance of a crisis, given the need for rapid action. Such standing protocols could form part of the recovery and resolution plans that large financial groups will be required to establish.28

**CONCLUSIONS**

Although one can debate the precise contours of the solution to the problems described in this chapter, it is clear that there is a need for urgent action. Countries need to strengthen their resolution frameworks at the national level to ensure that ailing financial institutions and groups can be dealt with promptly and in a manner that protects the stability of the financial system. But effective action at the national level is not enough. Given the global nature of the financial services industry and its dominant institutions, national resolution frameworks will only be effective if they facilitate effective cooperation between authorities at the international level.

The approach outlined in this chapter seeks to facilitate such coordination in a manner that is achievable in the near future. It is recognized that a number of

---

28For guidance on the manner in which such protocols have been developed in the context of cross-border corporate insolvency, see UNCITRAL (2009b).
issues would need to be resolved before this approach is implemented—in particular, what mechanism would be used to determine whether a country met the “core coordination standards” or how to monitor their compliance with these standards over time. However, the approach described above would form the basis for incremental progress being made as more and more countries voluntarily adhere to the framework over time. The “carrot” that would encourage countries to do so would be the possibility of a more effective and value-preserving international resolution.

In the near term, a limited group of countries that already meet the standards described above could begin to cooperate among themselves. To the extent that these countries include the world’s principal financial centers, such cooperation would represent a major step forward. As other countries (e.g., developing countries and emerging markets) adhere to the standards over time, the circle of cooperation would expand. It would therefore represent a pragmatic and achievable mechanism for the strengthening of international cooperation worldwide.

APPENDIX 6.1. RECOMMENDATIONS OF THE CROSS-BORDER BANK RESOLUTION GROUP

The Cross-Border Bank Resolution Group (CBRG) of the Basel Committee on Banking Supervision developed the following recommendations as a product of its stocktaking of legal and policy frameworks for cross-border crises.

Recommendation 1: Effective National Resolution Powers

National authorities should have appropriate tools to deal with all types of financial institutions in difficulties so that an orderly resolution can be achieved that helps maintain financial stability, minimizes systemic risk, protects consumers, limits moral hazard, and promotes market efficiency. Such frameworks should minimize the impact of a crisis or resolution on the financial system and promote the continuity of systemically important functions. Examples of tools that will improve national resolution frameworks are powers, applied where appropriate, to create bridge financial institutions; transfer assets, liabilities, and business operations to other institutions; and resolve claims.

Recommendation 2: Frameworks for a Coordinated Resolution of Financial Groups

Each jurisdiction should establish a national framework to coordinate the resolution of the legal entities of financial groups and financial conglomerates within its jurisdiction.

Recommendation 3: Convergence of National Resolution Measures

National authorities should seek convergence of national resolution tools and measures toward those identified in Recommendations 1 and 2 in order to facilitate the coordinated resolution of financial institutions active in multiple jurisdictions.
Recommendation 4: Cross-Border Effects of National Resolution Measures

To promote better coordination among national authorities in cross-border resolutions, national authorities should consider the development of procedures to facilitate the mutual recognition of crisis management and resolution proceedings and/or measures.

Recommendation 5: Reduction of Complexity and Interconnectedness of Group Structures and Operations

Supervisors should work closely with relevant home and host resolution authorities in order to understand how group structures and their individual components would be resolved in a crisis. If national authorities believe that financial institutions’ group structures are too complex to permit orderly and cost-effective resolution, they should consider imposing regulatory incentives on those institutions, through capital or other prudential requirements, designed to encourage simplification of the structures in a manner that facilitates effective resolution.

Recommendation 6: Planning in Advance for Orderly Resolution

The contingency plans of all systemically important cross-border financial institutions and groups should address as a contingency a period of severe financial distress or financial instability and provide a plan, proportionate to the size and complexity of the institution’s and/or group’s structure and business, to preserve the firm as a going concern, promote the resiliency of key functions, and facilitate the rapid resolution or wind-down should that prove necessary. Such resiliency and wind-down contingency planning should be a regular component of supervisory oversight and take into account cross-border dependencies, implications of legal separateness of entities for resolution, and the possible exercise of intervention and resolution powers.

Recommendation 7: Cross-Border Cooperation and Information Sharing

Effective crisis management and resolution of cross-border financial institutions require a clear understanding by different national authorities of their respective responsibilities for regulation, supervision, liquidity provision, crisis management, and resolution. Key home and host authorities should agree, consistent with national law and policy, on arrangements that ensure the timely production and sharing of the needed information, both for purposes of contingency planning during normal times and for crisis management and resolution during times of stress.

Recommendation 8: Strengthening Risk Mitigation Mechanisms

Jurisdictions should promote the use of risk mitigation techniques that reduce systemic risk and enhance the resiliency of critical financial or market functions.
during a crisis or resolution of financial institutions. These risk mitigation techniques include enforceable netting agreements, collateralization, and segregation of client positions. Additional risk reduction benefits can be achieved by encouraging greater standardization of derivatives contracts, migration of standardized contracts onto regulated exchanges and the clearing and settlement of such contracts through regulated central counterparties, and greater transparency in reporting for OTC contracts through trade repositories. Such risk mitigation techniques should not hamper the effective implementation of resolution measures (cf. Recommendation 9).

**Recommendation 9: Transfer of Contractual Relationships**

National resolution authorities should have the legal authority to temporarily delay immediate operation of contractual early termination clauses in order to complete a transfer of certain financial market contracts to another sound financial institution, a bridge financial institution or other public entity. Where a transfer is not available, authorities should ensure that contractual rights to terminate, net, and apply pledged collateral are preserved. Relevant laws should be amended, where necessary, to allow a short delay in the operation of such termination clauses in order to promote the continuity of market functions. Such legal authority should be implemented so as to avoid compromising the safe and orderly operations of regulated exchanges, central counterparties, and central market infrastructures. Authorities should also encourage industry groups, such as the International Swaps and Derivatives Association (ISDA), to explore development of standardized contract provisions that support such transfers as a way to reduce the risk of contagion in a crisis.

**Recommendation 10: Exit Strategies and Market Discipline**

In order to restore market discipline and promote the efficient operation of financial markets, the national authorities should consider, and incorporate into their planning, clear options or principles for the exit from public intervention.

**APPENDIX 6.2. THE UNCITRAL FRAMEWORK FOR CROSS-BORDER CORPORATE INSOLVENCY**

**The Model Law**

The Model Law on Cross-Border Insolvency (the “Model Law”) was adopted in 1997. It sets out a framework for managing the insolvency of a cross-border firm in a fair and orderly manner. It contemplates the insolvency of single entities with establishments, assets, or creditors in more than one jurisdiction. It does not apply to groups comprised of legally distinct subsidiaries or affiliates and it is not intended to apply to types of entities for which dedicated insolvency regimes may exist in national law (such as banks and insurance companies).

Above all, the Model Law provides means by which foreign insolvency representatives (liquidators, administrators, etc.) may gain access to courts in another
jurisdiction where, for example, important assets or creditors of the insolvent entity may be located. Thus, an insolvency representative from Country A that is winding up or administering an entity in Country A may apply to have its proceeding recognized in Country B. Typically, unless the application is contested on public policy grounds (the Model Law includes a public policy exemption), obtaining recognition in Country B ought to be a mere formality. Neither reciprocity nor the quality of the insolvency law in Country A would be relevant to the decision of the court in Country B whether or not to recognize the applicant’s proceeding. While the application is pending, the court in Country B may (but is not required to) grant various forms of relief to the foreign insolvency representative (such as a stay on execution against the insolvent entity’s assets in Country B or entrusting the administration or realization of those assets to the applicant).

If a foreign proceeding has been recognized as a “main” proceeding, the Model Law imposes an automatic stay on execution, freezing the assets of the insolvent entity. Under the Model Law, “main” (as opposed to “nonmain”) proceedings are deemed to be located in the jurisdiction where the insolvent entity has its center of main interests (COMI).

When any proceeding is recognized (whether or not a main proceeding) the Model Law affords the recognizing court broad discretion in granting relief to the foreign representative. Most importantly, the court may entrust the realization and distribution of assets located in its jurisdiction to the foreign representative, provided that the court is satisfied that the interests of creditors located in the court’s jurisdiction are adequately protected. The equality of creditors in all jurisdictions is a basic principle underpinning the Model Law.

As well as establishing terms for recognition and relief including (potentially) the turnover of assets to a foreign insolvency representative, the Model Law also provides legal authority for insolvency representatives in different jurisdictions to collaborate with each other (via direct communication and information sharing) and to coordinate concurrent insolvency proceedings.

**UNCITRAL Progress on Enterprise Groups (Domestic and International)**

Although the Model Law addresses only single entities with a cross-border presence, the treatment of financial groups in insolvency has been the subject of discussion in the context of UNCITRAL’s Legislative Guide on Insolvency Law (the “Guide”). Since publication of the Guide in 2004, UNCITRAL’s Working Group V (Insolvency) has continued to develop draft recommendations relating to the insolvency of “enterprise groups” (i.e., two or more enterprises that are connected by control or significant ownership).29

---

29The Working Group’s latest draft commentary and recommendations in this area are discussed in document A/CN.9/WG.V/WP90 (“Treatment of Enterprise Groups in Insolvency”) from the Working Group’s 37th session, November 2009 (see: [www.uncitral.org/unictral/en/commission/working_groups/5Insolvency.html](http://www.uncitral.org/unictral/en/commission/working_groups/5Insolvency.html)).
The focus of Working Group V has been on domestic groups, recognizing that there are two basic approaches to their insolvency treatment. The first and internationally most prevalent approach assesses solvency on a per entity basis, recognizing the legal separateness of the different companies that comprise a group. The second approach considers economic reality above legal form, creating the potential for a more coordinated and consolidated approach to group insolvency.

**Domestic Groups**

The Guide envisages streamlining the process for commencement of proceedings by allowing all group companies that would meet the relevant insolvency threshold to make a single, joint application to commence insolvency proceedings. The main purpose of such joint application would be to reduce the costs and coordinate the timing of commencement.

Following the commencement of multiple insolvency proceedings for different group companies, the Guide contemplates the possibility of their coordination, potentially under the auspices of a single insolvency representative. Procedural coordination might involve information sharing between competent authorities, combined hearings and other methods of streamlining, and expediting multiple proceedings. Importantly, though, under any mechanism for procedural coordination the assets and liabilities of the separate insolvent entities would remain distinct, with the substantive rights of claimants unaffected. The greatest scope for procedural coordination exists domestically, where all group companies are located in a single country.

The Guide contemplates the possibility of extending stays of execution to solvent group companies in certain limited situations (e.g., to protect an intragroup guarantee that relies on the assets of the solvent group company providing the guarantee). However, the Guide notes that in some jurisdictions extending stays to solvent group members would not be possible under property or constitutional law.

The Guide also considers post-insolvency group financing, which would be of particular importance in any reorganization proceeding intended to return a group (or parts of it) to viability. The Guide considers that both solvent and insolvent group companies (and nongroup entities) should be able to contribute to postcommencement financing but that appropriate protection should also be established for the providers of financing as well as parties whose rights may be affected by the provision of financing. The Guide acknowledges that the provision of financing by a solvent member might not be possible under the laws of some jurisdictions.

Regarding laws to avoid or set aside antecedent transactions with insolvent companies, the Guide notes that special considerations might apply to transactions between group members, observing that some transactions that might appear to be preferential or undervalued as between their immediate parties might be viewed differently in the broader, group context, where both the benefit and the detriment of transactions may be spread more widely. Also, the Guide notes that
laws governing the subordination of related party claims may mean that in a
group context, the rights of group members under intragroup claims could be
subordinated to those of external creditors.

The Guide recognizes that the single-entity approach to the insolvency of enter-
prise groups limits a party’s recovery to the assets of the specific entity of which it
is a creditor. Conversely, extensions of liability, contribution orders, or substantive
consolidation measures might, in certain circumstances, permit a court (in insol-
vency proceedings involving two or more group companies) to disregard their
separate identity and to treat their assets and liabilities as one. At present, few
jurisdictions permit substantive consolidation, and those that do employ it spar-
ingly and in carefully prescribed circumstances. Such consolidation constitutes a
legally radical remedy and is at odds with the basic principle of the separate legal
identity of the limited liability company. However, in certain situations, such as a
Ponzi fraud in which assets may have been isolated from claims in separate entities,
a rationale for substantive consolidation might exist.

**International Groups**

Promoting coordination and cooperation in a cross-border group insolvency is
inherently more difficult than in a domestic group insolvency. However, in some
instances the best outcome for each of the different members of a cross-border
enterprise group might be achieved through a more broadly based global solution
rather than by treating each individual member in isolation. Thus, the Guide
suggests that national laws ought to authorize cooperation between courts and the
insolvency representatives overseeing the insolvency of different members of an
enterprise group in different jurisdictions.

The Guide also advocates frameworks to promote the coordination of differ-
ent proceedings, including, for example, joint hearings (subject to conditions and
safeguards to protect the substantive and procedural rights of interested parties in
each jurisdiction) and, potentially, to permit the appointment of a single insol-
vency representative to be responsible for multiple insolvencies. However, the
Guide acknowledges that in certain circumstances, conflicts of interest may
require that separate insolvency representatives should be appointed for each
entity. Some of the problems and difficulties that arise in a cross-border group
insolvency (and which may be susceptible to solution using cooperation and
coordination as suggested by the Guide) include, piecemeal liquidations of sepa-
rate group components, ring-fencing of assets, shifting of assets between jurisdic-
tions, and jurisdiction “shopping” to identify more favorable jurisdictions for
recovery.

UNCITRAL’s Practice Guide on cross-border insolvency explains the utility of
cross-border insolvency agreements to facilitate coordination of cross-border
insolvency. Such agreements are increasingly common, and the Legislative Guide
recommends that national insolvency laws permit the use of such agreements in
respect of enterprise group members, allowing insolvency representatives to enter
agreements for coordination with their counterparts in other jurisdictions and
empowering courts to approve and implement such agreements.
The Guide’s recommendations in the context of cross-border group insolvency are less ambitious than those for domestic groups. This is recognition that cross-border cases are inherently more complicated than domestic ones. Additionally, the Guide only considers ordinary corporate groups. The Working Group has not examined how the Guide’s recommendations might be developed in the context of a cross-border financial group, whose members might be subject to the oversight of various supervisors, central banks, and deposit guarantee schemes in diverse jurisdictions.
The Too-Important-to-Fail Conundrum: Impossible to Ignore and Difficult to Resolve

İnci Ötker-robe, Aditya Narain, Anna Ilyina, and Jay Surti
With Alberto Buffa di Perrero, Julian Chow, Marc Dobler, Silvia Iorgova, Turgut Kıṣínbay, Michael Moore, Jirí Podpiera, Katharine Seal, Volodymyr Tulin, and Jianping Zhou

INTRODUCTION

The unprecedented scope and intensity of the global financial crisis have brought to the fore the well-known moral hazard problems associated with systemically important financial institutions (SIFIs) viewed as too important to fail (TITF). Such institutions may provide benefits arising from the diversification and scale of their operations and facilitate cross-border capital flows and allocation of global savings. At the same time, they can propagate distress to the broader financial system because of the scale of their activities, interlinkages with other financial institutions and markets, and essential functions. Moreover, their size, complexity, and interconnectedness make them challenging to manage, supervise, and resolve and too important to fail or be ignored. This importance, in turn, gives them greater influence over the regulatory and legislative process and a competitive advantage over systemically less important institutions.

Moral hazard arises when the failure of a financial institution (bank or nonbank) can threaten the stability of the entire financial system. As institutions grow in size, complexity, and interconnectedness, the market views them as TITF because their failure would potentially have a devastating impact on the system and the economy. Creditors, and not infrequently credit rating agencies, might not price the full credit risk of...
lending to an institution deemed TITF. Markets provide them with a lower cost of funds than smaller and less complex institutions, and this funding advantage facilitates their further expansion. If they become troubled, governments often provide funds to prevent their failure or guarantees to protect uninsured creditors, validating perceptions of their TITF status. Because such institutions fail to fully internalize the social costs of their operations, the reduced market discipline allows shareholders and management to take greater risks, leading to inefficient capital allocation, potential liabilities for taxpayers, and a competitive advantage over systemically less important institutions.

The nature of the TITF problem has become more profound with the growing interconnectedness of national financial systems. Preceding the global crisis, the vast majority of cross-border finance was intermediated by a relatively small number of large, complex financial institutions with extensive cross-border operations. A lack of transparency and limited disclosure of the types and locations of their risk portfolios made it difficult to assess their exposure and potential spillovers. Once the crisis erupted, the interconnectedness of these SIFIs facilitated global propagation of the shocks.

Regulation, supervision, and resolution frameworks and bank risk-management systems did not keep up with these changes. Regulations did not reflect the growing systemic risks posed by such institutions. In many large, complex institutions, risk-management and information technology systems failed to keep up with the banks’ new products and business practices. Supervision was ineffective in identifying the risks generated by new products and slow to address emerging problems. When the institutions became troubled, efforts to resolve them were hampered by their complexity and interconnectedness. The lack of effective and flexible resolution regimes for nonviable institutions, including burden-sharing arrangements between home and host authorities, hindered the resolution process.

The large-scale public support provided during the recent crisis to weak SIFIs prevented their creditors from suffering losses and has magnified the TITF problem. Such extensive support—direct or indirect via guarantees—has reinforced the perception that certain SIFIs, markets, and instruments are too important to fail or ignore. The expectation that such support would be forthcoming was heightened following the disruptions to global financial systems resulting from the failure of Lehman Brothers. Ironically, the crisis may have contributed to the funding advantage of SIFIs over systemically less important ones. Some of these banks have become even bigger and more complex as a result of the exit of some competitors and through government-assisted mergers and acquisitions among troubled banks.3,4

3The level of concentration was higher in 2009 than in 2006 in 10 of 14 large advanced economies (Goldstein and Véron, 2011; Alessandri and Haldane, 2009; and Haldane, 2010). The increase in concentration was particularly pronounced during the crisis, with the share of the 10 largest global banks rising from 14 percent in 1999 to 19 percent in 2007 and 26 percent in 2009 (Goldstein and Véron, 2011).
4For example, JP Morgan Chase, a combination of several institutions through mergers and acquisitions (Chase Manhattan Bank, JP Morgan & Co., Bank One, Bear Stearns, and Washington Mutual), now holds more than 10 percent of deposits in the United States. Taken together, JP Morgan Chase, Bank of America (after acquisition of Merrill Lynch), Wells Fargo (after acquisition of Wachovia, the fourth-largest U.S. bank holding company based on assets), and Citigroup issued half of all mortgages and two-thirds of all credit cards, and held 34 percent of all bank deposits in the United States in 2009 (Cho, 2009; and Johnson and Kwak, 2010). The largest U.S. derivatives dealers account for 37 percent of global notional outstanding amount of derivatives, and the 14 largest global derivatives dealers hold 82 percent (Mengle, 2010).
If policies are not put into place to discourage the growth and added complexity of SIFIs, the problem may get worse. Given the potential for failure of an individual firm to cause devastating effects to global financial and economic stability, such failures must be made less likely (prevention) and less devastating when they occur (effective resolution). Addressing this problem is essential to counter the moral hazard that has permitted excessive risk taking and to curtail the market propensity to underprice the credit and funding risks of SIFIs because of implicit or explicit public support. It will also help level the playing field by reducing the competitive advantage enjoyed by SIFIs over well run but systemically less important institutions. Reducing their complexity and interconnectedness may also make SIFIs easier to manage and thereby facilitate effective supervision. Finally, addressing the TTTF problem would reduce the fiscal exposure of governments and taxpayers forced to save SIFIs, the failure of which could threaten fiscal stability (Viñas, 2009).

Various regulatory proposals have been put forward at the national and global level. These seek to: (i) curb the ability of financial institutions to become SIFIs by restricting the size, structure, and scope of their activities; (ii) lower the probability of SIFI failures through enhanced regulatory and supervisory requirements that are tighter than the Basel minimum standards; and (iii) reduce the cost and/or impact of SIFI failures by enhancing their resolvability.

At the request of the G-20, the Financial Stability Board (FSB) and its members proposed a series of policy measures targeted at internalizing the externalities SIFIs impose on the system through stronger supervisory, regulatory, and resolution frameworks. These measures were endorsed at the November 2010 G-20 Summit. Some countries are already moving to implement policies to address some of the risks posed by their SIFIs.5

This chapter reviews the various policy options for mitigating the risks posed by institutions perceived as TTTF and provides current IMF staff views. The next section provides a brief discussion of the TTTF problem and some stylized facts on institutions potentially perceived as TTTF. The third section discusses the key proposals to address the problem. The final section identifies key areas for future work.

THE TTTF PROBLEM AND SOME STYLISTED FACTS

A key risk of SIFIs is that because they are viewed as TTTF, markets may permit them to take greater risk, creating moral hazard and posing challenges for policymakers.

Although the evidence is mixed, SIFIs may provide diversification benefits across business and/or geographic lines and, up to some threshold, economies of scale (Appendix 7.1). They can provide a safe harbor during times of market distress and absorb other troubled TTTF institutions, as occurred during the recent crisis. Globally active institutions facilitate cross-border capital flows and

5Examples include the United States, through its 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act; Switzerland, through the measures targeted at its two largest financial institutions; the United Kingdom, through the Independent Commission on Banking (IBC) proposals; and the European Union, with measures under discussion to facilitate recovery and/or resolution in a crisis and to overhaul the supervisory architecture and crisis management and resolution frameworks.
allocate global savings. Some institutions provide unique functions, such as payments, settlements, and clearing, that are essential to the smooth operation of the financial system and the economy.

Yet, as evidenced by this crisis, SIFIs also have the capacity to spread distress to the broader financial system and economy, given the scale of their activities, the essential functions they provide, and their interlinkages with other financial institutions and markets. The complexity and integrated nature of group structures and operations, with multiple legal entities spanning national borders and business lines, make it very difficult not only to manage and supervise SIFIs but also to carry out orderly resolutions in the event of their failure.

SIFIs also introduce distortions associated with their TITF status:

- Despite the added risks they pose to financial stability, compared with systemically less important institutions, their implicit or explicit government backing gives them a funding advantage and, therefore, a competitive advantage. Figure 7.1 shows that among U.S. banks, the largest banks have been able to borrow funds at lower rates than smaller banks and that this advantage widened after the crisis.6

Figure 7.1  U.S. Financial Institutions: Bigger Borrows Cheaper

Sources: Federal Deposit Insurance Corporation (FDIC); and IMF staff computations.

1Interest-bearing nondeposit liabilities include federal funds purchased, securities sold under agreements to repurchase, federal home loan bank advances, borrowings from the Federal Reserve’s Discount Window, debt securities issued by the reporting institution, interest-bearing liabilities in trading accounts, and other borrowings.

2Funding cost gap between banks with assets of $10–$100 billion and banks with assets of more than $100 billion.

According to the Federal Deposit Insurance Corporation (FDIC), large U.S. banks with more than $100 billion in assets are now borrowing at preferential rates compared with the rest of the industry, especially since the crisis. Although differences in financial strength and credit quality may play a role, existence of explicit credit rating criteria for official support suggest that TITF status is also a factor behind the funding cost gap. BIS (2010c) reports, for instance, that official support in 2009 for the 50 largest banks translated on average into a three-notch upgrade of their rating, up from a two-notch upgrade in 2006. More recently, the removal in new German legislation of the protection over banks’ Tier 2 bonds resulted in a downgrading of several German banks’ subordinated Tier 2 debt, on the prospect that the legislation will increase the risk of losses among debt holders in the event of a failure.

©International Monetary Fund. Not for Redistribution
• Given their size and importance to their domestic economies, these institutions may enjoy strong political ties and hence may be in a position to influence regulatory policies to their advantage.

To put the policy proposals to address the TITF problem into a better context, it is useful to analyze the problem’s evolution over time. Over the past decade, the institutions that could be considered as potentially systemic have grown in size. An analysis was carried out on a sample of a regionally diverse group of 84 banks domiciled in Europe, the western hemisphere, and Asia, each bank sufficiently large or interconnected to be considered systemic at a national, regional, or global level. The analysis found that their share of assets doubled during 2000–09, reaching about a quarter of the total, and that their total assets grew significantly (Figure 7.2). Their total assets expanded much faster than the rest of the financial system, in many instances outpacing the growth of national economies (notably in Europe). The growth of these banks’ balance sheets was driven in part by the expansion of their securities portfolios and by mergers and acquisitions (Appendix 7.2 provides sample details).

Reviewing the evolution and characteristics of the financial institutions in that study sample provides some interesting insights:

• Institutions that can be defined as potential SIFIs (large, highly interconnected, and with limited substitutability) exhibit a variety of characteristics. For example,

---

Figure 7.2  The Big Grow Bigger
Sources: BankScope; Bloomberg LP; Bank for International Settlements; Datastream; EMED databases; Economist Intelligence Unit; Haver Analytics; IFSL; IMF, International Financial Statistics database and World Economic Outlook database; World Federation of Exchanges; and IMF staff estimates.
Note: Global financial assets are calculated as the total value of equities, bonds, and loans in 46 major advanced and emerging market economies, including all the home countries of institutions in the sample.

---

The indicators used here to capture systemic importance attempt to replicate, to the extent of data availability and mindful of their limitations, the measures discussed at international forums. Size is measured by (i) total assets of an institution in U.S. dollars and (ii) total assets of an institution as a share of home-country nominal GDP. The interconnectedness ranking is approximated by an average of three rankings obtained from publicly available data: (i) securities holdings of an institution in U.S. dollars; (ii) wholesale liabilities in U.S. dollars; and (iii) the wholesale funding ratio. The substitutability ranking is an average of rankings in the league tables for (i) equities, (ii) syndicated loans, and (iii) international bonds. Because it is not possible to construct a good proxy of the complexity of activities/instruments from publicly available data, a complexity ranking is not included.
in 2009 an institution in the top quartile of the distribution by size (measured by total assets ranging from $50 billion to $3,000 billion) was, on average, about five times larger than the average institution in the rest of the sample. There was also a sizable difference in the degree of interconnectedness between institutions in the top quartile of distribution by interconnectedness and institutions in the other three quartiles. There is no complete overlap, however, between the largest, the most interconnected, and the least substitutable institutions, suggesting that size alone does not capture all dimensions of the TITF problem (Appendix 7.2).

- Very large and highly interconnected institutions also tend to have significant cross-border activities. This may suggest that policies to address the TITF problem will have the greatest effect on institutions that have a universal and investment banking focus and that are also highly interconnected with a significant cross-border presence.

- Institutions that were more interconnected appear to have had a higher likelihood of distress during the recent crisis than other financial institutions (Figure 7.3). The frequency of distress was notably higher for banks with

**Figure 7.3** Frequency of Distress for Different Types of Institutions

Sources: BankScope; banks’ reports; Bloomberg LP; IMF, World Economic Outlook database; and IMF staff calculations.

Note: Q1 is the top quartile; Q4 is the bottom quartile; numbers are in percent. Distress frequency refers to the number of distressed institutions as a percent of the total number of institutions in each quartile. “Distress” is defined as a situation when a bank has at least one year of negative return on assets or if it was a recipient of government support during 2007–09 (the period dictated by data availability). Although all banks had access to emergency liquidity facilities provided by central banks, the official support here refers to capital injections and asset restructuring. C = commercial; U = universal; I = investment.
investment and universal banking activities than for commercial banks (likely reflecting, among other things, reliance on more volatile funding sources and balance sheets more sensitive to mark-to-market accounting). In contrast, the frequency of distress for very large institutions was only marginally higher than for smaller institutions (although the size effect may have been more pronounced if size had been measured to include off-balance-sheet positions).

The size of an institution relative to its home-country GDP or relative to the financial system seems to have played a key role in authorities’ decisions about whether to bail it out in the event of distress (Figure 7.4). During the recent crisis, a retail-oriented bank that was large relative to its home-country economy and/or which accounted for a large share of national deposits was more likely to receive official support in the event of distress than other types of banks. Simple logit regression analyses confirm that there is a robust, statistically significant relationship between the probability of official support, given distress, and a distressed bank’s size relative to GDP and between the probability of distress and the degree of interconnectedness.

These stylized facts help explain why policymakers have focused on the size and interconnectedness of SIFIs. Large financial institutions have become larger,
and their weight in the global financial system has grown over the past decade. The largest financial institutions with universal and investment banking activities are among the most interconnected with global operations. In countries affected by the recent financial crisis, governments protected many of these institutions from failure by providing direct and indirect support to contain the damage to the broader economy. Direct support alone is estimated at 6.4 percent of GDP, on average, in the most crisis-affected countries at end-2010.

**WILL CURRENT POLICY PROPOSALS RESOLVE THE TITF PROBLEM?**

Since the onset of the global financial crisis, significant reforms have been considered at the national and international levels to address the major fault lines in the financial system and to safeguard future financial stability. These efforts aim to promote a less leveraged, less risky financial system that supports strong and sustainable economic growth and to prevent a repeat of the errors that preceded the recent crisis. The overarching goal is to prevent future financial crises and eliminate or significantly reduce the likelihood that creditors of failing institutions will be bailed out at taxpayer expense.

These initiatives have focused largely on improving the existing bank regulations to strengthen capital and liquidity buffers in order to help banks better withstand shocks. To make individual banks less likely to fail, the Basel Committee on Banking Supervision (BCBS) adopted a framework with more robust capital buffers, consisting of higher and better-quality capital with improved loss absorption, better recognition of counterparty and market risks (for the trading book and complex securitizations), a simple capital-to-asset ratio to limit excessive leverage, tighter liquidity standards for short-term and longer-term funding, and capital buffers over and above the new higher minimum requirements (BCBS, 2009a-e, and 2010b-c).

The proposed strengthening of individual firms’ balance sheets, while necessary, will likely be insufficient to prevent future systemic crises. What is needed is a framework that takes into account system-wide interactions among institutions and markets and explicitly addresses externalities and distortions that SIFIs generate. Such a system would attempt to reduce excessive risk taking by SIFIs that are not subject to normal market discipline owing to perceptions of implicit or explicit government support in the event of a problem. It would attempt to ensure that no financial institution is considered so systemically important on the basis of its size, complexity, interconnectedness, or essential services that it cannot be let go.

Policies therefore need to address the double challenge of reducing the likelihood as well as the system-wide implications of a failure. Although there is not yet a consensus on which measures to adopt at the national or global level, much progress has been made in designing a policy framework to identify SIFIs and to reduce the moral hazard risks they pose (Financial Stability Board, 2010b–g). Figure 7.5 summarizes the policy options proposed globally and nationally.
How Should the TITF Problem Be Addressed?

Three complementary approaches may be used to reduce the systemic risks posed by financial institutions viewed as too important to fail: (i) directly reducing the systemic risk posed by institutions; (ii) reducing the probability of failures among SIFIs; and (iii) constructing a framework to resolve failed financial institutions in a way that minimizes disruption to the financial system when failure occurs.  

More specifically, such a framework could include the following components:

- Structural measures to limit the size and the scope of activities to reduce the likelihood of the institutions being systemically important;
- Carefully designed regulations, including surcharges that reflect an institution's contribution to systemic risk, to encourage it to become less systemically important;
- Enhanced transparency and disclosure to improve market discipline and monitoring;
- Proactive and intensive supervision consistent with the risks an institution poses to the financial system and the complexity of the system;

Another important reform measure in the FSB SIFI framework, but not explicitly discussed here, is strengthening the market infrastructure to limit the risks of contagion arising from the interconnectedness of market participants and the limited transparency of counterparty relationships, for example by clearing over-the-counter (OTC) derivatives through central counterparties and moving standardized OTC contracts to exchange or electronic trading platforms, while ensuring that a critical infrastructure does not itself become a source of systemic risk (FSB, 2010g; and IMF, 2010c).
An effective resolution framework with tools to enhance resolvability and orderly recovery and wind-down in the event of failure, including developing living wills; and

- Effective burden sharing with the private sector to internalize losses by the creditors and shareholders of failing banks.

The subsequent discussion here reviews and assesses these proposals. It argues that the first element—structural measures to limit the size and scope of SIFI activities—although providing a direct way of dealing with the TITF problem, could be difficult to implement and adopt on a globally consistent basis. The remaining set of measures, which are aimed at reducing the likelihood and impact of a failure, could provide a multipronged approach, with mutually reinforcing elements to deal with the TITF problem.

**Structural Measures to Address the TITF Problem**

**Measures to Limit the Size and Scope of Activities**

More direct measures to address the TITF problem seek to limit the size, riskiness, or complexity of institutions that make them too big or interconnected to fail. Underlying these measures is the acknowledgment of the limitations of stronger prudential regulation of SIFIs in preventing crises and in eliminating the negative externalities associated with size, complexity, and interconnectedness; and the constraints on ensuring that resolutions are orderly and nondisruptive. These are reflected in proposals to redesign and refocus the business of financial institutions considered to be TITF (Chapter 10 provides a more detailed review).

Concrete proposals to limit the size of financial institutions include imposing caps on future growth, selling assets, or breaking up banks into smaller entities. Crisis-related bailouts offered in the EU have been conditional on beneficiary institutions reducing their balance sheets by deleveraging and divesting business units. This approach attempts to address competition issues and reduce the risk that bailouts will exacerbate the moral hazard problem. The Dodd-Frank Act empowers U.S. regulators to cap the size of insured depositories and systemic nonbanks by prohibiting merger applications if the consolidated liabilities of the resulting institution constitute more than 10 percent of the aggregate consolidated liabilities of the whole financial system.

Proposals to restrict the scope of activities take a variety of forms. Measures to narrow banking activities include requiring deposit-funded banks to hold low-risk assets and offer payment functions and requiring private sector lending and investment banking to be carried out by separate companies funded by nondeposit sources. Measures to separate commercial and investment banking, as under the U.S. Glass-Steagall Act of 1933, include milder forms proposed by the U.K. Independent Banking Commission to ring-fence retail banking from wholesale/investment banking activities through firewalls in a banking group. They also include the Volcker Rule in the United States, which restricts (with exceptions) banks’ proprietary trading and investment in, or sponsorship of, hedge and private equity funds. Measures to separate core bank activities from presumably
riskier ones are aimed at preventing the destabilization of bank funding and avoiding conflicts of interest arising from bundling services together (e.g., making loans conditional on customers’ purchasing other services). These include the Swap Push-out Rule in the United States, which requires certain entities relying on federal assistance and with significant swap business to move such activity to separately capitalized nonbank affiliates.

Although direct measures to address the TITF problem have the potential to reduce the likelihood that institutions will generate systemic risk, there are significant challenges in implementing them. Opponents argue that the proposals are retrograde and inefficient and could thwart financial innovation and development. Neither size caps nor the downsizing of banks has gained international support (other than under EC rules related to state aid), and evidence on scale economies is mixed (Appendix 7.1). Limits on the scope of regulated banks’ activities can make banks simpler and facilitate the identification/management of their risks, but the likely cost is a loss of potential gains from diversification. If applied retroactively, the adjustment costs of restructuring integrated business lines could be high. Differentiating prohibited from permitted activities and enforcing firewalls in a group may also be challenging.

Moreover, requiring banks to shed risky activities may cause such risks to be moved beyond the regulators’ reach while remaining within the financial system. Pushing the problem elsewhere without addressing its root causes (i.e., the incentives for risk taking) may create systemic problems that are difficult to monitor and manage, especially if restrictions on the scope of regulated entities’ activities are not accompanied by a wider perimeter of reporting and regulation and possibly by more intensive supervision of nonbank financial institutions. This also highlights the advantage of more harmonized regulations across borders, which help limit regulatory arbitrage. In principle, riskier activities could be limited through other prudential measures, such as higher risk weights on trading and securitization under Basel, but again, success is predicated on improved governance frameworks and strong supervision.

**Measures to Simplify the Organizational Structure of Banking Groups**

The practical difficulties of achieving global cooperation in crises have led some countries to require greater self-sufficiency of the local operations of foreign banks. Absent effective cross-border information exchange, supervisory coordination, and effective resolution regimes, there has been a natural desire among host authorities to seek to isolate the local operations of foreign banks from problems in distressed foreign parents. Many have sought to do this by ensuring that foreign banks operating in their country maintain sufficient capital and liquidity buffers and that there are tight intragroup limits on parent-subsidiary and inter-affiliate operations.

In light of the recent crisis experience, some authorities believe that such self-sufficiency is best achieved under a subsidiary structure (see Chapter 11 for a more detailed analysis). In addition to shielding a business from losses elsewhere
in the group, the subsidiary structure makes it easier for resolution authorities to spin off individual businesses and affiliates. By comparison, in an integrated branch structure where the branch is legally inseparable from the parent, it may be difficult for the host country to manage and resolve the branch if the parent fails. Organizing banking groups as a set of separate subsidiaries has also been seen to facilitate implementation of recovery plans (under living wills) by simplifying the legal and financial structure of the group and facilitating the orderly restructuring of various affiliates of a troubled entity.

Although resolving cross-border banking groups may, in principle, be less costly in an organizational structure of subsidiaries, imposing self-sufficiency constraints on banking groups regardless of business models could be costly for some banks. Imposing a particular organizational structure across the board could eliminate the advantages a given structure provides to a particular business model while imposing costs on the group’s ability to manage risks during normal times. Financial groups organized as subsidiaries may be required to hold higher levels of capital and liquidity than integrated entities. Although this may be beneficial during times of stress, it limits the ability of the group to shift resources across its operations during normal times. The key to ensuring financial stability, while allowing banks to organize themselves in ways that best fit their business models, lies in the design of effective mechanisms to oversee and resolve cross-border banking groups.

**Measures to Reduce the Probability and Impact of Failures**

**Capital Surcharges**

A capital surcharge that reflects the systemic consequences of the failure of an institution is being considered, over and above minimum Basel capital requirements. Such a surcharge would be based on the relative risks to the financial system posed by a particular institution. It would aim to reduce the probability of failure of a SIFI by increasing its capital buffers and loss-absorption capacity beyond the standards imposed on all firms.

If properly calibrated and set high enough, such a surcharge could discourage SIFIs from engaging in activities that increase systemic risk and thus could reduce the probability of such institutions becoming TITF. In fact, some countries recently adopted or proposed additional capital charges for their SIFIs over the minimum Basel requirement. For example, Switzerland proposed a 19 percent capital-to-risk-weighted-asset requirement—with 10 percent common equity Tier 1—for its two largest banks, and the U.K. Independent Commission on Banking proposed a 10 percent common equity Tier 1 ratio for retail banking operations.

Designing and calibrating an appropriate risk-based surcharge, however, has been challenging. Appropriate methodologies are needed to reliably measure and assess both the aggregate risk in the system and the spillover risks via interlinkages. Surcharges could be calibrated to rise gradually as a firm’s systemic importance increases. The surcharge could also be adjusted to reflect an institution’s potential ease of resolution and therefore, at least in theory, be used to create
IMF (2010e) offers a method to compute a systemic-risk-based capital surcharge commensurate with the negative effects a firm’s failure may have on other parts of the system, reflecting systemic interconnectedness. The method includes two options for computing a surcharge: a standardized approach, which groups institutions into risk categories, and another approach tailored to assess the individual institution’s contribution to systemic risk, with both methods smoothed to avoid procyclical effects.

Further work is under way to define the scope of application and the types of capital instrument eligible to meet the surcharge. The capital instruments eligible to satisfy the surcharge should be predominantly common equity. Discussions have taken place to consider whether some portion of the surcharge could be met by contingent convertible capital (CoCo) within the BCBS, FSB, and the EU. Such proposals have attracted interest in countries as well, including Canada, the Netherlands, Switzerland, the United Kingdom, and the United States. In late June 2011, the use of CoCos was excluded from the list of eligible instruments to meet additional capital requirements by the Group of Governors and Heads of Supervision, the oversight body of the BCBS, which agreed on a set of measures for global systemically important banks (G-SIBs), presented to the FSB Plenary on July 18. It was agreed that CoCos may be applied at national discretion but only as an add-on to the G-SIB surcharge.

The use of contingent capital in general is being considered as a tool to reduce the cost or likelihood of failures. Contingent capital could provide an automatic mechanism to increase equity capital and reduce the debt of a financial institution in the event of a predetermined trigger, while the institution is still a going concern. It enables raising equity capital at times when other options are unavailable due to market conditions or are unattractive to shareholders. Depending on the choice of the trigger and conversion rates, contingent capital could be used to increase capital buffers (as a prevention tool if triggers are set high enough relative to the point of insolvency), or to ensure prompt recapitalization or greater loss-absorbency (as an orderly resolution tool when triggers are set at a low level). A credible threat of losses due to conversion and dilution could help limit risk taking by managers, shareholders, and bondholders, thereby enhancing market discipline. (Chapter 8 gives further details on the economic rationale and design to enhance effectiveness while limiting adverse consequences.)

**Systemic Liquidity Charges**

Similar to capital requirements, liquidity requirements may limit a firm’s ability to engage in risky funding strategies. Prior to the crisis, some firms embraced incentives for institutions to organize themselves in ways that facilitate resolution. The challenge will be to avoid designing an overly complicated formula for calculating institutions’ capital requirement and to assess the likely consequences of materially higher capital requirements on banks’ business models, their provision of credit to the economy, and their overall competitiveness.

©International Monetary Fund. Not for Redistribution
risky strategies involving high leverage, reliance on short-term wholesale funding, and large maturity mismatches, providing backup lines of credit to entities such as structured investment vehicles so that they could borrow in the commercial paper market. The BCBS announced new liquidity standards that are welcome additions to firm-level liquidity risk management and the current set of prudential regulations. These standards may also help address systemic liquidity risk by raising individual liquidity buffers and reducing maturity mismatches (IMF, 2011). By penalizing exposure to other financial institutions, they could also reduce the interconnectedness of the financial system and the likelihood of interrelated liquidity losses.

Nonetheless, the new liquidity requirements are not intended or designed to mitigate systemic liquidity risk—that is, the tendency of financial institutions to collectively underprice liquidity risk in good times with the expectation of liquidity support from central banks in times of stress. Policymakers have not yet been able to put in place a framework to do this. The absence of a robust methodology to measure systemic liquidity risk has undermined efforts to propose a liquidity surcharge. IMF (2011) suggests three potential measures for systemic liquidity risk, with the objective of developing an actionable macroprudential tool to help mitigate such risk.

**Levies and Taxes**

Similar to a capital surcharge, a levy (or deposit insurance premium) could be imposed on financial institutions to discourage excessive risk taking and help pay for the cost of resolving banks, thereby reducing the burden on the taxpayer of SIFI failures. The IMF prepared a report at the request of the G-20 to examine options for having the financial sector make a fair and substantial contribution to restructuring the banking system (IMF, 2010d). The concept underpinning such levies is that the financial sector should be held accountable for the direct fiscal cost of any future support, thereby making failures less likely (to the extent they discourage risky activities or penalize systemic importance), as well as less damaging (by providing funds to finance resolution in the event of a failure). Some countries have implemented bank levies (France, Germany, Hungary, Sweden, and the United Kingdom) and/or imposed risk-based deposit insurance premiums on banks (the United States).

If introduced, levies should be linked to a credible and effective resolution mechanism to avoid the perception that institutions paying the levy will not be allowed to fail (IMF, BIS, and FSB, 2010). The levies could be used to build a resolution fund or be put aside as general revenue. A system of levies would

---

10 These include: (i) developing a market-based indicator of systemic liquidity risk, based on violations of common arbitrage relationships; (ii) designing a methodology—based on a combination of balance sheet and market data and options pricing concepts for a firm—to calculate the joint probability of simultaneous liquidity shortfalls and the marginal contribution of a financial institution to systemic liquidity risk; and (iii) designing a macro stress-testing model to gauge the effects of an adverse macroeconomic or financial environment on the solvency of multiple institutions and in turn on systemic liquidity risk.
complement, but not be a substitute for, higher capital requirements. A broad scope of application to all SIFIs could reduce the incentives for a migration of systemic risk out of banks. Conceptually, the charges and levies could be designed to limit procyclicality as well as reflect the contribution to systemic risk, so as to contain circumvention of the regulations (IMF, BIS, and FSB, 2010).

**More Intensive and Proactive Supervision**

An important corollary to the TITF problem is that large, complex, and interconnected institutions have also become too difficult to manage, govern, or supervise. This only exacerbates their propensity to take on excessive risk. The reports of the Senior Supervisors Group (2008, 2009, 2010), which looked closely at the risk management practices of the 20 largest institutions in major jurisdictions, lament the fact that some boards and management were unwilling or unable to “articulate, measure and adhere to a level of risk acceptable to the firm.” It also contains a telling account of the “inadequate and fragmented infrastructure” in the largest institutions, which “hindered effective risk identification and measurement” and did not allow for consolidating timely data on concentrations and risk exposures. The obstacles to measuring risk and taking mitigating actions are heightened by the difficulty of developing integrated and accurate information systems that produce reports of the risks generated by a group’s complex activities over a large number of business lines located in different jurisdictions. Supervisors “remained unconvinced that the firms are undertaking the full scope and depth of needed improvements.”

These impediments to good governance require supervisors to be even more vigilant and demanding in their dealings with SIFIs. Prior to the crisis, some supervisory systems failed to identify the buildup of risks and shortcomings in the SIFIs’ approaches to risk measurement and identification and to intervene early to reduce the impact of their actions on the financial system. Ambiguous mandates, inadequate resources, and ineffective techniques played a role, including the failure to identify the systemic risk (such as interconnectedness) that these institutions had created.

The IMF has put forth basic components of an effective supervisory framework, which are particularly important for SIFIs (see Chapter 5 for details). The FSB, in consultation with the IMF, has recommended that supervision be appropriately intense and effective in line with the complexity and systemic importance of institutions. In a candid assessment, they noted that in some cases “supervisors took their cue from the political economic agenda of the day and did not intervene to question lending practices,” noting that “supervisory independence is rendered even more challenging when dealing with SIFIs, who are often in a position to exercise greater influence on supervisory outcomes” (FSB, 2010e).

Developing a framework to make supervision more effective and proactive is now a key part of the approach to deal with the moral hazard risk of SIFIs. The level of supervision must be commensurate with the potential destabilization risk that SIFIs pose to their own financial systems and to the global financial system. Supervisors must: (i) have the mandate, resources, and operational independence
to supervise SIFIs effectively; (ii) have the full suite of powers and political backing to intervene at an early stage and require corrective actions; (iii) have well-developed supervisory approaches and techniques that reflect the complexity of the financial system and its firms; and (iv) be held to a higher set of standards in supervising SIFIs. These recommendations were endorsed by the G-20 (FSB, 2010g); self-assessment and follow-up action by members and incorporation in the international standards will follow.

These recommendations explicitly acknowledge that SIFIs pose a unique set of challenges and seek to provide a framework for their supervision. Although developing enhanced regulatory requirements for SIFIs will take time, the final result of stronger supervisory requirements provides some comfort that excessive risk taking will be addressed. The recommendations recognize the importance of proactive supervision and that adjustment of some SIFIs’ business strategies to tighter regulation may increase systemic risk. As a result, it is crucial to improve coordination and cooperation among supervisory agencies in the oversight of the most systemically important firms. The establishment of supervisory colleges for the large complex financial groups and the FSB peer review process to assess effectiveness and consistency of national measures will both make important contributions.

Enhancing supervisory oversight and effectiveness will require strong political backing. Resources will be required to understand firms’ business models, and political support will be required to back supervisors who seek to preemptively limit risky activities in what appear to be highly successful SIFIs. This problem is further compounded when a SIFI is owned by the state. Providing the necessary budget and staffing resources and authority to impose additional requirements on institutions (reporting) could prove challenging in a budget-constrained and low-growth environment. Supervisory efforts to strengthen governance, internal controls, and risk management capacity of banking groups will be essential. Also important will be aligning managers’ incentives with those of the shareholders and regulators, including through compensation polices along the lines proposed by the FSB, both so that financial firms align these policies with prudent risk taking and so that these policies are subjected to effective supervisory oversight and engagement by stakeholders (FSB, 2010b; and FSF, 2009). Although this is, first and foremost, the responsibility of the industry, supervisory measures should also be taken to promote effective implementation in order to limit firms’ incentives to game the system.

Enhanced Transparency and Disclosure
Leveraging market discipline to motivate prudent management is a critical component of an effective financial infrastructure. Transparency and disclosure are needed if market discipline is to be effective (Pillar 3 of Basel II), and they act as natural restraints on excessive risk taking. The disclosure of timely and accurate data on individual firms’ financial condition and exposure vis-à-vis other financial institutions and instruments helps creditors, counterparties, and shareholders better assess and identify systemic risks. By contrast, it was a lack of transparency and
limited disclosure of the types and locations of risks prior to the crisis that undermined the ability of markets and supervisors to assess firms’ exposure. It also meant that, as problems arose, markets were unable to distinguish between healthy institutions and those that had taken on excessive amounts of high-risk assets and exposure. This lack of information exacerbated spillovers and led to the propagation of shocks within and across borders. It is critical that such transparency occur on a routine basis. Waiting until a crisis to make such disclosures risks undermining market confidence in individual firms.

Significant progress is required to close data gaps. Most of the information needed to identify the buildup of systemic risks remains unavailable to the market, and large data gaps, stemming from the varying frequency and content of information across individual institutions, hinder effective analysis. Key areas of data in which gaps remain include disclosure by SIFIs of their sectoral, market, and cross-border exposure; disclosure of off-balance-sheet items and complex structured products; the extent of interconnectedness across institutions; financial stability indicators; and transparency in OTC derivative markets (see Johnston and others, 2009, for more details). This information may not be available even to supervisors in some countries or, if available, may not be made public. The BIS, FSB, and IMF are working to identify and fill these information gaps.

Agreement has been reached on a data template for global SIFIs, which would contain information on the structure, exposures, and interconnectedness of their activities and should be extended to all SIFIs.

An Effective and Credible Resolution Framework to Enhance Resolvability

Making orderly resolutions feasible without systemic disruptions, without generating moral hazard, and without exposing taxpayers to losses is one of the most critical elements of addressing the TITF problem. Severe problems in individual SIFIs, although hopefully infrequent, are inevitable, regardless of the quality of supervision and regulation. A system in which nonviable SIFIs can be taken over, management changed, shareholders wiped out, and unsecured creditors absorb losses, while at the same time forestalling threats to the financial system, would increase market discipline and reduce the moral hazard risk posed by SIFIs. Establishing that no institution is too important to fail or to cause losses to its creditors would level the playing field and should limit the ability of high-risk SIFIs to gain access to cheaper funding and to grow.

Improving authorities’ ability to maintain continuity of any vital economic functions makes their resolution more feasible and credible. To make SIFI resolution a viable option, recommendations proposed by the FSB in coordination with other international organizations, including the IMF, have focused on three key areas:

- Effective resolution regimes and tools—legal reforms, a resolution authority with powers tailored to the specific nature of the institutions’ business activities, and restructuring mechanisms to allow the recapitalization of an institution as a going concern;
• Effective cross-border coordination mechanisms between relevant home-host authorities; and

• Sustained recovery and resolution planning, which has been made mandatory for G-SIFIs to improve their resolvability.

On resolution regimes, some progress has been made at the national level. The U.S. Dodd-Frank Act, for example, introduced an “Orderly Liquidation Authority” that allows the FDIC to apply a new regime for liquidating systemic financial companies (bank holding companies, nonbank financial companies, and any company predominantly engaged in financial activities). In Europe, new resolution regimes for bank and nonbank SIFIs have been introduced in a number of countries (including Belgium, Germany, Sweden, Switzerland, and the United Kingdom). The European Commission (EC) has made preliminary proposals, including recovery and resolution plans (RRPs), powers to take early action, and resolution tools to take over a failing bank and transfer parts of its business to a bridge bank (EC, 2010a). Following the consultations on this framework, a formal legislative proposal will be developed and its impact assessed (EC, 2011).

Much less progress has been made at the cross-border level. Most existing arrangements do not permit orderly cross-border resolutions. Operational and legal impediments to cross-border resolution regimes derive from differences in national resolution frameworks, the absence of mutual recognition and agreements for joining up home and host regimes, the absence of home-host burden-sharing arrangements, and a lack of planning for handling stress and resolution (FSB, 2010g). The complexity and integrated nature of group structures and operations, with multiple legal entities spanning national borders and business lines, also hinder rapid and orderly resolutions under current regimes.

To support the improvement of cross-border coordination, in June 2010 the IMF proposed an intermediate option to reach global solutions for cross-border resolution regimes (see Chapter 6 for details). It recognized the need for significant political will to surrender national sovereignty to an international treaty and efficiency costs implied by some nationalistic approaches (discussed in Chapter 11). It called for amending national laws to remove existing legal impediments to international cooperation, allowing only countries that satisfy core coordination standards to participate in the framework. These standards establish principles for burden sharing between cooperating authorities where resolution requires temporary public funds and contributions from deposit guarantee/resolution funds and for agreeing on legal and operating procedures to facilitate the cross-border effects of national resolution actions. Further work is under way to put this framework into effect.

---

11 These include booking practices, the use of intragroup guarantees, global payments operations, information systems, and complexity in the structure of cross-border financial institutions, particularly the use of multiple legal entities in executing transactions and conducting business.

12 These standards would consist of measures to harmonize resolution laws, rescind national legislation that discriminates against overseas creditors, develop effective resolution tools and creditor safeguards, strengthen regulatory cooperation, and enhance the effectiveness and capacity of regulatory authorities.
Regarding the third key area—effective resolution planning—living wills have been proposed to encourage better advanced planning and to require preparation of a plan for each G-SIFI that demonstrates it can be resolved in an orderly fashion (see Chapter 9 for a detailed review). The objective, as discussed by the FSB, is for firms and regulators to jointly develop systematic and holistic RRPs in order to facilitate recovery and orderly wind-downs of SIFIs in the event of failure. These RRPs include (i) a **recovery plan** developed by the firm (and vetted by the supervisory authority) that identifies a range of recovery options in response to a shock and ensures that it can readily implement them; and (ii) an accompanying **resolution plan** developed by national authorities which ensures that the authorities understand firms’ legal and operating structures and their economic functions, to determine whether and how national resolution tools could be used to resolve a firm with minimum systemic and public sector risk (see, for example, U.K.-FSA, 2009).

RRPs are an important step forward and can make a valuable contribution to effective resolution frameworks for SIFIs. Such plans can promote better preparedness by individual firms for contingencies and by authorities for effective resolution. They provide essential information on a firm’s assets and liabilities, commitments, exposure, and legal and operational structure. They should be useful in informing authorities about the type of reforms needed to strengthen their supervisory and resolution powers and tools and in identifying actions to address institutions that are too complex to resolve.

Resolution plans may face implementation challenges. In particular, developing effective resolution plans may prove difficult because of the complexity of some cross-border firms. Implementation challenges may also arise in a real case of distress, given the importance of institutions’ retaining market confidence in their financial strength. The divestment of a key business line or other substantive recovery measure may be perceived as a sign of distress and trigger destabilizing reactions on the part of creditors. In this context, the RRP process highlights the need for effective cross-border arrangements for cooperation, information sharing, and decision making when dealing with a failing institution. Further work needs to be done to produce methodologies and criteria to assess institutions’ resolvability and the consistent implementation of RRPs across different jurisdictions.

**Effective Burden Sharing With the Private Sector**

The use of “bail-inable” debt or “bail-in statutory powers” could play an important role in enhancing market discipline as part of an orderly resolution. The idea behind these instruments is to provide additional loss-absorbing capacity by converting private debt into equity capital when a bank comes under severe stress. Ensuring that private creditors provide loss-absorbing capital will boost market discipline and reduce the likelihood that taxpayer funds will be needed. The bail-in power (Box 7.1), a statutory approach to debt write-down or debt-to-equity conversion, deals directly with the resolution of SIFIs and may provide resolution authorities with an additional resolution tool to restructure bank debt.

Although potentially a useful resolution tool, careful consideration must be given to the design of bail-in power to mitigate or avoid financial stability risks. Such debt
instruments should be accompanied by strengthened supervision, an enhanced capital base, improved disclosure, and an effective resolution regime—and should not be considered a stand-alone tool. A triggering of bail-in power could send negative market signals and destabilize markets during times of high market volatility and uncertainty. The marketability of the instruments subject to bail-in power is also uncertain given the potential discretionary element and investors’ lack of familiarity with these instruments. Careful monitoring by supervisory authorities of the implied transfer of risks within the financial system and the potential buildup of

BOX 7.1

“Bail-In”: Debt Proposals

Proposals for bail-in debt, as well as for contingent capital, are under consideration as a potential market-based tool to address moral hazard risks associated with SIFIs. Regulators in several countries (Canada, the United States, and others in Europe) have shown interest in adding bail-in instruments to their crisis management toolkits. The concept, the scope, and the precise role of bail-in are currently under discussion within the Basel Committee, FSB, and EU.* An objective is to incentivize institutions to raise capital or to restructure debt voluntarily before a triggering of the bail-in power.

In general, the bail-in proposals are expected to provide a statutory approach to debt write-downs and debt-equity conversion, providing authorities with a new power to add to the capital base of a failing institution. By virtue of regulatory intervention while a distressed institution is operating under official administration (i.e., conservatorship), supervisors can hold off from declaring the institution insolvent and possibly avoid placing the institution into liquidation. The bail-in proposals would preserve the traditional priority of claims present in a formal liquidation (i.e., equity holders would absorb the first loss, followed by subordinated debt holders, followed by unsecured debt holders) with the prospect that, according to this priority, debt holders would obtain an equity interest. The prospect of such conversion rules on debt may add to market discipline and thus may also help curb excessive risk taking.

For bail-in to be an effective resolution tool, it must be designed to overcome legal challenges and difficulties in cross-border implementation while mitigating potential systemic risks. The legal framework for statutory bail-in must be carefully elaborated to reduce legal uncertainty, because upon the occurrence of the trigger event, creditors would be forced to give up full legal claims in exchange for overall value maximization in order that business operations could continue normally. This could conflict with laws that guarantee property rights if applied retroactively or without explicit terms and conditions built into the investment that explicitly recognize the right of authorities to carry out debt write-off or conversion into equity at the point of nonviability. The effectiveness of statutory bail-in also will depend crucially on its recognition within all relevant jurisdictions. Coordination at an international level is important to preserve a level playing field and avoid unintended consequences for the functioning of bank debt markets. Deposits, secured claims, and qualified financial contracts should, in principle, be excluded from the scope of bail-in debt.

* The Basel Committee issued minimum requirements on January 13, 2011, to ensure that all classes of capital instruments fully absorb losses at the point of nonviability before taxpayers are exposed to loss.
systemic risks will be important. There may also be a case for restricting some holders of convertible instruments to limit the contagion effects across SIFIs (see Chapter 8). Ensuring consistency, transparency, and standardization will also be important to avoid complex structures and support cross-border crisis management.

CONCLUSIONS AND POLICY IMPLICATIONS

No private financial institution should be viewed by markets as being too important to be allowed to fail. SIFIs have demonstrated great capacity to propagate distress and undermine the normal functioning of the broader financial system and the economy given their scale, complexity, and interconnectedness. The implicit government backing they have enjoyed has provided them with funding and competitive advantage over non-SIFIs. The moral hazard they pose has been reinforced by the large-scale public support these institutions received during the recent crisis. Yet, despite the widely shared concern regarding the risks posed by these institutions, some have become even larger and more complex, worsening the associated moral hazard risk and the challenge of properly managing and supervising them.

Policies are therefore needed to address the systemic risk posed by institutions perceived as TITF and to reinstate market discipline. Efforts to address the TITF problem should aim to internalize the risks taken by these institutions and limit the negative externalities imposed on others. This could consist of the following mutually reinforcing elements:

- materially more stringent capital requirements (and possibly liquidity requirements, as appropriate methodologies are developed), designed to reduce the probability of failure and to limit systemic risk contributions;
- intensive and proactive supervision commensurate with institutions’ complexity and risks;
- enhanced transparency and disclosure requirements for early identification of risks; and

- effective resolution regimes at the national and global levels to make resolution a credible, feasible, and viable option in the event of nonviability.

These policies should be accompanied by the following four elements to reinforce their effectiveness and limit their unintended consequences. First, there should be better policing of the firewalls and links between regulated and unregulated sectors and enhanced disclosure requirements for the nonbank sector to limit the possibility that banks indirectly retain the risk and that, if the risks are shifted away from banks, the result is not simply the relocation of systemic risk to entities not subject to monitoring or regulatory oversight. Second, it is essential to improve the understanding of the shadow banking system in order to prevent unregulated nonbank institutions from gaining systemic importance. Third, effective cross-border arrangements for cooperation, information sharing, and funding are necessary to facilitate cross-border resolution and limit regulatory arbitrage in the absence of a harmonization of measures targeted at SIFIs. Finally, management incentives must be realigned to match those of the banking group and the regulators.
The Too-Important-to-Fail Conundrum: Impossible to Ignore and Difficult to Resolve

(e.g., through effective compensation policies linked to better and more sound performance) so that the incentives for excessive risk taking are limited.

Although clear progress has been made in some of these areas, tangible results are needed on a number of issues, including finalizing the methodology (and scope of application) to identify SIFIs; determining the level, composition, and coverage of a capital surcharge; institutionalizing international standards and translating the recommendations for intensive supervision of SIFIs into national practices; addressing data gaps; agreeing on cross-border resolution arrangements; and making visible progress in reforming compensation policies to align compensation structures in major financial institutions with prudent risk taking, along the lines recommended by the FSB.

These complex issues have been under intensive discussion for many months within international forums, and they involve difficult policy judgments. The IMF too is contributing to these discussions and is enhancing its toolkit to incorporate the emerging recommendations into its surveillance framework. There is a risk, however, that it may take several years after agreement is reached before the essential elements of the TITF solution are implemented at the national and global levels. Meanwhile, SIFIs are continuing to grow and may be reassuming some of their risky practices. There is also a risk of growing pressures at the national level to take immediate actions to limit the risk posed by SIFIs. As national legislation is approved, reaching a consensus at the international level may be even more difficult.

In the interim, a subset of the measures that are simple and straightforward could be implemented internationally on a consistent basis. These would include an announcement that SIFIs identified as TITF will be required to hold significantly more high-quality (loss-absorbing) capital than systemically less important institutions (as already proposed in a few jurisdictions), combined with actions to accelerate adoption of the FSB recommendations for enhanced supervision to reduce the risk that tighter requirements would simply relocate systemic risk to affiliates subject to less or no regulation.

In this context, it is important to note that the Basel capital requirements are minimum standards but incorporate the expectation that banks hold higher capital for idiosyncratic and system-wide risks. Although the current proposals will raise the minimum requirements further, SIFIs identified as TITF should have higher equity capital requirements than those required by Basel III of all banks while progress is made in reaching agreement on other components of the TITF solution, such as effective national and cross-border resolution regimes.13 There should be a reasonable transition period, during which undercapitalized banks can build their capital bases to limit the risks to the real sector from any reduced availability of credit. Higher capital requirements, combined with enhanced supervision, would have the teeth required to bite into the propensity of SIFIs to continue to accumulate systemic risk. These actions should be applied across all major jurisdictions as they are making transition to the full implementation of the TITF framework.

---

13See, for example, Miles, Yang, and Marcheggiano (2011). Many G-SIFIs already hold significantly higher Tier 1 capital than the current Basel minimum.
APPENDIX 7.1. IS BIG BEAUTIFUL? EVIDENCE ON THE ECONOMIES OF SCALE/SCOPE AND DIVERSIFICATION BENEFITS OF FINANCIAL CONGLOMERATES

On balance, empirical evidence provides mixed evidence for significant gains generated by large and diversified banks, making it difficult to conclude whether bigger is better.

Proponents of the economies-of-scale argument note efficiencies in servicing large and global nonfinancial businesses, promoting local financial market development, and facilitating capital flows to emerging market economies. Recent empirical research finds economies of scale in the U.S. banking sector (Wheelock and Wilson, 2009). Integrated servicing of the needs of globally active nonfinancial firms is a key contribution of large banks. Cline (2010) points to the contribution of large global banks in integrating global stock, bond, and currency markets and in easing the cost of access to financial capital by emerging market firms.

Others argue that larger banks can generate efficiency gains through economies of scale but only up to a certain size threshold. Empirical studies find that gains from economies of scale for banks peak at lower levels of total assets than the median size of most global banks:

- In their survey of literature covering most of the industrialized countries (Australia, Canada, Europe, Japan, and Canada), Amel and others (2004) find that economies of scale are maximized for a total asset size of $10 billion. Other studies estimate the maximum efficient size of commercial banks to be somewhere between $25 and $100 billion. The Bank for International Settlements (2010c) concludes that there is scant evidence in the literature for the existence of scale/scope economies in international banking.

- Moreover, there is mixed evidence on whether, on average, mergers and acquisitions create significant efficiency gains or generate significant shareholder value. Results in early studies surveyed in Amel and others (2004) find no significant evidence on either front. More recent studies surveyed in De Young, Evanoff, and Molyneux (2009) suggest that there is some evidence that North American mergers can improve efficiency, although they may not create stockholder wealth, whereas in Europe, both efficiency gains and enhanced stockholder value can be achieved.

More diversified banks may generate higher risk-adjusted returns and hence have higher market values, although the empirical evidence is again mixed.

- Using a large sample of banks from 43 countries, Laeven and Levine (2007) find that the market value of financial conglomerates that engage in multiple activities is lower compared with financial conglomerates that are broken into financial intermediaries that specialize in the individual activities. This suggests that either economies of scale/scope are not sufficiently large to produce a diversification premium or that diversification intensifies agency problems.
and destroys value. (Other potential sources of value destruction in a diversified conglomerate include inefficient cross-subsidization and opacity of the hybrid conglomerate model.)

• Using U.S. data, Schmid and Walter (2009) find that firms that combine commercial banking and insurance and those that combine commercial banking and investment banking show a significant diversification premium. For the very large firms, they find a substantial premium, pointing to the existence of too-big-to-fail guarantees.

• A study by van Lelyveld and Knot (2009) that focuses specifically on the valuation of bank-insurance conglomerates in the EU finds no universal diversification discount but, rather, significant variability. It also finds that the discount is explained by size (increasing), familiarity with the conglomerate business model (decreasing), and the risk profile (decreasing).

• Stiroh and Rumble (2006) find that gains from diversification are offset by increased risk from volatile income-generating activities such as trading.

APPENDIX 7.2. SAMPLE DESCRIPTION

Regional Coverage

The sample includes 84 banks from Asia, Brazil, Canada, Europe, and the United States that are deemed to be nationally, regionally, or globally systemically important given their size or interconnectedness. The data panel covers 2000 to 2009 and is not fully balanced due to some data gaps, particularly in earlier years, although the data gaps are not significant.

Business Model

The sample is partitioned into three groups—investment banks, commercial banks, and universal banks—based on quantitative criteria and qualitative judgment. The quantitative categorization of banks is based on the proportion of securities in the banks’ total assets: banks are classified as investment banks if loans are less than 15 percent of total assets or securities are more than 60 percent of total assets, and as commercial banks if loans are more than 60 percent of total assets or securities are less than 15 percent of total assets. After these criteria are applied, all other banks are classified based on judgment, taking into account the scope of derivatives activities, the relative shares of securities and loans, and the share of trading income in total revenue (Figure 7.6). The final categorization is cross-checked against categorizations used by private sector analysts.14

14Note that any categorization of banks by business model involves judgment. The investment bank category is the easiest to define, and there seems to be a consensus among analysts on which banks fall in this category. The boundaries between commercial and universal banks are more of a gray area.
Cross-Border Activities

Banks are classified as domestic if they derive 100 percent of their 2009 revenue from domestic activities; as banks with significant international presence if they derive more than 40 percent of their revenues from international activities; and as banks with limited international presence if less than 40 percent of their revenues are derived from international activities (Figure 7.6).

Size, Interconnectedness, and Substitutability

All banks in the sample are ranked by selected indicators of size, interconnectedness, and substitutability:

- Size is measured in two different ways: (i) absolute size, which is total assets in U.S. dollars; and (ii) relative size, which is total assets as a share of the home country’s nominal GDP.

- Interconnectedness ranking is an average of three rankings: (i) securities holdings in U.S. dollars,\(^1\) (ii) wholesale funding in U.S. dollars; and (iii) the wholesale funding ratio.

\(^1\)Securities holdings of a bank include marketable securities and other short-term investments (i.e., liquid investments expected to convert to cash within a reasonably short period of time, usually less than one year). They include repos, reverse repos, and securities held by brokerage subsidiaries, as well as Available-for-Sale (AFS) and Hold-to-Maturity (HTM) securities classified as short term. They exclude interest or dividends accrued on investments and pledged amounts and accounts on lien, but may include short-term interest-bearing loans to third parties if not disclosed separately.
The Too-Important-to-Fail Conundrum: Impossible to Ignore and Difficult to Resolve

Figure 7.7 Number of Banks in the Top Quartiles of the Distributions by Absolute Size, Interconnectedness, and Substitutability
Source: IMF staff calculations.

Figure 7.8 Distribution of Banks by Size and Interconnectedness Quartiles and by Business Model and Region, 2009
Sources: Banks’ reports; Bloomberg LP; IMF, World Economic Outlook database; and IMF, staff calculations.
Note: Q1 is the top quartile; Q4 is the bottom quartile. C = commercial; U = universal; I = investment; LCFIs = large and complex financial institutions.

©International Monetary Fund. Not for Redistribution
Substitutability ranking is an average of rankings in the global wholesale finance league tables, including (i) for syndicated loans; (ii) for international bonds; and (iii) for equity. This suggests that size alone does not capture all dimensions of the TITF problem. For example, of the 21 largest institutions by total assets, 14 could also be categorized as either the most interconnected or the least substitutable, and 11 have all three characteristics (Figure 7.7). Figure 7.8 provides further information on the distribution of the sample banks by size, interconnectedness, and substitutability.
 CHAPTER 8

Contingent Capital: Economic Rationale and Design Features

CEYLA PAZARBASIOGLU, JIANPING ZHOU, VANESSA LE LESLÉ, AND MICHAEL MOORE

INTRODUCTION

The causes of the global financial crisis were multifaceted, but they revealed still unresolved weaknesses in national and international financial oversight and resolution frameworks. In particular, many governments in the crisis-hit countries had to provide unprecedented levels of support to contain the crisis and protect financial stability. These interventions have not only contributed to a significant increase in sovereign exposures but, in many countries, they have also risked weakening market discipline and worsening moral hazard.

To address moral hazard and the problem that institutions can become too important to fail, proposals for contingent capital are gaining ground. Most recently, Switzerland has proposed a higher regulatory capital requirement (19 percent of risk-weighted assets) for its two largest banks, of which 9 percentage points may be held in the form of contingent-convertible debt. The Basel Committee on Banking Supervision (BCBS) has similarly proposed that all non-common equity regulatory capital of internationally active banks be convertible to equity or subject to permanent write-downs when it is determined that the bank is no longer viable. The Financial Stability Board (FSB) and the European Commission, in their efforts to address risks associated with systemically important financial institutions (SIFIs), are also examining mechanisms that convert debt into equity or the write-off of debt (including unsecured senior debt), based on (i) contractual agreements between banks and investors; or (ii) supervisors’ statutory powers in the context of bank resolution.

1This chapter benefited from discussion and consultation with an MCM advisory panel, comprising Raghuram Rajan (University of Chicago), Lauren Anderson (Federal Deposit Insurance Corporation), Svein Andresen (Financial Stability Board), Patrick Bolton (Columbia University), Clive Briault (formerly of the U.K. Financial Supervisory Authority), Darrell Duffie (Stanford University), Wilson Ervin (Credit Suisse AG), Mark Flannery (University of Florida), Charles Goodhart (London School of Economics), Anil Kashyap (University of Chicago), Nick Le Pan (formerly of the Office of the Superintendent of Financial Institutions, Canada), and David Scharfstein (Harvard Business School). We are grateful for the valuable insights and comments provided by the panel, and by Jan Brockmeijer, Jonathan Fiechter, Nadege Jassaud, Fabiana Melo, Robert Sheehy, Christopher Towe, and José Viñals. An earlier version of this chapter appeared as an IMF Staff Discussion Note (SDN/11/01) on January 24, 2011.

2Throughout this chapter, contingent capital refers to bank contingent capital only.

©International Monetary Fund. Not for Redistribution
Contingent convertible capital (CoCo) provides an automatic mechanism for increasing the equity capital and reducing the debt of a financial institution in times of stress. It enables the raising of capital at times when other options are impossible, either owing to unfavorable market conditions or because other options are unattractive to shareholders. Furthermore, automatic conversion by avoiding fire sales could help avoid contagion in times of systemic stress.

Concerns have been raised, however, about the operational aspects of CoCos and their implications for market dynamics. These instruments remain largely untested and could have unintended consequences, particularly in times of high market volatility and uncertainty. Their marketability, including whether there will be sufficient demand for them from traditional investors, is far from granted. The quality of their design features is key to ensuring their effectiveness and avoiding risks, including systemic ones. Others also warn that a conversion could have negative signaling effects, lead to contagion, and be subject to price manipulation (Sundaresan and Wang, 2010; Goodhart, 2010a). For example, some have cautioned against using triggers based on systemic risks or regulatory discretion, since these would make pricing these instruments difficult.

The rest of this chapter is organized as follows. The next section discusses the economic rationale for contingent capital instruments. The following section focuses on the operational aspects of contingent capital instruments, especially the pros and cons of various triggers and conversion rates and how they could influence the rating and pricing of these instruments. Next, the chapter discusses some recent contingent-capital proposals and the potential role of contingent capital in the framework of crisis prevention and crisis management. Appendix 8.1 presents a simple two-period model on how the expectation of a public bailout encourages excessive risk taking and how contingent-convertible bonds can mitigate such excesses. Appendix 8.2 details contingent-capital triggers and conversion options and conditions, and Appendix 8.3 compares contingent capital with hybrid and subordinated debt instruments.

ECONOMIC RATIONALE OF CONTINGENT CAPITAL

Contingent capital provides an automatic mechanism for increasing the capital and reducing the debt of a financial institution in times of stress. It enables the raising of capital at times when other options are impossible, either owing to unfavorable market conditions or because they are unattractive to shareholders (Duffie, 2010). This latter “recapitalization gridlock” reflects the unwillingness of shareholders to dilute their equity by share issuance or by “fire sales” in unfavorable market conditions (Brunnermeier, 2009; Adrian and Shin, 2010). Moreover, automatic conversion by avoiding fire sales could help avoid contagion in times of systemic stress.

Contingent capital instruments are expected to deal with the market failure associated with “too-important” or “too-connected” to fail. Depending on the choice of triggers and conversion rates, contingent capital instruments could be designed specifically to increase capital buffers, ensure prompt recapitalization, or increase loss absorbency before a bank-default event.
The credible threat of losses due to conversion and dilution could help reduce risk taking by managers, shareholders, and bondholders. The threat of heavy dilution should encourage shareholders to require more prudent corporate governance and risk-control procedures within a bank. Similarly, requiring bondholders to bear part of the cost of a future bank recapitalization would enhance their incentive to exercise greater market discipline. It also has been suggested that bank manager bonuses could be paid in the form of contingent convertible debt instruments to reduce their incentives for excessive risk taking. We developed a simple two-period model to illustrate the benefits of CoCos in promoting market discipline (Appendix 8.1). The model implies that the effect of CoCos on a bank’s risk-taking behavior is equivalent to that of a risk-based, prefunded bank resolution fund.

From the banks’ perspective, contingent capital may be preferred to equity for three reasons:

- It may potentially be cheaper (if the interest expense is tax deductible);
- Before conversion, it could be a nondilutive source of capital for existing shareholders, so that their issuance does not change corporate control; and
- It may be acceptable as Pillar 2 capital for supervisory stress tests.

Contingent capital instruments should be supplementary to common equity. Although they may be used to replace the existing hybrid capital that had poor loss absorption during the crisis, they should not compromise the objective of capital transparency and their use should be based on an enhanced capital structure under the Basel III framework. Common equity is no doubt higher quality capital in terms of loss absorption; however, an excessively high common equity requirement could lead to perverse risk seeking as bank managers struggle to maintain a return on equity demanded by investors.

Contingent capital differs from existing hybrid instruments in two important ways. First, contingent capital instruments are dated debt with debt/equity conversion or debt written-down contractual clauses, whereas the existing convertible hybrids are perpetual debt, which contractually offers the possibility to absorb losses primarily through the deferral of coupons (noncumulative) or extension of maturity. Second, the conversion of contingent capital instruments is automatic upon the activation of the predetermined conversion trigger, but the conversion of existing hybrids is largely at the discretion of banks, unless regulatory capital ratios are breached.

During the recent crisis, most hybrid capital instruments did not absorb losses the way they were designed to do. This was partly due to banks’ reluctance to send negative signals to the markets and partly due to regulatory forbearance, overestimated capital ratios, and/or capital injections from governments which prevented the breach of regulatory ratios. (See Appendix 8.3 for a more detailed discussion on precrisis hybrids.) The crisis has exposed the weaknesses in capital structure and measurement, especially how Tier 1 capital ratios masked the underlying capital position of banks. Since then, the Basel III framework has raised the minimum common equity ratio from 2 percent to 7 percent (of
which 2.5 percent is a conservation buffer) and substantially enhanced the quality of capital (Chapters 3 and 4 provide more details). It will be critical to build on past experience to avoid CoCos repeating the same failure as hybrids, including marring once again capital’s loss-absorbency availability and transparency.

OPERATIONAL ASPECTS OF CONTINGENT CAPITAL

The design of trigger and conversion rates will be crucial to ensure the effectiveness of contingent capital in achieving the intended objectives (Box 8.1). In this section, the pros and cons of various trigger conditions and conversion rates are discussed, including their impact on the pricing and marketability of these instruments and on market dynamics.

Triggers of contingent capital instruments determine the probabilities of conversion or conversion risks. To the extent that the conversion itself is not a default event, the idea is to impose losses upon creditors, who would otherwise be affected only by default. The trigger could be linked to system-wide conditions or bank-specific conditions, or to a combination of both (Appendix 8.2, Table 8.1).

Systemic triggers would be based on the condition of the whole financial system (e.g., liquidity conditions, a market volatility index, or supervisory declaration of a systemic crisis). Such instruments may be more efficient at addressing systemic risks, since they increase capital across the banking system at the same time. However, using systemic triggers would mean forgoing any benefits from the market-discipline effect, since there would be limited additional incentive for banks to improve their individual risk management. Moreover, given the difficulty of predicting systemic events and the discretionary element in calling such circumstances, the rating and pricing of these instruments would be complex.

Bank-specific triggers would be based on the state of an individual institution. These could include a bank’s capital ratio, share price or CDS price, or an assessment of nonviability by the supervisor. Instruments with market- or capital-ratio-based triggers are likely to be easier to rate and price compared with those whose triggers are based on supervisory discretion. Reported capital ratios seem to align better with a regulatory capital framework and objectives, but tend to be lagging indicators of a bank’s financial condition and, thus, may not trigger conversion sufficiently early. A concern with market-based triggers is that they can be more easily subject to market manipulation, although this problem may be overcome to some extent, for example by basing the conversion trigger on the moving average of a market price (Flannery, 2009).

Instruments with high-level triggers (i.e., set at capital levels well above distress thresholds) could be a useful tool for crisis prevention. They could help mitigate systemic risks by ensuring recapitalization well before a bank faces serious difficulties and a potential loss of broader market access. They would also provide strong encouragement to shareholders and bondholders to exercise market discipline,
A Schematic Exposition of the Use of Contingent Capital Instruments

**Crisis Prevention:** Several tools work to limit the prospect of systemic crisis: (i) better management incentives to lower the risk appetite; (ii) higher capital buffers (e.g., Basel III) and additional loss-absorbing capital instruments that could include contingent convertible capital (CoCos); (iii) revamped disclosure to inform markets of the true and fair view of the capital position of financial institutions; (iv) more intrusive supervision—impose restrictions on dividends and mandate capital plans earlier; and (v) promotion of preemptive restructuring by virtue of effective resolution and recovery planning (e.g., sale of nonstrategic subsidiaries).

**Crisis management (going concern):** Revamped and more diligent prevention efforts serve to lower contagion by a distressed SIFI. They allow management and authorities to undertake progressively more aggressive restructuring measures to stave off insolvency as capital levels deteriorate (see below table) and prevent systemic crisis. Central bank emergency liquidity assistance could be made available under the conditions that equity solvency is sustained and borrowing is properly collateralized.

**Orderly resolution (gone concern):** Once all restructuring measures are exhausted, countries will require a framework that provides a menu of resolution-transaction options. Resolution-transaction options should include: (i) a transaction for the purchase of viable assets and assumption of certain liabilities by an existing institution; (ii) temporary creation of government-owned bridge financial institution (both necessary for SIFIs); and (iii) liquidation of assets with deposit transfer/payout supported by depositor guarantee schemes (available for smaller nonsystemic institutions).

<table>
<thead>
<tr>
<th>Triggers</th>
<th>Objective</th>
<th>Degree of Stress</th>
<th>Debt Instruments</th>
<th>Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examples of high triggers:</td>
<td>Recapitalization to stabilize the situation and</td>
<td>Deteriorating financial situation</td>
<td>High-trigger CoCos convert to equity</td>
<td>Conversion through ex ante contractual agreement between issuers and investors</td>
</tr>
<tr>
<td>– Common equity ratio 7 percent of risk-weighted assets (Swiss proposal)</td>
<td>build market confidence</td>
<td>(going concern)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– 7 percent above plus any</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>countercyclical buffer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Examples of low triggers:</td>
<td>Provide additional recapitalization to prevent</td>
<td>Threat of failure (going concern)</td>
<td>Low-trigger CoCos convert to equity</td>
<td>Conversion through ex ante contractual agreement between issuers and investors</td>
</tr>
<tr>
<td>– Common equity 5 percent of</td>
<td>receivership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>risk-weighted assets, or ratio of equity to non-risk-weighted assets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Point of nonviability or</td>
<td>Compulsory restructuring to prevent</td>
<td>Threat of insolvency (going/gone</td>
<td>In order of claim priority, subordinated debt and, ultimately, unsecured senior debt could be subject to debt-to-equity conversion</td>
<td>Contractual possible, but most likely would require statutory powers</td>
</tr>
<tr>
<td>other resolution triggers</td>
<td>insolvency resolution</td>
<td>concern)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

©International Monetary Fund. Not for Redistribution
since they act earlier to reduce risk taking and improve management and align governance with the long-term sustainability of the bank.³

Instruments with low-level triggers could be useful tools for orderly resolution. In their case, the trigger would be set at the point of nonviability⁴ as a way to ensure private sector involvement in the bank restructuring process, as was done in the case of Lloyds Banking Group.⁵ There is a possibility that market confidence in a bank’s financial condition could weaken and create liquidity pressures as bank capital approaches the conversion trigger. This argues for the careful integration of their use with emergency liquidity facilities and supervisory intervention techniques to ensure that they increase, rather than decrease, the bank’s chance of survival and that they do not trigger a broader loss of confidence.

An important consideration would be the conversion rate, which determines the burden sharing between shareholders and bondholders. The impact on the incentives to monitor bank management would depend on which party loses most in a conversion: with a high rate of dilution, those who lose are the ex ante shareholders; with little dilution, those who lose are the holders of contingent debt. Possible options include the following (also see Appendix 8.2, Table 8.2):

- Conversion into a predetermined number of shares based on the par value of an instrument divided by the issuing bank’s share price at the time of issuance. Upon conversion, the dilution to the shareholders is limited to lower share prices, but bondholders would suffer losses as if they were shareholders.
- Conversion into an ex post determined number of shares, based on the par value of the instrument divided by the share price at the time of conversion. Upon conversion, the holders of CoCos would receive the notional amount in shares and would not suffer losses if they could sell the shares, but would absorb future losses as new shareholders. The ex ante shareholders, however, would suffer a much stronger dilution than in the previous case. Such instruments may give rise to an “infinite dilution” or “death spirals” when share prices are falling close to zero. Hence, they may be more prone to market manipulation. In this context, some restrictions (circuit breakers) on conversion rates may be justified if such risk is not reflected in prices (De Martino and others, 2010).

Contingent capital instruments with debt write-off features would be more suitable for (but not limited to) cooperative and mutual banks that are prevented

---

³Since bank managers may prefer to reduce their risk rather than reach the trigger point, this may lead to deleveraging. Large-scale asset sales by a systemic bank in a crisis could put significant downward pressure on asset prices, with a negative impact on the balance sheets of other institutions. The “fire sale” externality has been a significant factor of contagion in the recent crisis (see Brunnermeier, 2009; Adrian and Shin, 2010).

⁴Nonviability as defined by the Basel Committee (see page 169) or the level when a resolution process starts.

⁵In this case, existing Tier 1 and Tier 2 instrument holders were made the offer to exchange their securities against the new CoCos (ECN—Enhanced Capital Note) after the bank had been intervened. The exchange was effective in reducing existing liabilities and providing extra loss-absorbing capital for times of future stress.
by their legal structure from issuing shares. Such instruments could be designed
to impose a significant haircut on bondholders upon the trigger event. The
Rabobank Senior Contingent Notes provide an illustration whereby the notes’
original principal amount can be written off, but not written back up, by
75 percent if the bank’s common equity ratio falls below 7 percent. Instruments
with large haircuts would provide a powerful incentive for bondholders to moni-
tor the bank’s performance and resilience closely. However, the stringency of the
losses that would be imposed might mean the cost of these instruments could be
steep and, thus, likely to be limited to issuance by strong banks, that is, banks
with a very low probability of failure.

The pricing of and the demand for contingent capital instruments will depend
on conversion triggers, types of conversion, and conversion rates. The level of the
trigger determines the conversion risk; therefore, for a given conversion rate,
issuing an instrument with a low trigger should be cheaper than issuing one with
a high trigger. Conservative and traditional real-money investors, whose invest-
ment horizon is longer term, are more likely to be drawn to instruments with a
lower probability of conversion and loss sharing. More dynamic/speculative
investors, who have higher risk-return investment strategies, should be more will-
ing to consider high-level trigger CoCos with their greater loss risk.

Like the hybrid market in the late 1990s, the contingent capital market would
need some preconditions to become a deeper asset class. It took close to five years
after its inception in 1997 for the European hybrid market to reach critical mass
and become a mainstream asset class (Figure 8.1). Likewise, contingent capital
may need several years before investors become more familiar and comfortable
with the instruments. The main barriers that would also need to be overcome
relate to (i) obtaining ratings; (ii) lifting the mandate restrictions of certain inves-
tors to hold equity-like products;6 and (iii) obtaining the inclusion of CoCos in
benchmark indices.

The tax and regulatory treatment of CoCos would be important in develop-
ing this instrument. The tax deductibility of interest would help lower the cost
of contingent capital. After the crisis, two European banks issued tax-deductible
contingent capital instruments, but with different regulatory capital status—
lower Tier 2 instrument by Lloyds and noncapital senior debt by Rabobank
(as discussed earlier). However, there has been no further issuance of CoCos
since then, possibly due to the regulatory uncertainty regarding the treatment
of contingent capital instruments (Appendix 8.3). Most existing hybrid securi-
ties will no longer qualify as regulatory capital under Basel III after January
2013 and will be phased out over time by 2023.7 The regulatory landscape,
which will be shaped by the policy initiatives of the Basel Committee and the

---

6To accommodate fixed-income investors who are not allowed to hold equity as part of their mandate,
financial structures are being formulated that would allow common equity to be held in trust or in
other vehicles on behalf of CoCo holders or to facilitate the disposals of such equity for cash.

7Under Basel III, Tier 1 capital ratio will incorporate up to 25 percent of “other qualifying” noncom-
mon equity instruments, but based on stricter criteria.
Contingent Capital: Economic Rationale and Design Features

FSB (discussed below), will be an important factor in the development of a market for contingent capital instruments.

A proper sequencing could help expand the CoCo market over time. Investors differentiate between strong and weak banks, and having strong banks issuing at first would generate confidence in the new instruments and market stability until investors were comfortable enough to increase exposure to “second tier” (riskier) issuers. The investor base could initially include a small pool of buyers, such as hedge funds, sovereign wealth funds, and high-yield or equity investors. Over time, traditional credit investors, real money, asset managers, and insurers could step in and provide depth to the market.

The depth of existing subordinated debt and equity markets (Figure 8.2) provides an indication of the pool of potential investors. If contingent capital is to target fixed-income investors, the outstanding Tier 1 and Tier 2 debt markets in Europe and the United States indicate that the current institutional market capacity is about $260 billion for the United States and €580 billion for Europe. The European and U.S. equity markets for bank stocks, combined, amount to

©International Monetary Fund. Not for Redistribution
about $923 billion. An important issue to consider is the potential “crowding out” risk if equity investors were to prefer CoCos to equity—this may lead to higher costs of issuing common equity.

There may be a case for imposing certain restrictions on holders of convertible instruments. In particular, if the investors are other leveraged financial institutions of systemic importance, the potential write-off could have contagion effects. One of the reasons regulators did not enforce hybrid coupon deferrals and maturity extensions was to avoid penalizing insurance companies, who were large holders of those instruments and would have been forced to sell in such an event. The same political economy concerns could also apply to contingent capital. Regulators would also need to ensure that, after conversion, the new equity holders would be “fit and proper” owners of a bank. However, it is unclear whether it would be necessary for regulators to impose limits on SIFIs’ cross-holding of CoCo instruments, since the proposed liquidity requirements under Basel III, which are more onerous, are likely to limit cross-holdings in general.

CONTINGENT CAPITAL PROPOSALS

This section discusses the contingent capital proposals recently made at both international and national levels, as well as the potential role of contingent capital in a framework of crisis management.

**Basel Committee “Point of Nonviability” Proposal**

The Basel Committee issued minimum requirements on January 13, 2011, to ensure that all classes of capital instruments fully absorb losses at the point of nonviability before taxpayers are exposed to loss (BIS, 2011; BCBS, 2010e). More specifically, it proposed that all noncommon equity Tier 1 and all Tier 2 instruments must have a provision in their terms and conditions that requires them to be written off or converted into common equity upon the occurrence of the trigger event. The trigger event is the first decision by the relevant authority, either

- that the firm would become nonviable without a debt write-off; or
- that the firm would become nonviable without a public sector injection of capital or equivalent support.

The relevant authority in determining the trigger event is the authority where the capital is being given recognition for regulatory purpose. In the case of conversion, these capital instruments must be converted into the common stock of the issuing bank or of the parent company of the consolidated group, including any successor in resolution.

This proposal can be considered as a low-level-trigger contingent capital instrument similar to a resolution tool, as discussed earlier. It remains to be seen how the discretionary element may affect the pricing and marketability of these capital instruments. Regulators may be allowed to intervene before capital deteriorates to the point at which a capital-ratio-based, low-trigger CoCo would
have been converted. Thus, the proposed trigger that is linked to the decision of public support would ensure that private creditors take losses before government intervention. It is important to note that the BCBS report also emphasizes that its proposal for contingent capital should not diminish the need to reform national insolvency and bank-resolution schemes to create stronger incentives for private sector solutions for failing SIFIs.

**Contingent Capital as Additional Loss-Absorbing Capital Buffer for SIFIs**

Various proposals have been made to use contingent capital to meet part of the requirements for additional loss-absorbing capital. The countercyclical capital buffer is expected to be built up rarely (at times of bubbles); however, the additional loss-absorbing capital requirements for SIFIs may represent a substantial amount. The calibration of additional capital requirements for SIFIs, which has been under discussion, may be defined as a Pillar 2 add-on, calibrated by the systemic risk contribution of each bank. If CoCo bonds were to be used to meet part of the additional capital requirements for SIFIs, for illustrative purposes 25 global SIFIs would need to issue $300 billion of CoCo bonds to meet additional loss-absorbing capital requirements of 2 percent of risk-weighted assets. Should those same SIFIs use CoCos to meet the countercyclical buffer in bad times, they may need to issue another $400 billion.

The contingent capital proposal by the Swiss regulators represents the first national initiative (Box 8.2). The high-trigger CoCos are designed to meet a bank’s recapitalization needs when its capital situation is deteriorating, thus contributing to the stabilization of the bank before restructuring actions become necessary. The low-trigger CoCos are expected to generate capital to prevent the bank from being put into receivership and to ensure an orderly resolution that is funded first by private creditors, which should minimize the need for possible government support.

However, CoCos have been excluded from the list of instruments eligible to meet the proposed additional capital requirements for global systemically important banks (G-SIBs). In a meeting in late June 2011, the Group of Governors and Heads of Supervision, the oversight body of the BCBS, agreed on a bucketing approach for additional capital requirements tied to the extent of systemic importance, with an undisclosed number of buckets ranging from 1 percent to 2.5 percent and an additional “empty” bucket of 3.5 percent that is intended to discourage banks from increasing their systemic importance. It was also agreed that the G-SIB surcharge will be fully met with common equity. Contingent capital instruments may be applied at national discretion but only as an add-on to the G-SIB surcharge, consistent with the IMF view that the surcharge should be predominantly common equity until its effectiveness can be better assessed (see also Chapter 7).

---

8The list of SIFIs worked on at the FSB has not been disclosed. The sample used in this report is based on the list published in the *Financial Times* on November 1, 2010 (“Regulators Outline Banking Blueprint”).

9The U.K. authorities may be considering a similar approach (Bank of England, 2010).
The Swiss Contingent Capital Proposal

The Swiss Commission of Experts released on October 4, 2010, a comprehensive framework to address risks associated with SIFIs, which should be adopted into law by early 2012. Part of the framework is to raise total capital ratio to 19 percent: 10 percent in common equity Tier 1 (CET1) and 9 percent in contingent-convertible bonds (CoCos), including 3 percent with a “high level trigger” of 7 percent of CET1 to meet the enhanced “additional capital conservation buffer,” and 6 percent with a “low level trigger” of 5 percent of CET1 as a SIFI additional loss-absorbing capital requirement or “progressive component.”

Main features of Swiss contingent capital:

- The triggers would be “contractually predefined” and based on common equity ratios in line with the Basel III framework.
- The equity conversion prices would not be predefined and could be set either at the time of conversion or at the time of issuance. Write-down could be an alternative. Preconversion, these contingent capital instruments would be classified as dated subordinated debt with nondeferrable coupons, also known as (ex-lower) Tier 2 debt.

For the implementation of the Swiss requirements, the same timeframe will apply as in the case of Basel III, by 2019. The accumulation of capital in the various categories will be overseen by the Swiss Financial Market Supervisory Authority and the Swiss National Bank as part of capital planning.
Contingent capital is not designed to deal with liquidity problems. The conversion would stop the interest payments on convertible bonds but would otherwise not generate additional liquidity for banks. However, if perceived negatively by the market, the conversion could actually generate a liquidity squeeze for the institution. To avoid the negative impact on market dynamics, triggers would need to be set off long before liquidity pressures started, in order to forestall a self-fulfilling presumption of a liquidity crisis (Duffie, 2010). However, forestalling a liquidity crisis with convertible debt would require large amounts of such debt and might require extending the coverage of debt-equity conversion to unsecured senior debt under the bail-in schemes (Box 8.3). In practice, the use of contingent capital instruments may require precommitted liquidity support from the central bank or from a consortium of private banks.

**Box 8.3**

**Bail-In Proposals: A Statutory Approach to Debt Restructuring**

Bail-in proposals mainly represent a statutory approach to debt write-downs or debt-equity conversion. This approach would likely require endowing regulators with statutory powers to cancel, write down, or convert existing claims on debt holders or override preemption rights.

- Unlike regulatory contingent capital, bail-in schemes deal directly with the resolution of SIFIs. They provide supervisors with discretionary power to recapitalize an insolvent SIFI more quickly (a few days) than under the existing bankruptcy rules (a few months or longer), thus gaining a crucial time period to assess the viability of the bank and, when necessary, proceed with an orderly and rapid liquidation. Because the recapitalization will be based on the conversion of private debt into equity rather than a bailout, moral hazard will be reduced.

- Bail-in is better suited than contingent capital for dealing with larger shocks/tail risks, because financial institutions would ordinarily maintain a substantially large amount of unsecured debt that could be eligible under bail-in schemes for conversion into equity. Bail-in could face tough legal challenges and strong political opposition. A clear and convincing legal procedure would be essential to its effectiveness. Regulators would need statutory power to write down existing claims of equity and debt holders, override preemption rights, and change management. Upon the occurrence of the trigger event, creditors would be forced to give up full legal claims, presumably in exchange for overall value maximization and so that business operations could continue normally. This would interfere with laws that guarantee property rights. Therefore, bail-in schemes would require changes in current legislation to legitimize the interference. The problem is further complicated by the lack of consensus on whether all unsecured debt should be subjected to the statutory power, although the general agreement is that collateralized debt or any other secured claims should be excluded.

There will also be challenges associated with cross-border implementation. Regulators in a home country with the bail-in statutory power might not be able to write down the debt that is booked in a foreign country or is governed by a foreign law. In this case, the effectiveness of the bail-in could be reduced significantly, unless states were willing to adopt laws recognizing the statutory power of the resolution authorities in other jurisdictions.
CONCLUDING REMARKS

Contingent capital instruments should be considered as part of a comprehensive and consistent crisis prevention and management framework. Although these instruments could be useful additions to the crisis management toolkit, they are not intended to be standalone tools. Instead, they should be implemented within a comprehensive framework that includes strengthened supervision, an enhanced capital base, improved disclosure, and an effective resolution regime. Their design should also avoid adding more procyclicality during crisis times.

The design of the conversion trigger and the conversion rate will be crucial to ensure effectiveness. As each objective (e.g., prevention, resolution, and market discipline) entails a different design, it will be important to identify the design priorities. In particular, to avoid adverse unintended consequences and enhance market acceptance, several considerations should be at the fore.

Triggers based on the capital ratios of individual institutions are preferable, since they are less prone to market manipulation and market contagion and since both shareholders and bondholders will have an incentive to avoid letting capital fall near the trigger point. As a tool for crisis prevention, conversion triggers should be set high enough, relative to the point of insolvency, to ensure conversion for individual institutions well ahead of the emergence of distress. As a tool for an orderly resolution of a failing bank, conversion triggers may be set at a low level, that is, to convert close to the point of an institution’s insolvency, thereby providing a broader private sector investor base for sharing the burden for bank failures with the public sector.

Ensuring consistency, transparency, and standardization will be important to avoid complex structures and to support the G-20 objective of higher capital transparency. Some standardization might be necessary to avoid complex structures. Regulators, issuers, and investors need to establish transparent criteria to ensure proper marketability of contingent capital instruments and allow sufficient depth and liquidity for their successful use. Despite their potential use in addressing moral hazard, contingent capital instruments are untested. Therefore, supervisors will need to be vigilant in monitoring (i) the design and issuance of contingent capital instruments; (ii) the implied transfer of risks within the financial system; and (iii) potential buildup of systemic risks, including liquidity risk.

APPENDIX 8.1. MODELS OF BAILOUT AND BANK RISK TAKING

The Basic Model

Consider a bank that starts at period 1 with an asset consisting of its own cash capital of $M$ and an investment of $I$ (i.e., loans), which is financed with outside equity ($NP$) and debt ($D$):

$$I - M = NP \times P + D$$

where $P$ is the price of each share and $N$ is the number of issued shares.
At period 2, the repayment on debt is \((1 + r)D\), where \(r\) is the interest rate on debt. For simplicity we assume that the risk-free interest rate is equal to zero. The gross payoff on the investment \(I\) is stochastic \(R\).

i) If \(R < (1 + r)D\), the bank defaults on its debt. Assuming default is costless, creditors (bond investors) receive \(R\) while shareholders receive 0.

ii) If \(R > (1 + r)D\), the bank pays off debt, and each share gives right to residual \([R - (1 + r)D]\).

In the equilibrium, the interest \(r\) on debt is determined by:

\[
D = E\left\{\min\left[(1 + r)D, R\right]\right\}
\]

The value of each share is given by

\[
\max\left[\frac{[R - (1 + r)D]^+}{N}\right]
\]

where \([R - (1 + r)D]^+\) is a notation for \(\max[R - (1 + r)D, 0]\). The total expected value of shares is therefore given by

\[
V = N \times E\left[\frac{[R - (1 + r)D]^+}{N}\right] = E\left[\min\left[(1 + r)D, R\right]\right]
\]

\[
V = E\left[R - \min\left[R, (1 + r)D\right]\right] = E(R) - E\left[\min\left[R, (1 + r)D\right]\right]
\]

\[
= E(R) - D = E(R) - I + M = NP
\]

And the gross return on the bank’s own capital \(M\) is

\[
\frac{V}{M} = 1 + \frac{E(R) - I}{M}
\]

**Result 1.** For a given expected profit, the gross return increases when \(M\) decreases. Therefore, the bank’s incentive is to leverage as much as possible (and thus increase its default probability), so that potentially high profits from its investment will be spread over a common equity base.

### The Model with Government Bailout

How does a government bailout encourage excessive risk taking by a bank? The simple intuition is that the bank now expects that when \(R < (1 + r)D\), it could receive a transfer \(T\) from the government to prevent it from default on its debt:

\[
T = (1 + r)D - R
\]

The bank therefore has one more reason to take excess risks: to maximize \(T\).

We now introduce a risk measure in investment in the basic model to illustrate how bailout could lead to more risky behavior. For simplicity, we assume the bank holds only loans in its assets; hence, cash \(M\) is equal to 0. Assume \(R = R^* + \sigma e\), where \(\sigma\) is
a measure of risk in investment and $\epsilon$ represents a shock to return. $E(\epsilon) = 0$, $\epsilon \sim f(\epsilon)$ in $[\epsilon^l, \epsilon^h]$. $\sigma^l, \sigma^h, \sigma^m$ is the minimum risk and $\sigma^h$ is the maximum risk.

Assuming that there is a default cost $d$, if the bank defaults the creditors now will only receive $R - d$, while shareholders receive nothing. The bank defaults when $R^* + \sigma \epsilon < (1 + r)D$ or $\epsilon < -[R^* - (1 + r)D]/\sigma$.

The equilibrium interest rate $r$ on debt is determined by:

$$D = \int_{-|[R^* - (1 + r)D]/\sigma}|(1 + r)Df(\epsilon)d\epsilon + \int_{\epsilon^l}^{\epsilon^h}(R^* + \sigma \epsilon - d)f(\epsilon)d\epsilon$$

and the value of capital is given by

$$V = \int_{-|[R^* - (1 + r)D]/\sigma}|[R^* + \sigma \epsilon - (1 + r)D]f(\epsilon)d\epsilon$$

Therefore the total value of the bank is

$$D + V = E(R) - d \int_{\epsilon^l}^{\epsilon^h}f(\epsilon)d\epsilon$$

**Result 2.** To maximize its value, it is optimal for the bank to take the minimum risk because of default cost $d$.

However, if the interest rate does not respond to risks because of a bailout guarantee that prevents the default of the bank ex post, then

$$\frac{\partial V}{\partial \sigma} = \int_{\epsilon^l}^{\epsilon^h}\epsilon f(\epsilon)d\epsilon > 0$$

**Result 3.** With the expectation of bailout, the bank will take maximum risk as long as the probability of default is greater than 0.

**The Model with a Bailout Insurance Fund**

Assume that the government imposes a bailout premium ex ante on the bank for the expected value of bailout. How would this change the bank’s risk-taking behavior? A practical example would be the bank resolution fund that has been set up in several advanced countries. With the bailout insurance, the bank will receive a transfer $T = [(1 + r)D - R]^+$ in period 2—but it all goes to repay the creditors. In period 1, the bank must pay a premium that is equal to the expected value of the transfer, which depends on risk $\sigma$:

$$E(T) = \int_{\epsilon^l}^{\epsilon^h}[(1 + r)D - R^* + \sigma \epsilon]f(\epsilon)d\epsilon$$

Hence, a bank perceived as riskier would pay a higher insurance premium.
The value of capital net of the insurance premium is given by

\[
V = \int_{-\left[R^* - (1+r)D\right]/\sigma}^{\varepsilon} [R^* + \sigma e - D] f(e) \, de - \int_{\varepsilon}^{\infty} [D - R^* + \sigma e] f(e) \, de \nonumber
\]

\[
= E(R) - D
\]

which is not increasing with risk \(\sigma\).

**Result 4.** A bailout insurance fund reduces the incentives for banks to take excessive risk.

**A Model with Contingent Convertible Bonds**

In this section, we will show that CoCos can be equivalent to optimal capital insurance. Following the basic model, now the bank issues convertible debt \((D')\) in period 1, in addition to regular debt \((D)\), so that

\[
I = NP + D' + D
\]

Consider three possible cases:

i) If \(R < (1 + r)D\): the bank defaults (as before). The creditors of regular debt will receive \(R - d\), while shareholders and CoCo investors receive nothing.

ii) If \((1 + r)D < R < (1 + r)D + (1 + r')D'\), CoCos are converted and CoCo investors receive a share \((\varphi)\) of total capital \((\varphi = 1\) implies total dilution to the original shareholders). \(\varphi = N'/N + N'\), where \(N'\) is the number of new shares.

iii) If \(R > (1 + r)D + (1 + r')D'\), there is no default and no CoCo conversion.

We first assume that a default does not trigger a bailout and, in this case, the interest rates are determined by:

\[
D = \int_{-\left[R^* - (1+r)D\right]/\sigma}^{\varepsilon} (1 + r)D f(e) \, de - \left[R^* - (1+r)D\right]/\sigma \int_{\varepsilon}^{\infty} (R^* + \sigma e - d) f(e) \, de
\]

\[
D' = \left[R^* - (1+r)D - (1+r)D'\right]/\sigma \int_{-\left[R^* - (1+r)D - (1+r)D'\right]/\sigma}^{\varepsilon} \varphi[R^* + \sigma e - (1 + r)D] f(e) \, de + \int_{\varepsilon}^{\infty} (1 + r')D' f(e) \, de
\]

One can show that the interest rate is higher for convertible debt than for plain vanilla debt.

©International Monetary Fund. Not for Redistribution
The value of capital is

\[
V = E(R) - D - D^c - d \int_{\epsilon^c}^{-[R^* - (1 + r)D]/\sigma} f(\varepsilon) \, d\varepsilon
\]

**Result 5.** The value of capital is maximized by the bank taking minimum risk. In this case, contingent convertible bonds reduce the bank’s incentives to take excessive risks by eliminating the bailout or reducing the probability of default.
APPENDIX 8.2. SUMMARY OF CONTINGENT CAPITAL TRIGGER CONDITIONS

<table>
<thead>
<tr>
<th>Table 8.1 Contingent Capital Trigger Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>Bank-specific triggers</td>
</tr>
<tr>
<td>1. Financial soundness indicators (e.g., capital ratios)</td>
</tr>
<tr>
<td>2. Market indicators (e.g., share price, credit default spread, CDS)</td>
</tr>
<tr>
<td>3. Supervisors’ discretion to trigger conversion when financial stress is deemed sufficiently high (e.g., stress test results)</td>
</tr>
</tbody>
</table>

©International Monetary Fund. Not for Redistribution
<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic triggers</td>
<td>Based on “systemic”/ broad market factors</td>
<td>✓ Increases capital across the banking system at the same time, and thus may be most efficient at addressing and reducing systemic risk.</td>
<td>✓ Virtually no incentive for bank management to take specific actions as trigger conditions are removed from direct control.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Might be too broad and costly ex ante unless trigger conditions are set sufficiently low.</td>
<td></td>
</tr>
<tr>
<td>1. Predetermined</td>
<td>general conditions of financial sector (loss rates, capitalization, cash</td>
<td>✓ Intuitively attractive: increases banking system capitalization in response to systemic credit losses.</td>
<td>✓ Lack of differentiation among banks may have unintended consequences.</td>
<td>Credit loss trigger: conversion occurs if, say, residential or commercial mortgage delinquencies nationwide rise above a certain level.</td>
</tr>
<tr>
<td></td>
<td>capital ratio)</td>
<td>✓ Automatic: not reliant on regulatory judgment and supervisory discretion (and does not breed entitlement for intervention)</td>
<td>✓ Lack of supervisory interference removes judgment in situations with little or no precedent.</td>
<td></td>
</tr>
<tr>
<td>2. Supervisory discretion</td>
<td>or supervisory declaration of a systemic crisis</td>
<td>✓ Broad-based recapitalization of the banking system when regulators want/need it.</td>
<td>✓ Possibility that trigger is too narrow, i.e., systemic risk is caused by something unrelated to credit losses (and recapitalization addresses only symptom not cause).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>✓ Large-scale consequences might delay supervisory action.</td>
<td></td>
</tr>
<tr>
<td>Dual triggers</td>
<td>Declaration of a systemic crisis and the realization of a single idiosyncratic</td>
<td>✓ Broad-based recapitalization of the banking system while allowing for differentiation among banks.</td>
<td>✓ Prone to produce mixed signals: pits regulatory judgment against market-perceived severity of systemic distress.</td>
<td>Declaration by regulators that the financial system is suffering from a systemic crisis (see French and others, 2010).</td>
</tr>
<tr>
<td>(bank specific + systemic)</td>
<td>trigger</td>
<td></td>
<td>✓ Risks combining the worst characteristics of triggers: strong reliance on supervisory discretion and lagging indicator subject to national variations.</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 8.2
Summary Table of Contingent Capital Conversion Options
(Advantages/disadvantages to shareholders [E] and holders of contingent capital [D])

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Example</th>
</tr>
</thead>
</table>
| Relative to contingent capital holders | Converts upon trigger breach into a variable number of shares based on the share price at the time of the trigger breach | ✓ Clarity for holders of contingent capital (valuation certainty)  
✓ Cost-effective issuance cost of contingent capital | ✓ Possibility that conversion will be ineffective due to insufficient capital buffer  
✓ Likely to increase the cost of and decrease access to new equity unless share amount is limited | |
| 1. Conversion at par value | ✓ Benefit to owners of contingent capital securities from a negative shock to the share price (if it also increases the likelihood of conversion) (D)  
✓ Lower issuance cost of contingent capital (D) | ✓ Incentives created for market manipulation (e.g., short-selling of stock), which could be mitigated by using some historical market-based trigger for conversion (e.g., the average stock price over a longer period) (D)  
✓ High (and unknown) dilution to shareholders likely to create strong incentives to avoid trigger breach to a point when conversion might be too late  
✓ Potentially large dilution risk, since contingent capital is likely to trade at a discount for any reasonable trigger point (E)  
✓ Higher cost of equity capital, due to potential dilution and dilution uncertainty, depending on trigger conditions relative to trading price of contingent capital (E)  
✓ Higher cost of equity but lower issuance cost (E/D) | ✓ Existing shareholders have incentive to trigger conversion prematurely (especially in combination with market-based triggers) in order to reduce dilution risk (especially if debt does not trade at a discount) (E)  
✓ Smaller dilution risk (than in the case of conversion at par) could fail to deter ex ante risk taking by managers  
✓ Lower cost of equity but higher issuance cost (E/D) | |
| 2. Conversion below par value | ✓ Higher firm value due to reduced liabilities lowers the possibility of a lucrative speculative attack (E) | ✓ Incentives created for market manipulation (e.g., short-selling of stock), which could be mitigated by using some historical market-based trigger for conversion (e.g., the average stock price over a longer period) (D)  
✓ Higher cost of equity but lower issuance cost (E/D) | ✓ Existing shareholders have incentive to trigger conversion prematurely (especially in combination with market-based triggers) in order to reduce dilution risk (especially if debt does not trade at a discount) (E)  
✓ Smaller dilution risk (than in the case of conversion at par) could fail to deter ex ante risk taking by managers  
✓ Lower cost of equity but higher issuance cost (E/D) | |
<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Conversion at/above/below trading price of contingent capital at time of conversion</td>
<td>✚ Lower dilution risk, since conversion rate is pegged to a trading price that is likely to be discounted to principal (E)</td>
<td>✚ Higher overall cost of capital, due to higher uncertainty for both holders of contingent capital and shareholders &lt;br&gt; ✚ Incentives created for market manipulation (e.g., short-selling of stock) to reduce debt payments when bank operates close to the default barrier, debt-equity correlation is high, and dilution risk is low (E) &lt;br&gt; ✚ High issuance cost of contingent capital (D) &lt;br&gt; ✚ Incentives created for market manipulation (e.g., short-selling of stock) to reduce debt payments</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>No conversion but principal write-down</td>
<td>✚ Most cost-efficient form of contingent capital (D) &lt;br&gt; ✚ No dilution risk (E)</td>
<td>✚ Cost of funding will increase proportionately to the chance of the bank facing difficult circumstances</td>
<td>✚ Lloyds exchange: The conversion rate (as a number of shares) is determined by dividing the par value of the securities by the share price at the time of issuance</td>
</tr>
<tr>
<td></td>
<td>Relative to shareholders (Conversion into a fixed number of shares) (“mandatory convertibles”)</td>
<td>✚ No incentive for manipulation: prespecified, fixed amount of dilution for shareholders; managers consider conversion only if the degree of dilution is smaller than the debt payments to holders of contingent capital (E) &lt;br&gt; ✚ Encourages both parties to avoid trigger breach; conversion optimal only if share price is sufficiently low when bank operates close to its default barrier (as long as trigger conditions are idiosyncratic and not completely insulated from changes in the share price) (E/D)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relative to issuer’s capital needs</td>
<td>✚ No clarity for holders of contingent capital (valuation uncertainty) (D) &lt;br&gt; ✚ Conversion effectiveness, i.e., sufficient capital buffer created upon conversion (assuming timely trigger and conversion formulation) &lt;br&gt; ✚ Greater incentive compatibility</td>
<td>✚ Higher overall cost of capital due to higher uncertainty for both holders of contingent capital and shareholders &lt;br&gt; ✚ High issuance cost of contingent capital (D)</td>
<td>✚ Conversion rate determined by book value multiple/risk-weighted asset multiple</td>
</tr>
</tbody>
</table>
APPENDIX 8.3. HOW DOES CONTINGENT CAPITAL COMPARE WITH HYBRID AND SUBORDINATED DEBT INSTRUMENTS?10

Similar to other hybrid capital instruments, contingent capital entails both equity and debt-like features. Bank regulators may allow these instruments to be treated as part of capital due to their loss-absorbing characteristics. They may be cheaper for issuers (because of tax deductibility), and shareholder dilution only occurs if conversion is triggered. Fixed-income investors may be attracted by the higher yields of these instruments.

The hybrid capital instruments did not provide meaningful loss absorption during the recent crisis. Although they contractually entailed loss-absorbing clauses, primarily through the deferral of coupons and/or extension of maturity, this remained at the discretion of banks, unless regulatory capital ratios were breached. In most cases, governments’ rescue of banks meant that liquidation was averted and, thus, subordinated debt holders did not suffer liquidation-related losses either. At least in the initial stages of the financial crisis, the deferral of coupons/maturity extension was not the preferred route for issuers and regulators alike, since they feared negative signaling effects. However, as the crisis amplified, some regulators became more forceful in imposing some losses on subordinated creditors, and the European Commission introduced the concept of “burden sharing” among taxpayers, shareholders, and bondholders through the imposed suspension of dividends and coupons to preserve cash and capital in distressed banks.

However, by buying back bonds at heavy discounts to par, issuers managed to reduce their debt-servicing obligations and created capital gains that augmented their core capital. Although this was beneficial for issuers, it changed the traditional priority of claims, since bondholders had to take permanent losses ahead of shareholders.

In response to the crisis, the BCBS strengthened the standards by increasing the quality, consistency, and transparency of the capital base. Higher minimum capital requirements were established for common equity (from 2 percent to 4.5 percent) and Tier 1 (from 4 percent to 6 percent), while maintaining the capital ratio at 8 percent. In addition, the BCBS introduced additional capital buffers. All new Tier 1 and Tier 2 instruments will have to be loss-absorbing to be eligible as regulatory capital.

Accordingly, most existing hybrid and subordinated debt instruments will not qualify as capital after January 1, 2013. Innovative capital, such as instruments with an incentive to redeem like a step-up at the call date, will no longer be included in the calculation of Tier 1 capital. Other instruments that do not meet the new criteria for inclusion in Tier 1 and Tier 2 capital will be phased out by 2022.

---

10Prepared by Vanessa Le Leslé. All data comes from publicly available sources, such as Bloomberg, LP Dealogic, and individual bank reports.

©International Monetary Fund. Not for Redistribution
Tier 1, Tier 2, and contingent capital will have to entail equity conversion clauses or permanent write-offs (Table 8.3). The order of loss absorption for these instruments is not yet clear (e.g., whether conversion of contingent capital should occur prior to or after the deferral of hybrid Tier 1 coupons and hybrid Tier 1 conversion into equity). Regulatory clarification will be necessary to facilitate the pricing of these different instruments under the new Basel III capital regime.

The investor base for contingent capital may be different from the traditional fixed-income investor base. Traditionally, the natural investor base for hybrid Tier 1 and Tier 2 securities was fixed-income investors. Going forward, the conversion into equity or permanent write-down features of contingent capital and other Basel III capital instruments may deter those investors. A new investor base may gradually emerge for CoCos, starting with hedge funds, high yields, or equity investors. Mapping investors’ yield targets and future Basel III instruments to expected yields highlights the possible shift that could happen in the investor base (Figure 8.3).

If a sample of 25 global SIFIs were to issue CoCo bonds to cover up to 2.5 percent of risk-weighted assets (RWA) for the countercyclical buffer, this would represent $392 billion. If the SIFI additional loss-absorbing capital requirements (which remain to be defined) were to be established at 2 percent of RWA, for instance, the same sample could use CoCo (or equity, of course) to the

©International Monetary Fund. Not for Redistribution
extent of $314 billion. In addition, banks will have to replace the existing Tier 1 and Tier 2 instruments that will be gradually phased out under Basel III, and this will reduce their available nonequity Tier 1 and Tier 2 capital and increase their need to tap capital markets with loss-absorbing instruments. With over $1 trillion of outstanding subordinated and hybrid debt that will be phased out by 2022, banks may have to issue loss-absorbing instruments of this magnitude in coming years.
Recovery and Resolution Plans (Living Wills): A Solution to the TITF Problem?

**KATHERINE SEAL**

**INTRODUCTION**

Disruptions from the collapse of some systemically important financial institutions (SIFIs) during the crisis have prompted policymakers to consider various options to tackle systemic risk in the financial system and restore public and market confidence. Various proposals have been deliberated, with the common objective of reducing the probability of bank failures and the associated social cost of a bailout. One of the much debated options concerns using “recovery and resolution plans” (RRPs), also termed “living wills,” as part of a resolution framework, along with other measures to ensure that all financial institutions can be resolved safely, quickly, and without destabilizing the financial system and exposing the taxpayer to the risk of loss.

RRPs or living wills are planning documents that create a road map to facilitate either the recovery of an institution in case of severe stress or its orderly wind-down in the event of failure. Essentially, they are contingency plans that encompass both recovery and resolution. Work is evolving at the international level, endorsed by the G-20, to identify how a consistent framework for the design and assessment of RRPs can be put into place. This chapter reflects current thinking but is clearly subject to change as progress is made.

**THE OBJECTIVES, SCOPE, AND MODALITIES OF APPLICATION**

The rationale behind requiring SIFIs to develop RRPs is to reduce the probability and impact of the failure of such institutions and thus to raise the likelihood of outcomes that do not require recourse to taxpayer support (i.e., to bailout). At a more granular and practical level, the rationale for such living wills is to ensure that a firm has identified and is capable of implementing strategies for recovery.

---

1The author is grateful to Julian Chow and Michael Moore for valuable input.
Recovery and Resolution Plans (Living Wills): A Solution to the TITF Problem?

should there be a firm-specific or system-wide stress, as well as to ensure that the authorities fully understand the structure and operation of the institution and its systemic significance and could put in place a viable resolution mechanism without recourse to public funds.

The aim of a living will, therefore, is to require an institution’s management to make contingency plans in normal times for how the various stresses could be mitigated, as well as to understand how its key economic functions are distributed across the firm. The ultimate goal is for the bank or the resolution authority to know which parts of an institution could be separated or sold without damaging the continuation of its key functions.

In the context of the ongoing work at the Financial Stability Board (FSB), living wills have become part of the international framework for reducing moral hazard associated with SIFIs. In its November 2010 Seoul summit, the G-20 leaders endorsed the FSB’s framework for addressing SIFIs, including a requirement that international RRPs be mandatory for global systemically important financial institutions (G-SIFIs) and that institution-specific crisis cooperation agreements be negotiated within cross-border crisis management groups. The G-SIFIs will be subject to a sustained process of mandatory recovery and resolution planning to assess their resolvability under applicable resolution regimes. Where resolvability is not assured, authorities should have the powers, exercisable under clear criteria, to require the institution to change its legal and operational structures to ensure its resolvability. Current consultations by the European Commission (EC) on recovery and resolution similarly suggest that all banks may be required to supply such documents, with further discussions planned to determine whether investment banks will fall within the same scope.

Recovery Plans

The recovery component of the RRPs requires that an institution and its group develop contingency plans. Such plans include arrangements or measures that will enable the institution to take early action to restore or ensure its viability, and can be likened to a financial contingency form of business continuity planning in the event of an extreme disruption (e.g., damage to physical infrastructure because of fire, floods, or earthquakes). Specifically, the RRP is intended to focus on the means to maintain capital adequacy and liquidity even under extreme stress scenarios. The stress scenarios considered will be for the firm or group to identify, but they should be expected to include both firm-specific (idiosyncratic) and system-wide distress.

In identifying recovery or survival options, the firm or group will be expected to provide information on a set of key issues: sources of funding, whether additional capital or liquidity is needed, and other options to reduce the scale or riskiness of its activities. Options could include capital conservation measures, such as restrictions on the distribution of dividends, issuance of fresh capital, and supply of liquidity from backup lines or collateralized borrowing. For reducing exposure, options include the sale of business units or subsidiaries, the closing or scaling down of business lines, and the wholesale rescue of the institution by another entity. The plan that is produced needs to be specific, including the identification of trigger
factors that would cause the institution to put the plan into effect. Last, the plan needs to be scrutinized and assessed as viable by the relevant supervisory authorities.

Resolution Plans

The resolution planning required as part of living wills is predicated on the understanding that the institution might not survive extreme stress and that its wind-down and liquidation should be as orderly as possible to avoid threat to financial stability or publicly funded support. A resolution plan should thus identify how an orderly resolution or wind-down by the authorities could be achieved should the recovery and contingency strategies identified in the recovery plan fail or prove to be inadequate in practice. A key focus of resolution planning is to preserve core functions and to avoid contagion risk. As with recovery planning, it will have to assess the likelihood of success of different resolution and wind-down options in a range of possible market environments. The resolution planning will also need to provide clarity with respect to the point of intervention by the authorities.

An important aspect of resolution planning is the opportunity it creates for the authorities to assess whether their own powers of intervention, resolution, and wind-down would be sufficient to respond to a firm-specific or system-wide stress. Legislative reform may be a first-round consequence of detailed work on RRPs. Additionally, the authorities might need to require changes to the financial, structural, and operational arrangements in the firm or the banking group in order to improve contingency options or remove obstacles to orderly resolution or liquidation.

Data Needs

The data needed for the RRPs will need to be shared to a considerable extent. The data set will also need to be maintained and be ready to be supplied to authorities at short notice in a crisis situation. Information needs will be broad and include structural, legal, organizational, operational, and financial elements. These would include, for example, detailed financial information (including on segregated client assets); data on the structure and key business lines; identification of core functions; use of payment, settlement, and clearing infrastructure; and identification of intragroup connections, dependencies, and relevant contacts. Information for resolution would include plans to facilitate rapid and orderly wind-down; information on client assets to facilitate rapid delivery; obstacles to asset transfers; and legal constraints. Absence of such information would undermine a robust analysis of potential contingencies and the authorities’ ability to assess or act on the options for resolution and wind-down.

Preparation and Responsibility

Broad international consensus suggests that recovery plans will be seen as the responsibility of the firm or group and resolution plans the responsibility of the relevant authorities. However, for the authorities to draw up a resolution plan or to assess either a resolution or a recovery plan, the contribution from the firm or group is an essential component. For a meaningful RRP to be created, it is
essential for senior management of the firm or group to take ownership of the project. Both the firm and the authorities will have responsibility to ensure that RRPs are not treated as occasional crisis warning exercises but are maintained as current, active, up-to-date documents, evolving with the firm so that they are capable of being successfully executed should trigger signals emerge.

Similarly, recovery plans developed by the firm should be vetted by the supervisory authority. Once RRPs are drawn up, they will need to be assessed by the authorities. It is probable that there will be internationally agreed guidance and this will assist in cross-border consistency and in the global management of complex cross-border groups. FSB plans to have formulated criteria to assess the resolvability of SIFIs and the essential element of RRPs by the end of 2011, possibly including the continuity of essential functions, contagion control, and loss absorbency and resolution cost.

**POTENTIAL BENEFITS**

There are a range of potential benefits associated with the requirement for firms or banking groups to draw up RRPs. At the macro level, it affords scope for national jurisdictions to carry out a stock-taking of potential systemic risks and to consider the challenges or risks to financial stability posed by financial institutions. In the light of this information, the authorities can assess whether intervention, resolution, and wind-down powers are sufficient to address problems that may arise or whether amendments to such powers are needed. Alternatively, the authorities may consider that their powers are adequate but that changes to the structure or operation of a firm or group will enhance future prospects for stability. On the international scale, RRPs could serve as a focus for dialogue between jurisdictions to identify the extent to which cross-border cooperation and, in the event of crisis, resolution may be enhanced or delivered.

Although regulatory requirements to alter group structure or operational arrangements are likely to be undesirable, there are also potential benefits at the level of the firms. The RRP process acts as a forceful reminder to focus on the strengths and resilience of the group structure and may prompt the group management to modify the structure in light of identified structural weaknesses, even without regulatory intervention. By encouraging a more simplified and streamlined corporate and financial structure of the banking group, such plans can facilitate resolution of the group. The RRP would also help the firms focus on contingency planning (for capital, liquidity, and systems) and on the quality and timeliness of information communicated to their own management as well as to the authorities.

**CHALLENGES**

Although RRPs should have the capacity to contribute to higher standards of contingency planning and systemic resilience, there may be significant challenges to implementation. First, a meaningful RRP will depend critically on a considerable body of detailed, reliable, high-quality data that is fully maintained and can be supplied at extremely short notice. Such information needs are non-negligible,
and meeting them will be an expensive investment for industry and quite possibly the authorities alike.

Similarly, since it is possible that financial groups may choose to restructure or be required to do so by the authorities as a result of the analysis of the RRP's, there may be further significant costs for the industry. Modification of corporate structures is a costly undertaking, and since most groups are presently optimized for taxation purposes it may also be assumed that revised structures may put the profitability of the institutions under additional pressure. Moreover, in transforming the groups into simpler, more streamlined corporate structures, the plans may affect the diversification benefits of groups with different business lines (also see Chapter 11). Should the expected effect of such changes be significant, strong resistance from the industry, including political lobbying, is possible.

RRPs may be challenging to put into action, although they will permit a considerable degree of preplanning and preparation by institutions and authorities and ought to create greater clarity with respect to the range of viable options should a crisis emerge. However reasonable the assumptions underlying the range of scenarios on which the RRP was based (both idiosyncratic and system-wide) may be, crises rarely follow the same pattern twice, and the institution and authorities are likely to have to react quickly to events that were not foreseen in the RRP. Nor should it be assumed that there will be straightforward choices with respect to the eventual intervention or resolution of an institution or its group. The authorities will need a framework to assess and distinguish between the merits of the resolution options available at the time.

Further complexities may arise when an institution is part of a cross-border group. At the planning stage, it will be important to involve all other relevant authorities. Should stress emerge, coordinated decision making will be necessary to ensure the best outcome. In order to ensure effective coordination, cooperation, and communication, whether precrisis or during a crisis, it may be necessary to make further amendments to domestic legislation (e.g., to improve gateways for the exchange of information or to permit resolution regimes to work together seamlessly). Such changes may be complex or simple, but in either case are the necessary basis for agreements for coordination and effective decision making and actions during a crisis.

Finally, resolution plans are highly sensitive to the institutions in question. Early experience suggests that institutions are reluctant to populate plans with the level of detail required by the authorities, partly due to the concern that if plans are disclosed, “break-up plans” could make them commercially vulnerable, and competitors could benefit from detailed information on the bank’s or group’s structure, exposures, and interdependencies.

**INTERACTIONS WITH OTHER MEASURES TO RESPOND TO RISKS POSED BY SIFIS**

RRPs will interact with other “structural” proposals, such as restrictions on the scope of a group’s activities or business lines or mandatory changes to group structure...
Recovery and Resolution Plans (Living Wills): A Solution to the TITF Problem?

(e.g., the requirement for cross-border banking groups to establish legally and financially independent subsidiaries, rather than branches; see Chapters 10 and 11, respectively, for these proposals). Having assessed a financial group’s RRP, authorities may impose structural remedies on the group, either with a view to enhancing its resolvability through a more streamlined, simpler group structure, or with a desire to govern its risk profile and thus reduce the probability of failure by limiting or prohibiting certain activities. Structuring groups as a constellation of independent subsidiaries may be seen to ease implementation of RRPs. Although the recommendations to provide authorities with the power to insist upon such changes to financial groups have been endorsed by the G-20, whether there will be an appetite for global agreement on how and to what extent such powers should be exercised remains to be seen.

It is therefore clear that much attention will focus on whether authorities will choose to intervene in group structures, since this is an obvious potential first-round consequence arising from their assessment of the feasibility of recovery and resolution options. At the very least, the requirement to draw up RRPs is likely to focus the attention of both senior management (the corporate board) and the authorities on the strengths and risks of the corporate group structure. The anticipated benefit is that the relevant authorities will be fully informed of the group structure and the senior management of the financial group will be able to demonstrate how its interests could be managed, protected, or resolved in a crisis situation (e.g., which parts may be systemically important, which parts might be possible to liquidate, and where the interdependencies within the group exist).

It is therefore possible that as a result of the RRP process, complex groups may voluntarily opt to simplify their corporate arrangements. For example, they might create structures based on subsidiarization, with a higher degree of self-sufficiency in capital and liquidity for the individual legal entities and with reduced reliance on intragroup support (operational and financial). Alternatively, the authorities may choose to encourage or require changes should they believe the group structures are too complex to permit orderly, cost-effective resolution.

Naturally, the benefits and costs of simplifying a complex, integrated group structure will need to be weighed carefully, irrespective of whether this process takes place as a consequence of an assessment of an RRP or due to a broader, potentially international policy initiative. The costs of subsidiarization (and also ring-fencing) can be high,2 and subsidiarization will not necessarily lead to the segregation of assets by legal entity if the group in practice operates on an integrated basis. Even where a subsidiary is set up in its own legal right, the pooling of assets in the event of insolvency may be allowed by bankruptcy courts, especially in the United States under “substantive consolidation.”3 Furthermore, in the

---

2See Cerutti and others (2010) and Fiechter and others (2011) or Chapter 11 in this volume.
3In the United States, federal common law gives rise to “substantive consolidation,” which allows a bankruptcy court to treat a group of affiliated companies as if they are one, thus merging their assets and liabilities for purposes of the bankruptcy proceedings. Courts may even merge assets of non-bankruptcy affiliates with those of bankruptcy affiliates if they find that substantive consolidation is required. U.K. courts, by contrast, have been less keen to do so, except on suggestions of outright fraud, etc.
event of crisis or stress, it may be argued that there can be risks in breaking up a
group structure if the reputational franchise of the wider group is seen to be
undermined, even though this may be a lesser concern than the disorderly collapse
of an entire complex group.

STATE OF PLAY
RRPs have been one of the options discussed for enhancing systemic stability
from the onset of the crisis. Some jurisdictions have already moved in that
direction:

• For example, the United Kingdom has moved quickly and has already
amended domestic legislation to require institutions to prepare such docu-
ments. The initial experience was that institutions were not supplying the
extent of information that the authorities had expected, and guidance was
issued in mid-2010 to the industry so that it could revise its submissions; six
major U.K. banks are using these documents in a pilot study.
• A number of systemically important U.S. banking groups are also putting
together living wills in coordination with the U.S. regulatory authorities.
• Similarly, the European Commission has been consulting on potential
amendments to EU legislation that would make RRPs mandatory for all EU
member states.
• Meanwhile, with the endorsement of the G-20, the FSB (through its
Working Group on Cross-Border Crisis Management) has been working on
developing criteria, templates, and standards for the construction of RRPs
(scheduled to be finalized by end-2011), building on work by the BCBS
Working Group on Cross-Border Bank Resolution.

POLICY IMPLICATIONS
Overall, notwithstanding the possible implementation challenges they may face,
RRPs are an important step forward and can make a valuable contribution to
effective resolution frameworks for SIFIs. Such plans can promote better pre-
paredness by individual firms for contingencies and by authorities for effective
resolution. They provide essential information on a firm’s assets and liabilities,
commitments, exposure, and legal and operational structure. They should be use-
ful in informing authorities about the type of reforms needed to strengthen their
supervisory and resolution powers and tools and in identifying actions to address
institutions that are too complex to resolve.

The process of iterating RRPs is likely to act as a stimulus in several fields of
policy related to crisis management and resolution. Within individual jurisdic-
tions, it will be necessary to focus on the adequacy of domestic legal arrange-
ments, such as intervention and resolution powers for authorities and the ability
of relevant domestic authorities to communicate and coordinate. The relevant
authorities in this regard include supervisory authorities, resolution authorities,
central banks (where functions are not combined), finance ministries, and author-
ities responsible for market infrastructure such as payment, clearing, and settle-
ment systems.

On a cross-border basis, the RRP process will further highlight the need for
effective cross-border arrangements for cooperation, information sharing, and
decision making, not least since all relevant authorities for a financial group
should be involved in the development and assessment of an RRP. College
arrangements for supervisory and crisis management purposes have received
much attention following the crisis, but work is likely to continue to ensure that
colleges are working optimally with substantive flow of information and clarity of
decision-making structures in times of stress to increase the probability that cross-
border groups can be resolved in a coordinated and orderly manner.

International coordination can also be expected on specific policy issues. These
include, for example, ensuring that authorities have a consistent and adequate set
of powers for intervention. Potentially, there may now be just enough momentum
to ensure the consistency of application of such powers, such as the development
of a consensus on the use of structural measures (e.g., mandatory changes to
group structures and restrictions of business activities).

The most significant area of policy development that might benefit from work
being undertaken on RRPs is that concerning cross-border resolution regimes.
Progress will not be easy, because there are many components that will need to be
addressed, not merely ensuring legal compatibility between different domestic
regimes (which is challenging enough in its own right), but, critically, coming to
agreement on burden sharing. The G-20 has already endorsed the objective of
making progress on cross-border resolution, and work on RRPs is likely to bring
into focus the magnitude of the potential costs for failing to make headway.
Making Banks Safer: Can Volcker and Vickers Do It?¹

JULIAN T.S. CHOW AND JAY SURTI

INTRODUCTION

This chapter assesses proposals to redefine the scope of activities of systemically important financial institutions (SIFIs). Alongside reform of prudential regulation and oversight, these have been offered as solutions to the too-important-to-fail (TITF) problem. It is argued that although the more radical of the proposals, such as narrow utility banking, do not adequately address the key policy objectives that emerged from the global financial crisis, two concrete policy proposals—the Volcker Rule in the United States and retail ring-fencing in the United Kingdom—are more promising, although they still entail significant implementation challenges. A risk factor common to all the measures is the potential for activities identified as too risky for retail banks to migrate to the unregulated parts of the financial system. Since such a migration could lead to the accumulation of systemic risk if left unchecked, it appears unlikely that any structural engineering will lessen the policing burden on prudential authorities and on the banks.

The rest of the chapter is organized as follows. The next section discusses the rationale for restricting or redefining the scope of activities of SIFIs. The following sections discuss, in turn, narrow banking, the Volcker Rule, and the retail ring-fencing proposals by reviewing their content and the operational challenges and potential costs of their implementation. The chapter concludes with some reflections on policy implications.

WHY REDEFINE SCOPE?

The business of banking involves leveraged intermediation managed by people subject to limited liability and, typically, to profit-sharing contracts. This combination

¹The authors are grateful to Ashok Bhatia, Phil de Imus, Aditya Narain, İnci Ötker-Robe, Zoltan Pozsar, and Constant Verkoren for comments on earlier drafts. An earlier version of this chapter appeared as an IMF Working Paper (WP/11/236) on October 1, 2011.
is well known to generate incentives for risk taking that may be excessive from the perspective of bank creditors. Creditor guarantees such as deposit insurance are known to exacerbate this incentive problem because they weaken creditors’ incentive to monitor and discipline management.

These issues are magnified in the case of SIFIs. Owing to their size, interconnectedness, complexity, or the nonsubstitutability of the services they provide, the negative externalities emanating from financial distress at SIFIs make them a source of systemic risk, leading them to be perceived as TITF. Consequently, the market implicitly—and often correctly—assumes that apart from explicit deposit insurance, creditor guarantees of a much wider nature would be extended when such firms are threatened by imminent failure.

This serves to weaken the mitigating force of market discipline. Prior to the crisis, the high likelihood of public support assumed in a distress situation contributed to the ability of SIFIs to carry thinner capital buffers at lower cost, acquire complex business models, and accumulate systemic risk. This trend was reinforced by the diversification premiums attributed to universal banks by market participants and prudential authorities enabling them to integrate the provision of retail, investment, and wholesale banking services without erecting significant firewalls between them. These developments resulted in networks of financial interconnections within and across internationally active SIFIs that proved to be difficult, time consuming, and costly to unravel. This made it seemingly less costly, during the crisis, to allocate taxpayer resources to preventing SIFI failures than to allowing them, with the subsequent resolution and restructuring of their businesses.

Diversification of business lines could serve to better protect a universal bank against idiosyncratic shocks that adversely impact individual lines of business. At the same time, the free flow of capital and liquidity and the associated growth in intragroup exposures would also increase the likelihood of intrafirm contagion in the event of an exogenous shock. Unlike investment banking clients, retail banking customers typically have few options other than their banks for conducting vital financial transactions. Ensuring the business continuity of services to such clients, therefore, serves a clear and important social welfare objective. But complex business models and high levels of intragroup exposures present a barrier to quickly spinning off the retail parts of a universal bank which can ensure such business continuity.

Restricting the scope of a regulated bank’s business activities could, therefore, serve a number of important policy objectives. From a financial stability perspective, it limits contagion within and across firms. From the perspective of consumer protection, it could ensure a more efficient provision of the assurance of the continuity of retail banking services. And, by more credibly restricting the ambit of taxpayer-funded creditor guarantees to depositors, it could furnish these benefits more efficiently and cheaply from a social cost perspective.

Accordingly, the official response to the crisis has, besides recognizing the need for strengthened regulation and oversight of SIFIs, also included complementary
proposals to redesign and refocus their business activities. A number of concrete proposals have been made, including:

- **Narrow utility banking**—essentially a reversion of deposit-funded banks into traditional payment function outfits, with lending (and investment banking) being carried out by independent finance companies funded by nondeposit means.

- **The Volcker Rule**—prohibiting banks from carrying out certain types of investment banking activities if they are to continue to seek deposit funding and retain banking licenses.

- **A retail ring-fence**—that, although not prohibiting banks from providing both retail and wholesale banking services, mandates legal subsidiarization of certain retail activities, prohibits this subsidiary from undertaking other businesses and risks, and establishes minimum capital and liquidity standards for it on a solo basis. Although not limiting capital and liquidity benefits to the retail subsidiary from other affiliates when necessary, the ring-fence limits capital and liquidity transfers in the opposite direction, to non-ring-fenced affiliates. Such **functional subsidiarization** could enable the continuation of retail operations under distress or during failure of a SIFI’s other businesses.

The more radical proposals discussed under the narrow banking umbrella involve strict limits on what retail banks’ permissible activities ought to be, and they could entail significant dead-weight costs if implemented as recommended. By contrast, the design and motivation for the Volcker Rule and retail ring-fence proposals are more precisely targeted at the problems arising from the integrated business models used by the SIFIs before the crisis.

The challenge facing these latter proposals lies in the feasibility and cost of their implementation. In the case of the Volcker Rule, for example, it will be challenging for prudential authorities to tell apart the permissible activities (market making and underwriting) from the prohibited ones (proprietary trading) when assessing banks’ exposures to securities markets. Similar difficulties will be faced by supervisors assessing the nature and purpose of hedging tools and contracts utilized by ring-fenced banks. This presents policymakers with a dilemma. Should they invest the financial cost and time toward gathering more contemporaneous information in order to create better filters and limit loopholes? Or, on the other hand, if this is viewed as being too costly or simply inefficient, should they move to outright prohibition of all activities related to securities markets?

The danger with the second option lies in generating incentives to push risk taking beyond the borders of the regulated financial system. If there are indeed no direct financial linkages between retail financial firms and such shadow banking entities, such risk taking may cease being a problem of regulation. However, systemic risk would continue to accumulate in the shadow banks, and because the participants in the regulated and shadow systems are the same, or are generally linked, a crisis in the shadow sector will continue to exercise a contagion impact on the regulated banking sector.
NARROW BANKING IDEAS

The Utility Banking Proposals

Utility banking proposals seek to define institutional and regulatory boundaries along functional lines, distinguishing—somewhat arbitrarily—“nonrisky” utility banking services from “risky” nonutility activities. The available literature does not make the idea of utility banking precise, but presumably inclusion is limited to those services that facilitate real sector activity and sustainable economic growth.

In the aftermath of the global financial crisis, utility banking proponents have emphasized the need for lowering asset-liability mismatches and leverage risks via drastic restrictions on what lines of business regulated, deposit-funded banks can pursue (Figure 10.1 and Table 10.1). The most radical of these proposals envisage institutional separation between banks serving payments function needs and companies engaged in commercial lending and other activities. Utility banks are envisaged as licensed, regulated, deposit-funded entities, constrained to invest in high-credit-quality, liquid securities, and would alone qualify for public creditor guarantees where these are extended. Lending, where permitted, would

![Figure 10.1 Transformation of Universal Banking into Utility Banking](image)

1Besides rescoping of business represented by balance sheet adjustments, also entails prohibition on the provision of a number of financial services (e.g., trading of securities on own account and investment banking services such as prime brokerage, market making, and securities underwriting, among others).

2Includes interbank exposures.

3Includes funding vehicles such as asset backed commercial paper, repo/securities lending, among others.
### TABLE 10.1

<table>
<thead>
<tr>
<th>Payment function vs. lending</th>
<th>Permissible corporate structure</th>
<th>Regulation and public guarantees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposit-funded banks solely perform a payments function, invest only in high (credit) quality, short-term/liquid assets. Lending is undertaken by independent finance companies that fund themselves using a combination of equity and nondeposit debt instruments.</td>
<td>Holding company structures that co-own banks and finance companies are permitted. Strict firewalls are required between individual business units/lines; i.e., financial interconnections between bank and finance company affiliates are prohibited.</td>
<td>Holding company structures that co-own banks and finance companies are permitted. Strict firewalls are required between individual business units/lines; i.e., financial interconnections between bank and finance company affiliates are prohibited.</td>
</tr>
<tr>
<td>As above, plus a bank can extend credit to retail and mortgage borrowers. Other lending services are provided by separate lending subsidiary. Securities issuance and trading is not permitted.</td>
<td>Same as above.</td>
<td>Same as above.</td>
</tr>
<tr>
<td>Banks issue both, insured narrow-bank deposits collateralized by high-grade securities and uninsured deposits to finance private sector lending.</td>
<td>Same as above.</td>
<td>Same as above.</td>
</tr>
</tbody>
</table>


be restricted to a few sectors such as consumer and mortgage credit, whereas the majority of commercial lending and investment banking would be carried out by legally separate finance companies funded by debt and equity.2 Holding company structures, wherein both types of institutions could coexist as subsidiaries, would be permitted, albeit legal, financial, and managerial separation would be strictly enforced.

To the extent that practical implementation of the utility banking proposals yields an accurate functional separation of utility from nonutility activities, a number of benefits could ensue to the economy and the financial

---

2Lending activity is never risk-free. The important issue, however, is not the presence of risk per se, but instead the provision of incentives for proper underwriting of this risk. Such incentives are generally more likely to be preserved when banks’ bottom lines depend on good loan performance. On the other hand, the ability to pad such transactions with excessive leverage obtained at low cost may yield levels of risk that are prohibitively costly for taxpayers to backstop. The experience with subprime mortgage lending in the United States prior to the financial crisis suggests that complementary reform measures—that are in train—on the regulation of securitized lending may be necessary to make banks safer through the rescoping of the business lines.
system. Leverage in deposit-funded institutions would be lowered by jettisoning investment banking activities such as trading, investment funds, and securitization. Asset-liability matching would be enhanced by restricting the class of permissible assets to liquid, high-credit-quality securities. Restricting access to the payments system to utility banks would isolate the systemic risk of losses at nonutility finance companies, thus protecting banks from credit, liquidity, and settlement risks. Finally, the restriction of public creditor guarantees to utility banks alone would sharpen creditor incentives in monitoring manager-owners of nonutility institutions. In theory, this would alleviate the moral hazard problem and lessen the pressure on supervisory agencies. Measured against a set of criteria ranging from macro-financial stability to financial costs, the economic impact of narrow banking would be substantial (Table 10.2).

**Separation of Lending from Deposit Taking May Impose Significant Social Cost**

The rationale for the institutional separation implied by utility banking appears to arise from the observation that the coexistence of lending based on risky leverage and asset-liability maturity mismatches with deposit-funding translates into an increase in contagion risk to traditional banking and worsens the moral hazard problem. It seems to provide support to market assumptions that the boundary of public creditor protection is flexible beyond deposits. In turn, this leads to weaker market discipline which promotes the further accumulation of systemic risk.

Even if one were to grant the foregoing hypothesis, the implication that there should be institutional separation between deposit funding and payments system access from all credit intermediation remains elusive. Maturity transformation financed by deposit-based leverage is the traditional business of commercial banks in the same manner as (re)discounting of securities and managing payments between clients and to other banks. Asset securitization—especially of subprime mortgages, mortgage-backed securities, and their derivatives—resulted in borrowing costs that may not have reflected underlying borrower credit risk and encouraged very high levels of leverage in the financial system. But incentives to maintain tighter underwriting standards and higher capital buffers for loans that remain on banks’ balance sheets are substantially stronger.

In other words, it is difficult to make a case based on events leading up to the crisis for banks to give up their deposit-based funding of loans. This fact becomes more apparent when, while considering the scope of a bank’s utility-enhancing activities, one considers the informational advantage of banks in overcoming

---

3With the separation of utility and nonutility banks, the choice of “portfolio allocation” rests with the individual investor/depositor. A more risk-averse individual may choose to deposit his or her savings fully in utility banks at a lower deposit rate in return for safety. Conversely, a less risk-averse individual may reduce the extent of deposits with utility banks in favor of potentially higher returns from investment in equities/debentures issued by nonutility financial affiliates, albeit at a higher risk profile.
TABLE 10.2
Impact Analysis of Utility Banking

<table>
<thead>
<tr>
<th>Financial System and Economy</th>
<th>Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stability</strong></td>
<td></td>
</tr>
<tr>
<td>• Banking stability may be strengthened by the detachment of high-leverage investment banking, trading business, and associated asset-liability mismatches.</td>
<td>• Narrower structures, and the firewalls envisaged between banks and finance companies, can be expected to increase resilience of regulated banks to unanticipated shocks. This would, among other things, facilitate a spinning-off of healthy utility banks by resolution authorities, thereby enabling better management of institutional distress.</td>
</tr>
<tr>
<td>• However, the shift of lending and investment banking to an unregulated or weakly/differently regulated shadow sector could transfer systemic risk to nonbanks. To the extent that this sector funds a nontrivial proportion of real sector activities—particularly using retail savings—this would directly reduce the stability benefits of the proposal.</td>
<td>• Consequently, utility banking would facilitate the effective implementation of bank resolution.</td>
</tr>
<tr>
<td>• Narrower structures, and the firewalls envisaged between banks and finance companies, can be expected to increase resilience of regulated banks to unanticipated shocks. This would, among other things, facilitate a spinning-off of healthy utility banks by resolution authorities, thereby enabling better management of institutional distress.</td>
<td>• However, breaking up banks could also lead to a loss of diversification benefits, especially when correlations between risks from different lines of business are low during normal times.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Adverse effects on consumers may include lower deposit returns and an increase in transactions costs due to the absence of a “one-stop” center for all banking needs.</td>
</tr>
<tr>
<td>• Where lending is transferred to nonbank finance companies, average credit costs in the economy may increase or credit supply decrease as a result of the absence of public creditor protection. Although in certain segments (e.g., subprime or low-documentation housing finance) this would lead to costs moving up to better reflect credit risk, in other segments (e.g., small and medium enterprise loans or prime credit cards or prime auto loans), the increase in cost or tightening in supply could represent an unintended negative externality.</td>
</tr>
<tr>
<td>• Efficiency of banks could be enhanced as they focus on core banking activities such as maturity transformation and provision of payment services.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Competition would drive improvements in core banking services, thus enhancing the quality and range of services and benefiting the society at large.</td>
</tr>
</tbody>
</table>

Adverse selection in the lending process (*relationship lending*). Moreover, there is synergy between deposit-taking and lending activities when they are viewed as alternative, imperfectly correlated manifestations of liquidity provision by banks, which gives rise to efficiencies in the joint provision of these services using a single balance sheet.4

4Kashyap, Rajan, and Stein (2002) demonstrate using both theoretical and empirical analyses that imperfect correlation between the demand for liquidity by depositors and that by borrowers lowers the cost of joint provision of both services relative to separate institutional provision.
Successful Implementation Would Require Overcoming Significant Operational Challenges

A number of operational challenges related to prevention of regulatory arbitrage appear to limit the scope for utility banking in practice.

- Cross-border regulatory arbitrage may thwart national utility banking reform. The proposal needs consistent application across jurisdictions to be effective. Even if regulators could successfully prescribe a list of nonutility banking activities, harmonization of regulatory regimes in different countries may be a challenge due to differences in the level and pace of financial development. Absent such coordination, however, universal banks could relocate their listing status to jurisdictions with less strict regulations, thus leaving the TITF problem unaddressed.

- Utility banks might constrain the moral hazard of bank management, but investor temptation to take risk would remain and could result in the accumulation of systemic risk outside of the regulated banking system. Utility banks would appeal to depositors during times of financial distress, since they are protected, but the lure of higher returns during normal economic times could prompt savers to put their money into shadow banks, which are beyond the boundary of government regulation. This would reduce the role of utility banks in periods of prolonged moderation, thereby shifting risk to shadow banks in such magnitude that, when another crisis hits, the losses would be high enough to warrant the use of public funds to rescue failing shadow banking entities.

- Narrowing the perimeter of regulation need not follow from utility banking. An argument that is often made in favor of utility banking in existing studies is the potential relaxation of inefficient regulatory and intrusive supervisory constraints, which would have the added benefit of lowering the social cost of policing banks. However, because systemic risk can still build up through shadow banks, affecting retail investors and the real economy, the case for extending the regulatory perimeter around these institutions remains despite the transition to utility banking.

- Utility banking will not eliminate market risk. Although the default risk on a 30-year U.S. Treasury note may be very low, a steepening of the treasury curve would result in large mark-to-market losses for deposit-funded banks. Therefore, caps on the duration of tradable fixed-income securities would be necessary to minimize market risk. Alternatively, the universe of eligible assets for utility banks would need to be further restricted to variable-interest securities or short-term notes.

Adjustment Costs Could Be Significant

Adjustment costs related to unwinding and decoupling integrated businesses are likely to be high. The proposal could be particularly costly in Europe where the universal banking business model is more widely prevalent. Moreover, implementing
the proposal in countries with underdeveloped financial sectors may be infeasible because of the paucity of high-credit-quality, liquid securities.

- Unwinding a complex universal bank is a costly and time-consuming process. This is especially so in the case of European TITF institutions, which are predominantly universal banks. Interlinkages between various parts of a bank holding company (BHC) may be difficult to unwind, let alone for the entire organization to be restructured. For instance, structured finance may involve deposit funding coupled with derivatives, structured internally by structuring desks and in turn “manufactured” and hedged by trading desks. The hedging of these derivatives may be done with an external counterparty or another internal unit within the bank, which makes it difficult to “unbundle” the complicated relationships.

- Utility banking presents implementation challenges for emerging markets and low income countries as well. It presumes deep and liquid secondary markets for government and private debt securities. Moreover, the funding needs of finance companies in many of these countries hinge largely on domestic capital markets, without which the functioning of credit intermediation would be severely disrupted.

### Narrow Funding Banks

#### The Proposal

The fundamental goal behind the narrow funding bank (NFB) proposal put forward by Gorton and Metrick (2010) is to bring securitization within the regulatory perimeter by housing the purchase of asset-backed securities (ABSs) within licensed and regulated institutions.

Under the proposal, NFBs are envisioned as chartered institutions subject to prudential requirements associated with ceilings on leverage, market, and liquidity risks, restrictions on eligible assets collateralizing the purchased ABSs, and on portfolio quality and concentration.\(^5\) NFBs would be subjected to periodic examinations and would gain access to the central bank’s discount window facilities.\(^6\)

(Equity) capital would be raised through issuance of medium-term notes (MTNs) with scheduled maturity points which are extendible in the event that the institution has breached regulatory capital requirements at the time of maturity. The institution would, in such cases, switch to a no growth mode or a natural amortization mode, wherein risk reduction would be undertaken by rebuilding the capital base via prohibition on dividend payouts to equity holders (no growth) and, in addition, to the fund managers (natural amortization). Capital, therefore, takes on a debt-like structure during normal times and reverts

---

\(^5\)Constraints on portfolio quality are measured by the minimum proportions of assets to be held above given ratings thresholds.

\(^6\)The proposal, as originally constructed, was applied to NFBs chartered in the United States under the regulatory and supervisory purview of the Federal Reserve Banks and eligible for the Federal Reserve’s discount window facility.
to an equity-like structure during times of stress. Nonequity funding would be raised through nondeposit means via issuance of commercial paper, MTNs and bonds, and through repos. NFBs are viewed as engaged in a pure spread business, and would be barred from making loans or exposing own-funds to proprietary trading and derivatives businesses.\(^7\) Their sole business activity would be to purchase ABSs, though they would be allowed to invest in other high-grade assets and treasury securities, presumably for liquidity management purposes.

In terms of legal and economic organization, NFBs would be structured as stand-alone, separately ring-fenced legal entities with no direct cross-ownership linkages to commercial banks. Taken together with the prudential requirements described above, this is seen as promoting more efficient bank recovery and resolution.

Assessment

Independent, regulated, and separately capitalized securitization firms would promote ring-fencing of regulated banks’ retail operations in times of stress. Moreover, the conversion of (part of) NFB debt into equity during times of stress may provide stronger market incentives to limit borrower leverage in the housing market. However, credit risk may become more concentrated in NFBs. Moreover, other incentive problems associated with the precrisis securitization model still remain and must be directly addressed by other, complementary, measures.

• **Concentration risk:** Since NFBs assume the function of ABS conduits and structured investment vehicles from banks, the concentration of securitization risk may render them vulnerable during times of deteriorating credit conditions. Although access to the Federal Reserve’s discount window may alleviate short-term liquidity problems, solvency risk continues to depend on the performance of the credits underlying the ABS portfolio.

• **Resolving incentive problems embedded in the originate-to-distribute securitization model:** More fundamentally, therefore, the chartering of NFBs under the specified prudential constraints will not be sufficient by itself to remedy the incentive problems in the precrisis originate-to-distribute model of securitization in the United States. NFBs do not address incentive problems related to the quality of loan underwriting arising from low credit risk retention by originators and securitization deal sponsors. Similarly, the NFB proposal is not designed to, and therefore will not, address coordination problems arising from conflicts of interest between senior and junior lien holders of the assets collateralizing the ABSs. Finally, changes to originator-servicers’, mortgage bond trustees’, and underwriters’ remuneration contracts and to securitization waterfall structures are necessary complements to the chartering of NFBs. Without such changes, it is difficult to foresee the mere introduction of NFBs as sufficient to reduce either the scope for misrepresentations by originators and underwriters or the scope for mortgage defaults and foreclosures and the associated potential dead-weight costs incurred during macro-financial dislocations.

\(^7\)NFBs could undertake repo transactions with private investors and entities with full disclosure of risk.

©International Monetary Fund. Not for Redistribution
FULL INSTITUTIONAL SEPARATION OF FUNCTIONS:
THE VOLCKER RULE

Rationale for the Rule

The Volcker Rule of the Dodd-Frank Act in the United States separates some investment banking activities from commercial banking. The motivation for this type of institutional separation is the increased scope for conflicts of interest and risk taking when banks are allowed to combine lending, securities underwriting, and market making with proprietary trading and investment on their own account.

Banks exposed to a corporation through the lending channel may have an interest in marketing and underwriting the firm’s securities to the clients it may be serving in an asset management or advisory capacity. Although not necessarily a problem in itself, a serious conflict of interest may arise when the said capital is raised to retire the bank’s credit exposure at a time when the firm’s finances are worsening.

Legislators and regulators have emphasized—in the past and currently—the systemic risk inherent in the direct involvement of commercial banks in securities markets through proprietary trading or hedge and investment funds acquisition. For example, the Group of Thirty point to “unanticipated and unsustainably large losses in proprietary trading, heavy exposure to structured credit products, and . . . hedge funds” as having placed the viability of other businesses of the banks and the system at large at risk. Moreover, it is apparent that these activities are quite distinct from the individual customer service and relationship lending that characterizes deposit management and credit intermediation.

Capital arbitrage by banks between trading and banking books became prevalent over the decade preceding the global financial crisis. Capital charged against trading book exposures was relatively light compared to that charged against the banking book, encouraging banks to place credit exposures in the trading book. As regulators have reported in the aftermath of the crisis, while trading books were, earlier, typically composed of plain-vanilla currency and interest-rate derivatives and government bonds, the last decade saw an increasing inflow of credit derivatives and subprime securities (Financial Stability Board, 2010a; United Kingdom Financial Supervisory Authority, 2009).

An additional problem was that standards of disclosure and transparency for investors and creditors as applied to investment banking activity were relatively

---

8With reference to the U.S. Banking Act of 1933 (wherein sections 16 and 32 introduce the Glass-Steagall separation of investment and commercial banking), see the discussion in Benston (1990) and Kroszner and Rajan (1994). For the Volcker Rule (section 619 of the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act), see Group of Thirty (2009).

9Appendix 10.1 provides some statistical analysis that offers qualified support for an association between trading activity, returns volatility, and increasing correlation with the business cycle. The results described in Appendix 10.1 are consistent with those obtained by Stiroh and Rumble (2006) and with the assessment of relative risk in banks’ different lines of business by Standard and Poor’s (2011).
poor when compared to commercial banking, at least in the United States. The problem was exacerbated by the limited reach of financial regulation and oversight over activity in key markets, such as private-label ABSs and their derivatives, and the weakening of market discipline imposed by credit ratings agencies (CRAs) owing to apparent conflicts of interest and modeling gaps.

The preceding discussion on the motivation for the Volcker Rule calls for at least three—possibly complementary—solutions:

• Imposition of higher capital requirements on commercial deposit-taking banks with high levels of trading activity, where a “high level of activity” could be measured in terms of contribution to the overall level and volatility of returns.

• Extending the perimeter of regulation and endowing supervisors with the authority to demand information from shadow banks. Giving supervisors cease-and-desist and enforcement powers on the basis of information collected from weakly supervised or unsupervised entities can also achieve the same goals as setting firm functional boundaries between commercial and investment banks.

• Imposing a separation of business lines into different sets of institutions, as has been attempted via the Volcker Rule in the United States and by the Independent Commission on Banking (ICB) in the United Kingdom.

What Businesses Must Commercial Banks Give Up?

The Volcker Rule—barring a number of exemptions—essentially prohibits deposit-funded, licensed commercial banks in the United States or BHCs with U.S. banking affiliates from engaging in proprietary trading and investing in or sponsoring hedge funds and private equity funds (Figure 10.2 and Table 10.3).

The rule has a long phase-in period for implementation. It becomes effective on the earlier date of either two years after enactment of the Act (i.e., July 21, 2012), or within nine months of the issuance of accompanying regulations (released on October 11, 2011). Compliance is required from eligible institutions two years hence (so by July 21, 2014), albeit the Federal Reserve may provide up to three one-year extensions to institutions, upon application, beyond 2014.10

The Volcker Rule vs. Glass-Steagall11

The obvious parallel to the Volcker Rule are the Glass-Steagall restrictions placed on U.S. banking firms starting 1933 which also involved separation of commercial banking from investment banking and largely ended universal banking in the United States. The Volcker Rule prohibits fewer activities for commercial banks

---

10In addition, illiquid fund investments undertaken prior to May 1, 2010, are eligible for a single five-year extension upon application to the Federal Reserve.

11Glass-Steagall restrictions are understood to mean restrictions in place prior to the passage of the U.S. Financial Modernization Act of 1999 (the so-called Gramm-Leach-Bliley Act).
than Glass-Steagall did. However, the number of exemptions granted under the Volcker Rule is also significantly less than eventually offered under Glass-Steagall.

- **Proprietary trading**: The set of exempt bank-eligible securities is now much narrower. Prior to Gramm-Leach-Bliley, exempt securities included, for national banks (besides those mentioned in Table 10.3), obligations of certain foreign governments and international development banks and highly rated debt and ABSs. Under the 1956 Bank Holding Companies Act, BHCs were free to engage in the proprietary trading of debt and equity securities provided they did not acquire more than 5 percent of the voting rights of any issuer. Overseas banks that had U.S. branches or subsidiaries were not subject to any such restrictions.

- **Funds investing**: Under Glass-Steagall, BHCs were permitted to invest in U.S. hedge and private equity funds so long as they held less than 5 percent of voting rights and less than a controlling stake in them. Under the 1978 International Banking Act and Regulation K, they were allowed to invest in foreign funds so long as they held less than 20 percent of voting rights. Provided that funds investing was carried out by non-U.S. affiliates, Glass-Steagall restrictions did not apply to foreign banks.

**Assessment**

*Distinguishing Proprietary Trades From Permissible Transactions Will Be Challenging*

Exemptions based on the intent of transactions are sensible in principle, but it is difficult to find practical rules to filter out prohibited transactions.

- Given the stated motivation behind introduction of the Volcker Rule, the exemptions to it are often coherently built on the economic purpose...
### Table 10.3

**Volcker Rule of the Dodd-Frank Act**

<table>
<thead>
<tr>
<th>Institutions restricted from engaging in the business</th>
<th>Proprietary Trading</th>
<th>Fund investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) FDIC insured depository institutions and entities that own them (e.g., bank/savings-and-loans/financial holding companies); (ii) foreign banks/holding companies that have a U.S. bank branch or subsidiary; (iii) any affiliate of the foregoing institutions, wherever located (i.e., institutions that share at least 25 percent common control).</td>
<td>Same as for proprietary trading.</td>
<td></td>
</tr>
</tbody>
</table>

**Types of activities prohibited under the rule**

| (i) Proprietary Trading as a principal (i.e., for the trading account of the bank) in a transaction to buy or sell any security, derivative, futures and forward contracts, and any option on such securities, derivatives, or contracts. | (i) The same set of exemptions as applying to proprietary trading. With regard to (viii), however, funds into which a non-U.S. affiliate of a non-U.S. bank invests cannot be offered or sold to U.S. residents; i.e., U.S. residents are, apparently, barred from investing in funds organized by major non-U.S. institutions. |

**Exemptions granted**

| (i) Transactions involving bank eligible securities—U.S. Treasury or agency debt obligations; obligations of Fannie Mae, Freddie Mac, federal home loan banks, Ginnie Mae, Farmer Mac, or a farm credit bank; and obligations of states or municipalities. (ii) Transactions in connection with underwriting or market making activities in response to client/counterparty demand. (iii) Hedge transactions. (iv) When acting as an agent for customers. (v) Investments in small business enterprises, welfare investments, and other qualified projects. (vi) Transactions by a regulated insurance company for its general insurance account. (vii) Transactions in connection with a securitization or sale of loans. (viii) Proprietary trading conducted by non-U.S. subsidiaries or branches of non-U.S. banks or financial holding companies (that may have U.S. affiliates or may otherwise conduct business in the United States). | (i) Funds organized and offered as part of trust, investment advisory, or fiduciary operations, subject to a number of additional conditions, including these prohibitions: participation restricted to clients of such services alone; banks’ ownership/investment in the fund restricted to the lesser of 3 percent of total fund assets and 3 percent of its Tier I equity capital; no covered transactions or guarantee extensions between the bank and fund and public disclosure thereof; no ownership interest of bank staff or directors in the fund; and no related names. |

---

1. Trading account is defined under the rule as an account used for acquiring or taking positions in securities and instruments listed above primarily for the purpose of selling or unwinding them in the near future to profit for interim price movements.

2. Sponsoring a hedge fund includes performing the following functions: (i) serving as general partner, managing member, or trustee; (ii) to select or control (or have employees, officers, directors who constitute) a majority of the directors, trustees, or managers of the fund; or (iii) to share with a fund for marketing, corporate, or promotional purposes, the same or similar name.

3. A limited exemption is available to prime brokerage agreements between a bank serving as investment advisor or sponsor to a fund and another private equity/hedge fund in which the said fund takes an equity, partnership, or ownership interest under qualified circumstances.
behind the transaction. For example, with regard to proprietary trading, the rule exempts transactions related to market making or underwriting (if in response to client demand), hedge transactions, and transactions undertaken in an agency capacity.

- Prohibiting trading undertaken explicitly by dedicated desks (so called *bright line* cases) is relatively straightforward. Anticipating this, a number of U.S. BHCs have spun off their trading desks.

- But identifying prohibited proprietary trading transactions dressed up as exempt hedging or market-making transactions is substantially more difficult. Banks often do not hedge individual positions or transactions but deploy hedging strategies at the portfolio level. Since hedges are often incomplete, residual exposures—equity, interest rate, or option—often expose bank capital to risk. It is difficult for regulators to consistently tell apart legitimate incomplete hedges from exposures that are undertaken purposefully. Similarly, market making by banks inevitably entails putting up own capital at risk for varying periods of time, depending on the liquidity of the relevant securities or derivatives.

- A study by the U.S. Financial Stability Oversight Council (FSOC, 2011), acknowledging this problem, has proposed developing suitable metrics based on granular supervisory information to assist supervisors in filtering prohibited transactions from exempt ones (Table 10.4). Moreover, recognizing the limitations of statistical approaches in carrying out this task, the FSOC has also recommended that banks adopt a programmatic regime involving regular internal audits and declarations of compliance from banks' chief executive officers.

- The Financial Stability Board (FSB, 2010a) raised the possibility of developing a methodology based on the U.K. FSA’s analysis of major trading activities in London for the period 2006–08. Based on the frequency distribution of daily trading profits, it made a distinction between banks with predominantly modest profits and small tails of large profits or losses and banks with large profits and losses occurring more frequently. The FSB asked whether an identification scheme sorting the first set of banks as market makers and the rest as proprietary traders would be sensible. A limitation of using the results of such an analysis is that it is based on an aggregate of individual transactions and is more suited to an ex post imposition of charges for noncompliance with the rule’s requirements rather than as an ex ante or concurrent identification device for supervisors. In other words, it is not designed to tell individual market making or hedging transactions apart from opportunistic proprietary trades.

Purely rules-based identification methodologies may be susceptible to gaming or be too coarse and therefore entail inefficient decision making. Since regulation may be expected to permit securities investments made for the banking book but prohibit the same for the trading book, the burden on
supervision to prevent gaming the rules will increase. In particular, mechanical holding-period thresholds (e.g., a minimum 30-day holding period) for eligibility to include securities markets exposures in the banking book may be susceptible to manipulation. On the other hand, idiosyncratic liquidity shocks or other unavoidable circumstances may precipitate unanticipated early sales of certain securities in the buy-and-hold portfolio. Therefore, rules will need to be supplemented by discretionary supervisory judgment in order to avoid inefficient decision making.
Unintended Costs and Competitive Distortions
Need to Be Guarded Against

U.S. residents can no longer be offered funds that U.S. insured depositories, BHCs, and foreign banking groups invest in or sponsor. Funds can still be offered through investment banks or nonbank finance companies located in the United States or outside, or in the case of clients of their trust or fiduciary businesses, by banks. The narrowing of the set of eligible suppliers of investment vehicles may result in a new pricing-to-market that is disadvantageous to U.S. investors.

U.S. banks and BHCs will also be placed at a disadvantage relative to non-U.S. BHCs, since the latter can continue proprietary trading or fund investing so long as it occurs outside the United States by non-U.S. affiliates. On the other hand, since U.S. banks and BHCs are allowed to acquire U.S. government and agency securities for their trading books but not foreign government securities, this could imply a disproportionate liquidity and capital supply impact on the market for some non-U.S. sovereign and private sector debt.

The Volcker Rule will be costly to private firms for whom proprietary trading of their debt by banks has been an important factor enhancing the market liquidity of their securities and lowering their cost of capital. Such non-exempt securities include corporate bonds and private-issue ABSs. Since the rule will effectively increase the liquidity risk premium applied by investors to such securities, external financing costs to nonfinancial firms and borrowing costs to household mortgage borrowers not qualifying for conventional conforming loans are likely to increase.

Systemic Risk May Migrate to the Shadow Banking Sector

Banning proprietary trading is likely to amplify risk shifting to the shadow banking sector (which comprises hedge funds, mutual funds, and special purpose entities, among others). This would increase the accumulation of unmonitored systemic risk which could manifest itself quickly and unexpectedly during times of financial distress with spillover effects adversely impacting the real economy in the same manner as a banking crisis. In fact, the manifestation of risk may be even greater as shadow banking entities are not subject to capital adequacy standards and in many areas their operations remain opaque due to relatively poor disclosure practices.

FUNCTIONAL SUBSIDIARIZATION:
RETAIL RING-FENCING

Why Ring-Fence Retail Banking?

An alternative way to redesign the scope of activities of banking institutions has been proposed by the Independent Commission on Banking (ICB) in the United Kingdom (U.K. ICB, 2011). ICB’s ring-fencing of retail operations from investment banking operations does not entail full institutional separation between retail and investment banking activity, allowing universal banks to continue to avail themselves of any diversification benefits emanating from the integrated business model. However, the proposals place strict limits on the magnitude and...
nature of the commingling of retail and investment banking operations within a single entity. In doing so, it recognizes the increased potential for contagion risk that could threaten the provision of banking services to retail depositors and small businesses that cannot afford even a temporary interruption.\(^{12}\)

Accordingly, the objectives of the ring-fence are:

- To make it easier to restructure and resolve both retail and nonretail banks without extensive recourse to public funds.
- To insulate vital banking services, on which households and small businesses depend, from exogenous shocks.
- And, thereby, to credibly restrict the reach of public creditor guarantees to those for whom it is explicitly predefined.

Broadly speaking, the ICB proposals fall into two categories. First, the placement of activities either within or outside the ring-fence (the *location* of the fence). Second, and within the broader business group structure, the placement of restrictions on financial interconnections between the ring-fenced and non-ring-fenced entities (the *height* of the fence). This is achieved by the placement of ceilings on, and risk-based pricing of, intragroup transactions and by specifying minimum capital standards for ring-fenced banks.\(^{13}\)

**Implementation**

*What Ring-Fenced Banks Must Do, Can Do . . . and What They Cannot Do*

As a first step, implementation requires the identification of banking activities that are to be ring-fenced. Equally important is determining the type of separation applying to a given business line. In its report (2011), the ICB has proposed distinguishing between the following four types of activities.

- Services that must be offered within the ring-fence. These include retail deposits and the provision of overdrafts to individuals and small and medium-sized enterprises. Private banking customers are not included among the set of such individuals given that they are likely to have a wider set of options to meet their banking needs.
- Activities that are permitted within the ring-fence. These include, besides the mandatory ones described above, all prohibited services such as loans to consumers and small and medium-sized enterprises, mortgages, credit cards, corporate lending, leasing and factoring, and wealth management advisory services, among others. The ICB does not place restrictions on the mode and mix of on-balance-sheet instruments that ring-fenced

---

\(^{12}\)Temporary interruptions would, when occurring in an environment of increasing macro-financial distress, threaten systemic stability via confidence effects and via the knock-on impact on the payments system, besides causing direct loss of welfare.

\(^{13}\)This would be in addition to U.K. banks’ wholesale and investment banking activities remaining subject to capital standards agreed internationally.
banks may use for funding their businesses so long as these do not result in the assumption of market risk by the firm.14

• Activities that are excluded from the ring-fence. These include services provided outside the European Economic Area (EEA); transactions with non-ring-fenced financial firms that are not affiliates of the ring-fenced bank (with the exception of regulator approved payments services transactions); services that would result in either a trading book asset or in the requirement to hold capital against market and counterparty credit risks; and services relating to secondary market activity such as the purchase of loans or securities. These prohibitions preclude ring-fenced banks from engaging in securities underwriting, market making, mergers and acquisition advisory services, loans and ABS warehousing, and sponsoring securitization deals.

• Activities necessary to support permitted services may also be performed. Ring-fenced banks’ permitted business operations entail assumption of credit, market, and liquidity risk which they would need to hedge. Accordingly, it is reasonable to expect ring-fenced banks to engage in derivatives contracts with non-ring-fenced banks which would entail assumption of market and counterparty credit risks. Ring-fenced banks must also undertake investment in assets that are liquid by virtue of either an active secondary market or by them being eligible for repurchase by the central bank. However, the proposals exclude contracting with counterparties outside of the ring-fenced banks’ own financial group that are offering prohibited services. It would appear, therefore, that risks must be managed, possibly in a synthetic fashion, by combining intragroup contracting with the sale and purchase of marketable securities and their derivatives.

Shielding Ring-Fenced Banks from Contagion

Whereas the retail ring-fence proposal allows universal banking groups to continue maintenance of ring-fenced and other businesses under one roof, it mandates that measures be put in place to protect the ring-fence from contagion risk. This has the following implications for the legal corporate structure of such groups and for the economic linkages between their ring-fenced and non-ring-fenced affiliates.

Ring-fenced banks are to be set up as separate legal entities within their financial groups. In a branch-based structure, monitoring compliance with prudential rules related to capital, liquidity, and intragroup exposures applied on a solo basis to the ring-fence could be prohibitively difficult. Moreover, in order to ensure that ring-fenced operations can be spun off in a group-wide restructuring or resolution, a number of other criteria must be satisfied. Arrangements whereby the ring-fenced bank continues to have access to all operations, staff, data, and services essential to its operations are necessary. For example, a ring-fenced bank ought to be a member of relevant payments systems or should have, as its agents, other ring-fenced banks. In terms of group organization, ring-fenced banks cannot (partially) own affiliates that offer services prohibited within the ring-fence.

14Such as would result, for example, if the combined funding mix and asset allocation of the ring-fenced bank exposes it to losses emanating from interest rate fluctuations or currency rate movements.
Subsidiarization should be functional and not merely legal and operational. This entails three important considerations.

- Ring-fenced banks must have an operationally independent management and board. Without this, continuity of business operations when the rest of the group is in distress or under resolution may be difficult to ensure. Boards are expected to strive to maintain the integrity of the ring-fence, albeit the compliance protocols under the Volcker Rule are not imposed by the ICB.

- Ring-fenced banks must be independently and separately capitalized reflecting minimum regulatory standards assessed on a solo basis. The ICB recommends applying solo equity and leverage standards to the ring-fenced subsidiary (Table 10.5). There are no limits on the transfer of capital and liquidity from a financial group’s non-ring-fenced affiliates into the ring-fence, but the scope for transfers in the opposite direction, including of dividend payments, is explicitly constrained.

- Restrictions on intragroup transactions. The ICB proposals place no restrictions, beyond those already embedded in the prudential framework for banks, on intragroup exposures between ring-fenced affiliates. Turning to financial interconnections with non-ring-fenced affiliates, their focus is on ensuring appropriate risk pricing of such transactions instead of placing tougher quantitative limits on them. Accordingly, such transactions should necessarily be on a third-party basis and conducted on a commercial basis at market prices or imputed fair values (Figure 10.3).  \(^{15}\)

---

**TABLE 10.5**

<table>
<thead>
<tr>
<th>Size</th>
<th>Equity</th>
<th>Leverage ratio</th>
<th>Primary loss absorbing capacity</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ring-fenced banks</td>
<td>Tier I &gt;3 percent</td>
<td>Sliding scale for minimum equity-to-RWA of between 3 and 4.06 percent</td>
<td>Sliding scale for minimum capital + bail-in bonds of between 10.5 and 17 percent of RWA</td>
<td>In a resolution, insured depositors rank ahead of all unsecured creditors</td>
</tr>
<tr>
<td>RWA between 1 and 3 percent of U.K. GDP</td>
<td>Sliding scale for minimum leverage ratio of between 3 and 4.06 percent</td>
<td>Sliding scale for minimum capital + bail-in bonds of between 10.5 and 17 percent of RWA</td>
<td>Supervisor has discretion to increase primary loss-absorbing capacity by up to 3 percentage points</td>
<td></td>
</tr>
<tr>
<td>RWA &gt;3 percent of U.K. GDP</td>
<td>Minimum equity-to-RWA of 10 percent</td>
<td>Minimum leverage ratio of 4.06 percent</td>
<td>Capital and bail-in bonds should be at least 17 percent of RWA</td>
<td>Supervisor has discretion to increase primary loss-absorbing capacity by up to 3 percentage points</td>
</tr>
</tbody>
</table>


Note: RWA = risk-weighted assets.

---

\(^{15}\)Large/single-exposure counterparty limits applicable to third-party transactions also apply to intragroup transactions.
Assessment

Diversification benefits entailed by universal banking are preserved under the proposals, albeit potentially with limitations. Ring-fenced banks can, when necessary, continue to benefit from capital and liquidity surpluses elsewhere in the group and can, to a limited degree, extend this benefit to affiliates. Limits on the ability to do the latter also protect retail operations from contagion, more credibly restrict the penumbra of public creditor guarantees to retail creditors, and ensure continuity of that part of the firm in a crisis.

Subsidiarization—in the legal, operational, and functional senses—is necessary for the proposals to succeed in achieving their goals. However, the practical achievement of this remains challenging despite the final report adding substantial additional operational guidance relative to the interim April report (ICB, 2011).

- Risk management and intragroup exposures. Since exposures to non-ring-fenced banks or finance companies outside of their own financial group are prohibited, risk management and hedging within the ring-fence may have

Figure 10.3 Rescoping of Banks’ Businesses under the ICB Ring-Fence

Note: EEA = European Economic Area.

1Understood to include proprietary trading, securitization deal sponsorships and services such as securities underwriting, market making, prime brokerage, and loans/securities warehousing, among others.

2Funding raised from/exposures to non-EEA clients and funding raised/exposures through non-EEA affiliates.
to rely exclusively on contracting within the group. So long as arms-length contracting is in place, there appear to be no further constraints—besides regulatory limits on intragroup or single party exposures—on ring-fenced banks transacting with group affiliates to hedge risk. In order for subsidiarization to ensure isolation and continuity of the ring-fenced operations, however, prudential rules and oversight will need to ensure that backup arrangements that survive distress or failure of the wider group are in place for the ring-fenced bank to avail itself of. Moreover, in the case of some types of transactions, such as master netting in repurchase agreements, this will require first arranging the transfer of existing contracts, and subsequently, the maintenance of separate contracts with clients, payments and settlement systems, and risk management counterparties. This could entail, besides significant adjustment costs, a permanent increase in the cost of provision of banking services. Intensification of supervision to ensure institutional compliance may be expected and will imply a similar increase in implementation costs for prudential authorities.

- Filtering prohibited from permissible transactions will be as challenging under the ring-fence as under the Volcker Rule. The location of the ICB ring-fence is more restrictive than the Volcker Rule (Table 10.6). However, ring-fenced institutions must maintain (i.e., buy, hold, and sell) a portfolio of securities, engage in secured lending transactions, and be counterparties to derivatives contracts. Like the Volcker Rule, ring-fenced institutions can engage in these only to support permitted services and transactions but the same identification and implementation challenges described earlier will also arise for U.K. ring-fenced banks. Whether the additional prohibitions on market making, underwriting, and sponsorship of securitization deals make this hurdle less costly to surmount under the ICB proposals remains to be seen.

- Reconciling limits on market and counterparty risks with limits on intragroup contagion may be challenging. Ring-fenced banks’ need to hedge financial risks necessitates exposures to financial markets and counterparties which must be from within their own financial groups. This increases the risk of raising intragroup exposures across the ring-fence to beyond a desirable level from the perspective of spinning off the ring-fenced business and maintaining business continuity when the need arises.

**Organization of Global Retail Banking**

If a U.K. banking group has retail operations in other jurisdictions, the ICB proposals do not compel the group to ring-fence such businesses. This could be the case, however, if the group preferred a corporate structure wherein retail businesses were organized in a separate subsidiary. An interesting question is whether retail

---

16Indeed, this raises the important question of how stand-alone retail banks can hedge their risks. The compliance and supervision costs associated with ensuring that market products purchased by such firms to hedge risk are not targeted at exposing own-capital to market or counterparty credit risk could be quite high.
operations ought to be organized in a separately capitalized subsidiary with independent management and, if so, should such subsidiarization be organized along national boundaries? One argument supporting affirmative answers to these questions is that retail banking is likely to be geographically separate and independent, whereby enforcement of ring-fencing of a global bank’s retail operations can be performed by national prudential authorities. From the authorities’ perspectives, a clear advantage of adopting this form of organization is that the benefits ensuing from tax payer cost outlay to ensure continuity of the business would be ring-fenced for the benefit of retail customers of the domestic subsidiary.

---

1Fiechter and others (2011) note, in fact, that the subsidiary structure may work well for retail banks because it may benefit from a local management team that is fully accountable for the performance of an affiliate focused on local retail operations. On the other hand, the subsidiary structure may be less suitable for universal and investment banking activities because it could constrain the ability of such businesses to manage liquidity globally and to serve large corporate clients. Large Spanish banks with a retail focus, as well as the U.K. global bank HSBC, largely operate with a subsidiary-based structure.
POLICY IMPLICATIONS

The three proposals described in this chapter provide alternative roadmaps for the transition of SIFI business models from universal banking toward the separate provision of deposit-taking, lending, and payments functions on the one hand, and investment or wholesale banking on the other. Although the proposals share a number of common elements, there are important differences between them. A summary comparison is presented in Figure 10.4.

We define two separate dimensions in which banks’ businesses will be constrained: the number of prohibited services and the degree of interaction permitted with the providers of such services, and compare the relative constraints imposed by the proposals in each of these dimensions. For example, although the ICB proposes to prohibit more activities than the Volcker Rule (and less so than utility banking), it permits greater intragroup transactions/exposure to non-ring-fenced entities.

Redesigning the business models of SIFIs will not work without complementary measures to strengthen the prudential framework. Restrictions on proprietary trading and risky lending are tools that are largely complementary to strengthened regulation, more intensive oversight, and more effective recovery and resolution frameworks, all of which are targeted at mitigating the TITF problem.

Enhancing the oversight of the shadow banking sector is essential to prevent migration of systemic risk in response to tighter constraints on regulated banks’ business models. The proposals discussed in this chapter will be limited in their ability to reduce systemic risk if corresponding reforms are not made with respect to the shadow banking sector. Although regulated banks may be on safer ground, the shift in excessive risk-taking incentives toward the unregulated parts of the financial system could render quasi-banks susceptible to distress. To the extent that these shadow banks become systemic and maintain links with regulated banks, systemic risk will continue to exist. Thus, any policy framework aimed at

Figure 10.4 Comparing the Proposals: A Summary

1Rankings for each proposal are relative to other proposals. “Number of restrictions” corresponds to number of prohibited activities; “severity” refers to potential for within-group transactions/interconnections to firms engaging in prohibited activities.

©International Monetary Fund. Not for Redistribution
addressing the issue of systemic risk should encompass the shadow banking system. In addition, prudential supervision may need to be extended to this sector to improve the transparency and disclosure of information, to capture the activities of special purpose vehicles and their linkages, and identify the set of stakeholders involved.

The loss of any diversification benefits could represent a significant cost and careful assessment is required in selecting a rescoping model that will limit it. Reduction in diversification benefits due to the separation of investment from commercial banking may entail significant costs that may not be balanced by gains if—as a result—risky activities move to the shadow banking system. In our view, this applies more to the narrow banking and Volcker Rule proposals than to retail ring-fencing, since the latter would still permit the preservation of diversification gains and risk taking, albeit to a limited degree, within a universal bank combining retail and wholesale businesses.

Operational challenges specific to each proposal may limit their effectiveness, implying that they be introduced in combination with some of the other tools assessed in this chapter. Specifically:

• The separation of utility and nonutility banking—necessary to the success of narrow banking—may be prohibitively difficult to achieve in practice, with important utility components leaking out to the shadow banking system, ultimately defeating the raison d’être of the proposal. For this reason, efforts to extend the perimeter of regulation and oversight remain vitally important.

• Since the identification and separation of proprietary trading transactions from hedging or market-making transactions will be difficult in practice, reliance on higher capital surcharges—overall and on the trading book—will be important complementary measures.

• Structural measures to limit the scope of SIFI activities, while providing a direct way of dealing with the TITF problem, have not gained international support, and therefore, could be difficult to implement and adopt on a globally consistent basis. Harmonization of the regulatory toolkit in countries housing TITF activities will be important to avoid competitive distortions and arbitrage opportunities. As a corollary, and given their role as global financial centers, careful assessment of the opportunities for regulatory arbitrage potentially generated by differences between the Volcker Rule and the ICB ring-fence and their implementing regulations will be warranted.

• Riskier activities could be limited through other prudential measures that are in train, such as higher risk weights on trading and securitization (under Basel) or the buffering of common equity with contingent capital instruments, which has the additional potential advantage of sharpening investor incentives for monitoring bank management. Ultimately, however, success will be predicated upon improved governance frameworks and strong supervision.
APPENDIX 10.1. DO TRADING ACTIVITIES INCREASE THE VULNERABILITY OF BANKS?

Increasing involvement by banks in highly risky and leveraged proprietary trading activities in the lead-up to the global financial crisis has been seen as a key factor in generating financial distress. To ascertain if banks with a high share of total trading income were indeed the ones that experienced distress and needed official support, a filter rule test is applied on 79 SIFIs across Asia, Europe, and the United States. The sample includes commercial, investment, and universal banks. The test on Asian banks serves as a control to gauge if the vulnerabilities to distress, as defined by the filter rule assumptions, hold for a region that remained relatively resilient during the 2008–09 financial crisis.

Filter Rule Test

The filter rule results seem to indicate that in both Europe and the United States, a significant majority of banks requiring assistance were institutions whose trading income-to-total revenue ratios were both in the tails of the historical distribution. Similar results, however, were not observed among Asian banks. Therefore, the support for the hypothesis that banking distress during the recent global financial crisis was a function of trading seems to be conditional. As such, it alludes to the need for further consideration of other factors.

Results from Filter 1

Based on one standard deviation (SD), 72 percent of the European SIFIs identified as “vulnerable” required official assistance (Table 10.7). In the sample of U.S. banks, the corresponding matches between “vulnerable” according to the filter rule and

---

18As a majority of banks do not segregate between proprietary trading and hedging activities in trading income, we took the reported “total trading income” as an approximation for proprietary trading. Trading income in banks’ financial statements comprises revenues from revaluation of securities held in the “Trading Book,” net realized gains/losses from proprietary trading activities and disposal of “Available-for-Sale” (AFS) securities and mark-to-market valuation of derivatives for “hedging.” Thus, the proportion of total trading income to total revenue measures the degree of a bank’s overall revenue source that is susceptible to market fluctuations rather than exposure from proprietary trading alone.

19Official support includes government capital/liquidity injection, nationalization, restructuring, and, in extremis, bankruptcy. Official support may not necessarily mean bankruptcy but without such support, the liquidity problem faced by the banks in question could escalate into a solvency problem which could eventually lead to bankruptcy.

20The objective of the statistical filter rule is to test the hypothesis that “banks with high shares of trading income to total revenue precrisis were most vulnerable to public bailout.” The methodology includes computation of means and standard deviations (SDs) of trading income-to-total revenue ratios for the period between 1999 and 2007 with the filter rule defined as: mean ± k SD where k = 1 in Filter 1 and k = 2 in Filter 2. Any bank whose share of trading income-to-total revenue ratio in 2008 exceeds the filters is screened as “vulnerable.” Vulnerable banks are then compared with those receiving official support in 2008/2009 to gauge the predictive ability of the filter rule.
requiring official bank assistance was 67 percent. Thus, at first pass, the results seem to concur with the view that high exposure of revenues from trading activities increases the vulnerability of a banking institution to failure.

In Asia, the filter rule results yielded rather different outcomes, with only one out of eight banks predicted by the rule receiving official support, although this was also the only bank that received state assistance.

**Results from Filter 2**

Repeating the analysis using $2^{*}\text{SD}$ (so as to capture the effects further into the tail of the distribution) confirms the above observations with little change in the predictive ability for European banks and overall improvements for U.S. and Asian banks.

Our Filter 2 results also confirm the significant association between trading ratios at extreme tails and the need for state assistance for U.S. and European banks during the recent crisis, but in the case of Asia only a weak association is obtained, at best.

<table>
<thead>
<tr>
<th>TABLE 10.7</th>
<th>Results for U.S., European, and Asian SIFIs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Filter Rule 1 [No. of Banks with Trading Income in 2008 &gt; (Mean + 1*SD)]</td>
</tr>
<tr>
<td></td>
<td>United States</td>
</tr>
<tr>
<td>&quot;Vulnerable banks&quot; identified by filter rule (A)</td>
<td>6</td>
</tr>
<tr>
<td>No. of banks that received official support in 2008/2009 (B)</td>
<td>5</td>
</tr>
<tr>
<td>No. of &quot;vulnerable banks&quot; receiving official support in 2008/2009 as predicted by filter rule (C)</td>
<td>4</td>
</tr>
<tr>
<td>Predictive ability of filter rule (C)/(A)</td>
<td>66.7%</td>
</tr>
<tr>
<td>Percentage of &quot;vulnerable banks&quot; receiving official support against total no. of banks that received official support (C)/(B)</td>
<td>80.0%</td>
</tr>
</tbody>
</table>

Sources: Bloomberg LP; and IMF staff computations.

Note: Europe includes the United Kingdom; Asia includes Australia and Japan. Sample taken from 1999–2007 (United States: 15 SIFIs with 234 data points; Europe: 46 SIFIs with 708 data points; Asia: 18 SIFIs with 163 data points); SD refers to standard deviation.

©International Monetary Fund. Not for Redistribution
DISCUSSION

There is conditional support for the importance of trading. A positive association exists between susceptibility to distress and the importance of trading income as a revenue generator for U.S. and European banks. However, similar results do not hold for Asia, with sample banks there showing only a weak association at best. This could indicate a number of possible factors:

(i) Regional effects underpinned by economic fundamentals may have a role—Asian economies were more resilient during the crisis, thus underpinning the financial health of the banking systems and the systemic players therein.

(ii) Quality of assets and earnings—low Asian exposure to toxic assets—such as subprime mortgages, residential mortgage backed securities (RMBS), and their derivatives—may be important factors that underscore banks’ resilience to stress.

Proprietary trading may be only a part of the problem. Risk could emanate from losses attributed to nonproprietary trading activities, such as market making, investment banking, and hedging.

The divergence from the results for European and U.S. banks of the sample of Asian banks also raises a question of whether the problem could be cyclical rather than structural, because Asia is in a different economic phase compared to the United States and Europe. If this is true, then prescribing a structural policy remedy, such as prohibiting banks’ proprietary trading altogether, could lead to a suboptimal outcome when viewed through the cycle. In theory, controlled levels of trading with proper risk management, governance, and monitoring could promote more efficient price discovery and add to the depth of the securities and structured products markets.

The following caveats underpinning this analysis must, in particular, be borne in mind:

• Economic vs. accounting considerations. The underlying data is reported on an accounting basis rather than an economic one. This gives rise to the question of whether trading losses at a particular bank arise because of intentionally unhedged exposure (as in the case of proprietary trading) or because of non-trading exposures. For example, basis risk arising from incomplete hedging of credit or option risk undertaken in the banking book could result in trading book losses if the hedges are booked there. Alternatively, losses on credit exposures booked as trading exposures in order to exploit capital arbitrage could also result in bloated trading loss figures during the crisis.

• Data constraints. Proprietary trading is often a high frequency business. The appropriate volatility measure should be an average of the daily volatility of trading income rather than annual total trading income, as is the case in the filter.
CHAPTER 11

Subsidiaries or Branches: Does One Size Fit All?

JONATHAN FIECHTER, İNCİ ÖTKER-ROBE, ANNA ILYINA, MICHAEL HSU, ANDRÉ SANTOS, AND JAY SURTI

INTRODUCTION

The activities of cross-border banking groups can generate trade-offs between efficiency and financial stability. These groups can lower intermediation costs and improve access to credit by households and firms, facilitate a more efficient allocation of global savings, assist in the development of local capital markets, and make possible the transfer of risk management, payments, and information technology. At the same time, these groups are highly interconnected internationally and may expose individual countries to the risk that shocks in other countries will spill over into their domestic financial systems.

The policy implications of these trade-offs are intimately related to those that surround the debate on the treatment of systemically important financial institutions (SIFIs) viewed as too important to fail (TITF). The growing complexity and interconnectedness of financial institutions, coupled with the lack of effective cross-border resolution regimes, have undermined market discipline, contributed to excessive risk taking, and compromised the ability of home and host authorities to cope with the failure of TITF institutions. A number of policy options have been proposed to address this problem, including steps to discourage size and interconnectedness, improve the capital and liquidity buffers held by such institutions, and enhance their resolvability. These options also include recovery and resolution plans (“living wills”) that would require simpler legal and financial structures of banking and other financial holding companies.

A key consideration in deciding whether to establish a policy preference for organizing cross-border banking groups as branches or subsidiaries is the balance between efficiency and financial stability. From the perspective of policymakers,

---

1The authors are grateful to José Viñals, Christopher Towe, Rina Bhattacharya, Julian Chow, Luis Cortavaria, Michaela Erbenova, Alessandro Giustiniani, Daniel Hardy, David Hoelscher, Elias Kazarian, Michael Moore, and other IMF colleagues for helpful comments and input. The chapter also benefited from comments and suggestions by several home and host supervisory authorities and key private sector representatives of the financial industry. This chapter was also issued as an IMF Staff Discussion Note, SDN/11/04 (March 7).
different organizational structures have important stability implications, notwithstanding the efficiency arguments that may favor branches. Home authorities are typically responsible for the supervision of foreign branches of their domestic banking groups, while host countries have the lead responsibility for foreign subsidiaries of such banking groups. This division of responsibility can at times raise important burden-sharing issues in countries that are host to branches of a failing foreign bank. A notable example was the failure of Icelandic banks, which left the Icelandic authorities with the obligation, but not the fiscal capacity, to protect the insured depositors of overseas Icelandic branches (see, e.g., IMF, 2010b).

In a stylized world, a range of bank structures exists with varying degrees of centralization in decision making and of restrictions on intragroup capital flows. At one end of the spectrum is a centralized model, in which the bank operates through a branch structure and capital and liquidity flow freely across business units and across borders, typically under the supervision of the authority where the entity is headquartered. At the other extreme, a bank operates via separately capitalized foreign subsidiaries that are locally incorporated in the countries in which they operate, are subject to local capital and liquidity requirements, have a high degree of control over their local operations, and are supervised by the host authority.

In practice, most cross-border banking groups have fairly complex organizational structures. They run operations through a hybrid structure that includes both branches and subsidiaries in different jurisdictions. Banks choose between these structures in response to a range of factors, including their business models (e.g., wholesale vs. retail operations) and in response to cross-country differences in regulatory and tax regimes. Although global banks may prefer to expand their retail operations overseas through subsidiaries, for example, they may run their wholesale operations through overseas branches. Similarly, global investment banks and universal banks may prefer to operate internationally through branches to retain the flexibility to manage liquidity globally and to provide services to large corporate clients. At the same time, they may also have subsidiaries in some jurisdictions, reflecting a variety of regulatory, tax, economic, or political considerations.

This chapter lays out the key considerations underlying the choice between branch and subsidiary structure for cross-border banking groups and their home and host countries. It examines the relative advantages of different organizational structures for cross-border banking groups and discusses the issues for financial stability from home- and host-country perspectives. The next section provides a brief overview of the economic distinction between centralized and

---

2Some host countries (e.g., Brazil, Mexico, and New Zealand) encourage or require the subsidiarization of local business units. Differences in corporate tax rates across home and host countries, or differential treatment of overseas profits from branches and subsidiaries (e.g., the United Kingdom), are also known to influence banks’ choice of legal mode of incorporation into a host country.
decentralized structures; it discusses the factors influencing a group’s choice of branch versus subsidiary as well as the implications for home/host financial stability. The third section then discusses the policy implications to assess whether the choice can be seen as part of a potential solution to the TITF problem. The implications of the chapter could provide some guidance to countries facing these choices, although those countries will need to take into consideration the specific characteristics and circumstances of their economies and financial systems when making the choice.

A key observation of the chapter is that neither the branch nor the subsidiary structure is obviously preferable in all cases from the financial stability perspective. The key to ensuring financial stability lies instead in the design of effective mechanisms to oversee and resolve cross-border banking groups. These include effective home/host supervision and information-sharing arrangements and satisfactory cross-border resolution regimes and burden-sharing agreements. Such mechanisms, combined with adequate risk management and strong capital and liquidity frameworks, would encourage banking groups and policymakers to fully internalize the costs associated with the groups’ failure. This, in turn, could make home and host countries less concerned about specific legal structures, allowing banks to organize themselves in ways that best fit their business models. Absent rapid progress in reaching global agreements on such solutions, there will likely be a growing tendency to ensure greater self-sufficiency of the local affiliates to reduce both the threat to financial stability and the resolution costs.

THE CHOICE BETWEEN BRANCHES AND SUBSIDIARIES AND IMPLICATIONS FOR FINANCIAL STABILITY

The Bank Perspective

From an economic perspective, one can consider a spectrum of bank structures with varying degrees of centralization in decision making and of restrictions on intragroup transfers. The following two models are at the opposite ends of this spectrum:

- **Centralized model**—free flow of intragroup capital and liquidity with integrated organizational and risk management. Under this framework, the operations of the parent company and all affiliate business units are managed in an integrated fashion. Funding, asset allocation, and risk management are centralized in order to maximize returns at the consolidated level. Capital is raised through affiliates and jurisdictions where it is least expensive and is subsequently deployed where it earns the highest return. The response to funding or other shocks to the group’s individual businesses is also centralized, and surplus capital and liquidity are directed to units experiencing a shortage, provided that is perceived to be in the long-term interest of the group.
Subsidiaries or Branches: Does One Size Fit All?

- **Decentralized model**—independently managed affiliates that are financially and operationally self-sufficient. This model assumes that each business unit finances itself, with varying constraints on intragroup transactions, manages its own risk, and deals with the consequences of bad decisions without financial assistance from affiliates or the parent. The gains from foreign direct investment (FDI) in the financial sector—such as transfers of technology, product design, and systems from the parent—continue to help the subsidiary improve its financial performance and risk management, as under the centralized model.

The centralized form of organization is often associated with branching in foreign jurisdictions, and the decentralized model is associated with subsidiaries, although the subsidiary model can range from banking groups with close intragroup links to those structured as geographical constellations of stand-alone subsidiaries. A subsidiary is a separate legal entity, licensed and supervised by local regulators, with the parent having no legal obligation to support it if it falls into distress. In contrast, a branch is legally inseparable from the parent, which is fully responsible for the branch's financial commitments.

Despite a clear legal distinction between branches and subsidiaries, however, in practice they may sometimes be operated and managed in a similar fashion. In some countries, branches work effectively as independent entities. In others, subsidiaries may function similarly to branches, subject to centralized risk management established at the group level and centralized funding decisions, and are dependent on their parents for funding (see further below). Practices such as groupwide guarantees and supervisory ring-fencing often blur the distinctions between branches and subsidiaries.

The analysis that follows assumes that economic substance conforms to the legal form; that is, that the branch structure is substantially more centralized and has fewer or no restrictions on intragroup transfers compared with the subsidiary structure. The relative benefits of the two-bank structures for cross-border banking groups are discussed. Overall, the analysis shows that some of these benefits are independent of the bank's business model (retail vs. investment/universal banking), whereas others are contingent on it. The rest of this section takes up these benefits in turn.

---

3In some cases, such constraints may be two-sided, whereas in other cases they may operate in only one direction. For example, Brazil has ring-fencing regulations to prevent Brazilian subsidiaries from moving funds to their parents but has no barriers on parent funding of the subsidiaries using various instruments (e.g., equity or debt).

4For example, in Argentina, Bolivia, Brazil, Chile, Ecuador, India, and Korea, branches face local capital and liquidity charges identical to those applied to subsidiaries and require local representation on their boards.

5Note, for example, that within the European Union, interbank and intragroup exposures with a duration of less than one year have been exempt from large exposure rules.

6For example, the Swedish Support Act 2008/09:61 explicitly states that the liquidity situation in a Swedish bank's foreign subsidiaries can be expected to improve through the Swedish guarantee program.
Both branch and subsidiary structures have certain features that make them attractive for cross-border banks, regardless of their business model:

- For the banking group as a whole, the costs of doing business may be lower under the branch structure than under the subsidiary structure. Maintaining greater self-sufficiency of affiliates in a subsidiary structure requires that each affiliate hold higher capital and liquidity buffers to limit the likelihood of failure. This results in higher levels of capital and funding for the banking group as a whole than under the branch structure. Moreover, stricter firewalls between the affiliates and the parent in a subsidiary structure, while reducing the risk of contagion, also limit shifting of funds within the group to take advantage of borrowing in low-cost jurisdictions. These firewalls might also mean that affiliates may face higher costs of external funding if they borrow in their own name as opposed to the parent bank’s name, although external and internal credit ratings also play a role in the funding costs in wholesale markets.

- Use of the branch structure instead of subsidiaries could provide an affiliate or parent with greater ability to withstand an idiosyncratic shock for given levels of group capital and liquidity, as long as the shock is not so large as to threaten the viability of the group. This is because shocks in one part of the network may be offset by gains in another. A centralized organization enables the banking group to mobilize and redirect funds from healthy affiliates to an affiliate that finds itself in trouble due to country-specific shocks, or to draw on the excess capital/liquidity of an affiliate at times of stress for the parent. In contrast, the decentralized funding and management framework of the subsidiary structure might prevent a parent bank from taking swift action due to certain restrictions on moving capital and liquidity from a subsidiary in one country to a parent or a subsidiary in a different country. As separate legal entities, subsidiaries often face legal restrictions and exposure limits on cross-border asset transfers to other parts of the group. Although the firewalls of the subsidiary structure may serve to protect the interests of the individual subsidiaries, they also reduce the ability of weak individual subsidiaries to receive support from the parent compared with a branch with the same level of capital or liquidity.

- The subsidiary structure may, in principle, be better for containing losses in the event of distress (or failure) of an affiliate. Under this structure, a subsidiary in a given jurisdiction might be better able to continue as a going concern should other parts of the group, or the parent, fail or have to be resolved. Losses incurred by an affiliate or the parent could, in principle, be isolated from the healthy parts of the group, thereby containing the losses for other parts of the group (i.e., reduce “loss given default”). In practice, however, a parent will be forced to provide such support for reputational reasons unless doing so threatens the viability of the entire group.

---

7The European Commission (2010b) provides recommendations on lifting restrictions on intragroup transfers of assets if such transfers can potentially limit the extent of a crisis (http://ec.europa.eu/internal_market/bank/windingup/index_en.htm).
A number of other benefits of the branch and subsidiary structures accrue only to banking groups following a particular business model:

- **Provision of services to core clients**: For a global universal bank, the branch structure that facilitates cross-border interaffiliate funding would assist in the provision of a broad range of services to large corporate clients around the world. A global retail bank, on the other hand, might prefer the subsidiary structure, with greater importance attached to access to local deposit guarantees and a relatively lower weight assigned to large exposure limits, compared with wholesale operations, given the nature of its business (i.e., serving retail clients).

- **Liquidity management**: A more centralized (branch) model would allow global banks with wholesale operations to manage liquidity more efficiently at the group level, allowing them to transfer liquidity where it is most needed in both normal times and times of stress (absent barriers placed on transferring funds across jurisdictions in excess of the regulatory requirements). A cross-border bank might also benefit from consolidating its collateral holdings in a single pool, which allows an affiliate with poor access to eligible securities to receive liquidity by collateralizing the “excess” provided by other affiliates. For global retail banks that tend to rely largely on local funding, the ability to manage liquidity at the group level may be relatively less important.

- **Risk management**: Another key advantage of a branch model for a global universal bank is reduced counterparty and liquidity risks through the internalization of clearing and settlement of securities and cash payment obligations. By centralizing trades and cash management activities, the group is able to net its customer obligations and rights and deliver only the net amount to third parties, which reduces the group’s total liquidity need. These considerations may be relatively less critical for a retail bank that is more concerned with managing the credit risk of retail loan books.

Therefore, all else being equal, one could expect global retail banks to have a preference for subsidiarization and global universal banks to have a preference for branching. The subsidiary structure may work well for retail banks, since it may benefit from a local management team that is fully accountable for the performance of an affiliate focused on local retail operations. There is a benefit to having a management team that has a deep understanding of the local market

---

8In the words of one large, global, cross-border banking group, the branch structure “enables banks to offer clients access to the parent company balance sheet and leverage the full balance sheet to provide support to clients, offering the potential for lower lending costs and enhanced credit availability in host countries.”

9Appendix 11.1 describes the Spanish cross-border banking model as an example of a decentralized approach to risk management in a global retail bank; it draws, in part, on Asociación Española de Banca (2010).

10Appendix 11.2 summarizes the views of a sample of major global banking groups regarding subsidiarization.
and a greater ability to obtain local funding. On the other hand, the subsidiary structure may be less suitable for universal and investment banks because it could constrain their ability to manage liquidity globally and to serve large corporate clients.

In practice, when choosing a legal form of incorporation in foreign jurisdictions, banking groups also take into account a range of home/host country characteristics that may outweigh the business model considerations (Box 11.1). These include: (i) differences in regulatory arrangements applicable to branches and subsidiaries (e.g., requirements of local or host supervisors and legal obligations in the home country for parent bank support); (ii) tax rules adopted by home/host jurisdictions; (iii) relevant macroeconomic and political risks in host countries; (iv) the nature of the business sought in the local market (e.g., opportunities to optimize the use of home resources to support profitable business elsewhere); and (v) the state of financial market development in the host country.

For example, a banking group might prefer branching when local financial markets are less developed and less able to support a subsidiary, the entry to local markets targets credit extension and provision of risk management services to existing clients, political risks are high, and tax and regulatory treatments of branches are more favorable. In the case of advanced host countries, banking groups may prefer branching into countries that host major money centers (e.g., the U.S. or U.K. markets) or into markets for wholesale deposit sourcing (e.g., Germany). Therefore, actual practice is often complex, with cross-border banking groups choosing to branch into some jurisdictions and incorporate as subsidiaries in others. Figures 11.1 and 11.2 show the geographic distribution of branches and subsidiaries of foreign banks.¹¹ For instance, large cross-border Spanish banks (e.g., BBVA) with a retail focus, as well as the U.K. global bank HSBC, are viewed to be the closest to the subsidiary-based structure, although they also have branches in some countries (e.g., BBVA has subsidiaries in Latin America and the United States but also operates through branches in the United States, the United Kingdom, and Hong Kong SAR). Many cross-border banks with wholesale banking and trading activities (e.g., Standard Chartered) operate mainly through branches, although in a hybrid model that also contains more decentralized subsidiaries in a few countries (e.g., Standard Chartered in Korea, Hong Kong SAR, and China). Therefore, preferences for choosing one model over the other, or the differences between the two structures, are not clear-cut.

¹¹The number of branches is generally larger than the number of subsidiaries in Asia, the Middle East, North America, and Western Europe, whereas subsidiaries outnumber branches in Latin America and central and eastern European countries. For most advanced economies (with the exceptions of France and Switzerland), the number of branches of foreign banks is larger than the number of subsidiaries. In contrast, subsidiaries appear to dominate (in terms of both number and total assets) in most emerging market economies, where the frequency of macroeconomic and financial dislocations tends to be higher than in advanced economies.
What Drives the Institutional Choice of Legal Model Between Branches and Subsidiaries?

In choosing a legal form of incorporation for their overseas businesses, internationally active banking groups optimize with respect to: (i) differences in regulatory arrangements applicable to branches and subsidiaries; (ii) tax rules adopted by home and host jurisdictions; (iii) relevant environmental (i.e., macroeconomic and political) risks in host countries; (iv) the group’s business model and groupwide expertise, as well as the nature of the business anticipated in the local market it is seeking to penetrate; and (v) the state of development of local financial markets in the host country. Among the advanced market economies, those hosting major money centers or derivatives exchanges may see relatively more foreign bank penetration via branches. This allows the foreign bank to raise large-volume funding for the group’s global activities at lower capital cost (related, for example, to covering intragroup exposures) than if it were to enter the host country through a subsidiary.

(1) Differing regulatory treatment of branches and subsidiaries by home and host
Regulations of both home and host countries influence the choice of legal form of business model. Italian and Canadian banks, for example, are required to seek prior approval by their home regulator in order to open an overseas branch, and the Bank of Spain can refuse a bank’s application to open a branch on a wider set of criteria than in the case of subsidiaries (for EU-domiciled banks, these additional constraints do not apply to affiliate operations in EU member states given the EU single-passport regime). In New Zealand, foreign banks are required to operate through subsidiaries to provide separation between the subsidiary and the parent, to enable more efficient resolution in the event of distress or failure, and under other specific considerations (e.g., the home-country supervisory and disclosure arrangements and market discipline, and existence of home-country creditor preference upon the winding up of the bank).
Banks appear to prefer organizing overseas operations as subsidiaries in countries where additional requirements on branches are the most extensive. These requirements typically either restrict business operations (e.g., restrictions on branches of foreign banks accepting deposits, as in Croatia and Mexico), ensure equal treatment of host country depositors in the event of insolvency of the parent company (e.g., Croatia and Poland), or require a more burdensome approval process by the home supervisor to open a branch.

(2) Tax and cost incentives
The disparity between tax-related expenditures under the two alternatives could be substantial. Cerutti, Dell-Ariccia, and Martínez Pería (2007) found a positive and statistically significant relationship between the top corporate tax rate in a host country and the decision of a bank to incorporate its local business as a branch, since in general this would facilitate avoidance of the higher burden through profit shifting across borders.

Tax treatment by home authorities of repatriated profits from overseas branches versus subsidiaries could be different. Such differential tax treatment (as exists, e.g., in the United Kingdom) could generate profit differentials large enough to swing a bank’s choice between branches and subsidiaries one way or the other.
It is possible for the optimal organizational structure of the bank to entail more complex arrangements. A host retail market of significant size and the possibility of an M&A type of entry (as in East Asia after the 1990s crises) could lead to a bias in favor of a subsidiary structure. The bank could subsequently expand in the host’s region by branching out of its new subsidiary. For example, while HSBC operates subsidiaries in China, Hong Kong SAR, and Malaysia, it runs its businesses in other Asian countries through Hong Kong-based HSBC Banking Corporation and Hang Seng Bank. In Latin America, barring Brazil, it runs its businesses out of its Mexican subsidiary, Grupo Financiero HSBC.

(3) Macroeconomic and political risks in the host country
The greater the idiosyncratic macroeconomic risk in the host country, the more attractive a subsidiary model becomes. Under a branch structure, the parent institution is typically fully responsible for all obligations and also for all losses incurred. For a subsidiary, on the other hand, obligations are limited to the value of the invested equity, and the parent has the legal option to walk away from the operation. Banks have taken advantage of this legal option in past financial crises in countries hosting their overseas affiliates.2 Cerutti, Dell-Ariccia, and Martinez Peria (2007) find a statistically significant negative relationship between the domestic country’s macroeconomic risk indicator and choice of branching over subsidiarization in their sample.

Perceived political risk on the other hand generally results in a preference for branching. Legal frameworks in a number of the parent banks’ home countries (e.g., Canada and the United States) have specific provisions protecting their interests against (the risk of) expropriation through violation of contractual rights or because of events such as wars or civil unrest, and such contingent limited liability is also extended to branches. Cerutti, Dell-Ariccia, and Martinez Peria (2007), controlling for other factors, find a significant and positive relationship between host-country political risk and parent preference for branching.

In practice, a number of other factors are often critical in determining how a parent bank would respond to the realization of such risks independent of the chosen legal form of incorporation. Where the parent’s exposures to the affiliate (either through nonequity funding or revenues) render the host-country operations of systemic importance to the health of the parent, extension of capital and liquidity support is equally common to branches and subsidiaries, since not doing so could compromise the survival of the group. During the global financial crisis, Swedish banks provided such support to their Baltic subsidiaries, and Austrian and Italian banks did so for their subsidiaries in central and eastern European countries. Similar extensions of support to subsidiaries may also be made in cases where walking away from the subsidiary entails a substantial reputational risk. The injection of capital by Portugal’s Banco Espiritu Santo into its Brazilian subsidiary Banco Boavista Interatlantico following the devaluation of the Brazilian real in 1999 is a prominent example.

(4) Fit between business model and market penetration strategy
Banks adapt their incorporation strategy to their objectives for entering a host market. Banks may expand overseas through a takeover of a preexisting domestic bank.

©International Monetary Fund. Not for Redistribution
This facilitates exploitation of the incumbent comparative advantages the domestic bank enjoys with regard to assessment of local credit risk and possession of an established client base. Moreover, since reliance may be placed on the local funding base (particularly deposits) in such cases, this makes it more natural for the foreign bank to incorporate as a subsidiary rather than as a branch.

On the other hand, foreign banks prefer to branch into countries where they are primarily targeting credit extension and provision of financial services to corporate clients. Capital coverage requirements corresponding to credit extensions to large corporate clients may lead to booking these exposures through their home office or sufficiently large regional office. This is cost effective compared with an arrangement where—to get around large exposure limits—the transaction must be booked through multiple host offices. Booking of client risk management (e.g., derivatives) contracts is also optimally done at the group level in order to both economize on capital and exploit the risk-management expertise that exists in major financial centers, where the parent banks are incorporated.

Level of development of local markets

Despite differences in mode of incorporation corresponding to differences in market penetration objectives, management style may yet be indistinguishable. Swedish banks active in the Baltic countries and Austrian banks active in the Balkans overwhelmingly follow a subsidiary model, and retail clients are clearly important on both the investment and the funding side. Reflecting the continued importance of parent funding of the subsidiary’s asset base, treasury and risk management of the subsidiary’s operations are integrated into and reflect group-level decision making. This is in contrast to the decentralized management of capital and liquidity preferred by Spanish banks for their subsidiary operations. One reason for this disparity could be the differences in the state of development among local capital markets. Relative to Swedish subsidiaries in the Baltic countries, it would be easier for Spanish subsidiaries in Brazil and Mexico to raise wholesale funding locally to supplement retail deposits.

2During the Argentine crisis of 2000–01, Citibank increased capital outlays to its branches in the country while simultaneously selling its subsidiary, Bansud, whereas Credit Agricole reduced losses by permitting a government takeover of its subsidiaries Bersa, Bisel, and Suquia. Similarly, Bayerische Landesbank gave up its Croatian subsidiary, Rijecka Bank, following a depositor run in 2002 in the aftermath of large foreign exchange losses. (See Cárdenas, Graf, and O’Dogherty, 2004; Cerutti, Dell’Ariccia, and Martinez Pería, 2007; Dell’Ariccia and Marquez, 2010; and Song, 2004, for further discussions.)
Figure 11.1 Geographical Distribution of Subsidiaries and Branches of Foreign Banks, end-2008

Sources: Central banks, and supervisory and regulatory agencies.

1Africa includes Nigeria and South Africa.
2Asia includes Australia, China, India, Indonesia, Japan, Korea, Malaysia, Philippines, New Zealand, Singapore, and Thailand.
3Latin America includes Argentina, Brazil, Chile, Colombia, Mexico, Paraguay, and Peru.
4Middle East includes Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates.
5North America includes Canada and United States.
6Western Europe includes Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Spain, Sweden, and Switzerland.
7Eastern Europe and Turkey includes Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, Russia, and Turkey.
8Branches of foreign banks include insured federal branches, insured state branches, uninsured federal agencies, uninsured federal branches, uninsured state agencies, and uninsured state branches. Subsidiaries of foreign banks include agreement corporate banking, agreement corporate investment, edge corporate banking, edge corporate investment, federal savings banks, national banks, New York investment companies, nondepository trust members, state member banks, state nonmember banks, and state savings banks.
Policymaker Perspectives

A key consideration for home or host authorities in weighing the merits of the subsidiary or branch structure will be their implications for growth and financial stability. Although certain features of the two bank structures are relevant only for host countries, other features have different implications for home and host and hence entail different preferences. The rest of this section takes each of them up in turn.

In normal times, one would anticipate that a branch structure could provide host-country borrowers with easier access to foreign credit, whereas a subsidiary structure may be more conducive to local market development. The empirical evidence is inconclusive.

- **Credit supply**: Intuitively, the structure that has fewer restrictions on interaffiliate transactions—the branch structure—should make the provision of credit to affiliates easier. However, empirical evidence does not necessarily
support the hypothesis that subsidiaries have less ability to supply credit in host countries (e.g., subsidiaries of western European banking groups facilitated the rapid growth of credit to the private sector in the central and eastern European countries in the precrisis period). There is also no firm evidence that subsidiaries are characterized by either more or less stable interaffiliate cross-border capital flows than branches.\footnote{Staff analysis presents some limited evidence that the stability and resilience of intragroup capital flows are related more to idiosyncratic factors in a country than to the legal structure of foreign banks in host countries.}

- **Local financial market development**: The subsidiary model could be better for local market development in host countries than the branch model, because subsidiaries are more likely to rely on local savings. That said, a subsidiary structure with tighter constraints on intragroup transactions could potentially limit the lending capacity of the affiliates operating in the host-country, and given the standard restrictions on bank exposure to any single borrower (as a percentage of the bank’s capital base), a subsidiary would have a lower lending limit than a branch operating under the parent bank’s lending limit. This may result in an increase in direct cross-border borrowing by large nonfinancial firms. With the latter bypassing the local market, the implications of the subsidiary structure for local financial market development may not be obvious.

Home and host regulators may have opposite preferences regarding the branch and subsidiary structures. A number of considerations play a role:

- **Governmental supervisory control and oversight responsibility**: The supervisory control and oversight responsibility of the host country are greater under a subsidiary structure than under a branch structure, whereas the opposite is true for the home country under the branch structure (Box 11.2). Home supervisors remain responsible for the supervision of the whole group under consolidated supervision, regardless of the organizational structure of the group. However, since the host authority is the lead supervisor for locally incorporated subsidiaries, the effectiveness of group supervision (and home preferences between the two structures) would be subject to the quality of host-country supervision and the adequacy of home/host coordination and information sharing on the local markets and operations of the affiliates. From the host-country perspective, the absence of a clear legal obligation of the parent to support its overseas depositors, the systemic importance of the affiliate to the local banking system, and uncertainty about the assets and capital under a branch structure (e.g., depositor preference rule in home jurisdictions) may induce the host to choose the subsidiary structure, which would permit it to impose the regulations that could protect the depositors of the institutions doing business in its jurisdiction.

- **Source of adverse shocks**: The host country is better off with the subsidiary structure when facing adverse external shocks (as it is easier to ring-fence the
Subsidiaries or Branches: Does One Size Fit All?

Roles of Home/Host Supervisors for Subsidiaries and Branches Under the Basel and EU Rules

Basel Rules
The Basel Committee’s position on home and host authorities’ responsibilities with regard to supervision of branches of cross-border banks is described in the Basel Concordat and summarized in the Core Principles for Effective Banking Supervision (Core Principles).1 The basic underlying principles are that the home-country supervisor should have access to all the information it needs to perform effective consolidated supervision and that all cross-border operations should be subject to effective home- and host-country oversight. Countries have taken different approaches, based on their circumstances, to put this into practice.

- Section VI of the Core Principles describes the obligations of home and host supervisors as follows: “Home supervisors must practice global consolidated supervision over their internationally active banking organizations, adequately monitoring and applying appropriate prudential norms to all aspects of the business conducted by these banking organizations worldwide, primarily at their foreign branches, joint ventures, and subsidiaries” (Principle 23).

- As regards the home authority’s obligations vis-à-vis coordination with the relevant host authorities, the Core Principles provide that, “A key component of consolidated supervision is establishing contact and information exchange with the various supervisors involved, primarily host country supervisory authorities” (Principle 24).

- With regard to host-country responsibilities, there is an expectation that host supervisors will ensure that business conduct of local affiliates of foreign banks is of the same high standard expected and enforced for domestic institutions, and that they have the ability to share information with relevant home authorities in order for the latter to carry out satisfactory consolidated supervision (Principle 25).

European Union Rules
Within the EU membership, the power to grant authorization to conduct business within the membership, albeit outside of the home country, rests with the home country, which subsequently communicates its decision to the relevant host member state. In the case of a subsidiary, however, authorization to conduct business must be sought from the host-country authorities (potentially in addition to the home country).

- With regard to the supervision of branches, the host supervisor is expected to ensure compliance by locally active branches of cross-border banks domiciled within the EU with conduct-of-business rules (under Article 32(7) of MiFID). In fulfilling its obligations with regard to this article of the directive, the host supervisor/authority shall have the right to examine branch arrangements. It is, therefore, expected to examine branch arrangements and request such changes as are strictly needed by the authority to enforce conduct-of-business obligations.
While responsibility for branch supervision rests with the home supervisor, Article 42(a) of the EU's Capital Requirements Directives stipulates conditions under which the host may designate a branch operating in its jurisdiction as significant (i.e., systemically important). Designation of such branch as significant improves the host's capacity to supervise the branch (e.g., for participation of the host supervisor in meetings of the supervisory college of the banking group where issues specific to the branch or group risks are discussed). To make supervision by the home authority possible, the host authority is obliged to facilitate onsite examination of locally active branches by the home supervisor of the corresponding cross-border bank/group. The host also retains supervision responsibility for liquidity and measures related to monetary policy implementation where the latter is independent. This is also true under the Basel Concordat, where the primary responsibility for supervising liquidity rests with the host authority.

In the case of subsidiaries, the host carries the responsibility for supervision of the locally incorporated affiliate of the cross-border bank.

1See also BCBS (1996 and 1997).
3See www.bis.org/publ/bcbsc312.pdf.

subsidiaries of foreign banks than their branches) and better off with the branch structure if facing a shock to the domestic economy or the financial system (as the branch structure entails stronger commitment, in principle, on the part of the parent bank to support its affiliates). The opposite is true for the home country—that is, the home country may prefer the organizational form that best facilitates drawing on capital or liquidity of affiliates (i.e., a branch structure) when a parent bank is facing a negative shock, and may prefer the advantages of having limited liability (a subsidiary structure) when it is the host country that experiences a negative macro-financial shock.

- Extent of fiscal costs and/or banking-related contingent liabilities in the event of bank distress: In the event that an affiliate operating in a host country falls into distress, the host country would have a relatively heavier obligation and burden when dealing with a subsidiary than with a branch, which is the responsibility of the parent bank (and home authorities). In fact, one could argue that for home countries with limited fiscal capacity, it might be prudent to encourage their large internationally active banks to organize themselves as subsidiary-based structures rather than as branch-based structures (IMF, 2010b).

In sum, from the financial stability viewpoint, both the branch and the subsidiary structure have their advantages and a variety of different considerations play a role in the authorities' preferences for a given structure. Barring the factors...
that affect the practical choice of different structures, home and host countries may both prefer a cross-border bank structure with stricter firewalls when conditions in their own country are better than those abroad, so as to protect their country from external shocks and minimize the fiscal costs of a failure. In the opposite case, they would prefer a model with weaker firewalls. Home and host authorities also focus on the implications of the choice for a number of other considerations, including supervisory quality (both of the home and host country), capacity of the home authority to support the affiliates in stress, level playing field concerns vis-à-vis domestic institutions, and the systemic importance of the affiliate for the host banking system.

The first-best solution to these tensions, therefore, lies in the design of appropriate mechanisms for: joint home/host supervision of cross-border groups in normal conditions, (harmonized) cross-border resolution regimes, and clear and effective burden-sharing arrangements in stressed or crisis conditions, along with effective risk management by the banking groups. After all, the problems experienced by cross-border banking groups during the recent crisis had little, if anything, to do with whether they were legally organized as branches or subsidiaries, and had much to do with the underlying weaknesses in risk management, regulation and supervision, supervisory coordination, and crisis management.13

The practical difficulties of global cooperation during a crisis have led some policymakers to explore the greater self-sufficiency of local operations of cross-border banks, regardless of their business models.14 Absent effective information exchange and coordination among regulators and supervisors and effective cross-border resolution mechanisms, there will be a natural desire for host authorities to ensure that local banks maintain sufficient capital and liquidity buffers in their countries (e.g., through tighter intragroup limits on subsidiary operations) so as to minimize the chance of financial stability risks being imported from distressed foreign banks. In light of the recent crisis experience, some believe this is easier to do under a subsidiary structure. Apart from shielding a business from losses elsewhere in the group, an additional attraction of a subsidiary structure is the relative

---

13 If the organizational structure of the banking group is too complex, it may be difficult for senior management of the group to monitor and stay on top of what risks are being assumed within the organization. The crisis produced examples of CEOs and other senior management acknowledging that they were unaware of the risks and exposures assumed by their institutions. The experience of some European banks and of Lehman during the recent crisis suggests that an affiliate can take on excessive risks and incur losses that could create significant financial stability risks, threatening the stability of the entire group regardless of its structure.

14 An extreme variant of such self-sufficiency, the “stand-alone subsidiarization” (SAS) model, was explored by the U.K. Financial Services Authority (2009) as a way to reduce the likelihood of costly banking group failures by requiring group affiliates to be organized independently of each other and the parent, with complete firewalls between different parts of the group. While offering some potential benefits (e.g., by isolating the failure to the parent and/or specific affiliates), the adverse implications of SAS may be significant (e.g., hampering the ability of a banking group to manage liquidity and capital on a groupwide basis, given the strict constraints on intercompany flows and transfer of capital and liquidity to individual affiliates—factors that may in turn affect the stability of the group as a whole).
ease with which resolution authorities could spin off businesses and affiliates individually.15

Organizing banking groups as a constellation of separate legal subsidiaries may facilitate the implementation of living wills—recovery and resolution plans that provide systematic and holistic blueprints to facilitate the orderly wind down of systemically important financial groups in the event of failure.16 These plans facilitate the resolution of such groups by simplifying the legal and financial structure of the banking group and by encouraging a more streamlined corporate structure. However, imposing self-sufficiency constraints on all banking groups regardless of their business models could be costly. Such costs would include: (i) constraints on management of liquidity and capital for the group as a whole; (ii) the need to hold higher capital and liquidity levels at a consolidated level over and above the Basel III requirements;17 and (iii) potential opportunities for regulatory arbitrage created when varying standards are applied by different jurisdictions to restrict intragroup exposures.18

Effective international coordination of the supervision and resolution of cross-border groups and burden-sharing arrangements can provide financial stability benefits without these potential costs. Therefore, rather than imposing organizational constraints on foreign structures, it would be preferable to make tangible and rapid progress in reaching global agreements on satisfactory and enforceable cross-border resolution regimes and burden-sharing arrangements. In the absence of progress toward the first-best solution, restrictions on bank structure may be seen by some jurisdictions as the price to pay for financial stability while domestic authorities attempt to reduce the destabilizing effects of cross-border failures.

15A counterargument to this may be that a subsidiary structure may complicate, rather than facilitate, resolution. Recently, an informal group of 10 creditors proposed treating the many subsidiaries of Lehman Brothers as one entity in an effort to boost the payouts to bondholders and reduce those to subsidiary creditors. Creditors have argued that their payouts would be boosted if the various subsidiaries (18) are combined as opposed to carrying out the resolution with a subsidiary-by-subsidiary approach (see Financial Times, December 16, 2010, www.ft.com/cms/s/0/0eb247d6-08aa-11e0-b981-00144febad0.html#axzz19dMw9XHG).

16The idea of a living will—proposed by the United Kingdom’s FSA—is a prominent example of a set of proposals targeted to preserve a firm as a going concern (without public support), to promote resilience of key functions, and to facilitate rapid resolution or wind down in a scenario of severe financial distress. The overall objective of all such proposals is similar to that of the idea discussed in this chapter, that is, to resolve TITF institutions without systemic disruption and without putting public finances at risk (also see Chapter 7 in this volume).

17See Appendix 11.3, which illustrates the point that under stricter forms of ring-fencing, banking groups have substantially larger needs for capital buffers at the parent and/or subsidiary level than under less strict (or in the absence of any) ring-fencing.

18These exclude costs that banking groups organized largely as branch-based structures may have to incur if they are transformed into subsidiaries. In discussions on this issue, many bankers say that the subsidiary approach may be more costly in terms of capital, liquidity, operating flexibility (e.g., lending limits, or requirements to conduct certain businesses), and administrative expense than a branch system. The impact on the parent bank’s desired return from its operations in host countries may in some cases induce the bank to simply exit the market or refocus its activities. Empirical information to support these arguments, however, was not available.
CONCLUSIONS AND POLICY IMPLICATIONS

There is no one size that fits all when it comes to the choice of the organizational structure for cross-border banking groups, given the diversity of their business lines and the varying objectives and stages of financial development of different countries. The preference for a given structure depends, in general, on the stakeholders concerned.

From a banking group’s perspective, the choice is affected by the group’s business focus and by differences in tax and regulatory regimes across jurisdictions. Banks with significant wholesale operations would appear to favor a more centralized branch model, which provides the flexibility to manage liquidity and credit risks globally at lower funding costs, support individual affiliates where needed, and serve the needs of large clients. For a global retail bank tapping retail deposits, a more decentralized subsidiary model may be preferable because of the focus of the business on serving local retail clients and the greater importance of local deposit guarantees.

From the host- and home-country perspectives, home authorities would prefer a cross-border bank structure with stricter firewalls across parts of the group (the subsidiary model) when their banks expand into countries with weak economies and a risky business environment. Host authorities might also prefer the subsidiary model if conditions in their countries are better than those in the home country, in order to shield the local subsidiaries from the problems of the parent. By contrast, countries with underdeveloped financial systems and weak economies may prefer global banks to enter through the use of branches that can facilitate credit services based on the parent’s strength. The quality of supervision, adequacy of information-sharing systems, and systemic importance of the affiliate for home and host financial systems also play a role in home/host preferences.

The legal structure for cross-border banking does not, in and of itself, affect the likelihood of a bank failure. Legally, a group is obligated to support a troubled branch but may walk away from a troubled subsidiary, but reputational risks may limit the group’s ability to restrain contagion independent of the legal corporate structure. The problems experienced during the recent crisis had less to do with how groups were legally organized than with the underlying weaknesses in risk management, regulation and supervision, supervisory coordination, and crisis management tools.

These complexities argue for policies and practices that avoid bank business strategies and risk taking that pose undue systemic risk. This requires:

- strengthened capital and liquidity regimes to provide sufficient buffers against adverse shocks (e.g., along the lines proposed by the Basel Committee);
- adequate risk governance, assuring prudent risk management systems by banking groups to cover liquidity and funding pressures in both domestic and global markets;
- sound home and host supervisory regimes that are likely to act preemptively when a parent or an affiliate gets into difficulties, regardless of a branch or a subsidiary; and
• effective dialogue and information-sharing mechanisms between home and
host supervisors (e.g., via supervisory colleges) to facilitate decisions about
the groups’ operations, including ensuring participation by host supervisors
in supervisory colleges when the parent bank affiliates are systemically
important in the host country financial system.

Greater and coordinated efforts are also needed to put in place mechanisms
that allow effective resolution of cross-border banks in the event of their failure
(see also Chapter 6 in this volume). This requires, in turn: (i) effective contin-
gency planning arrangements, with a robust safety net that covers deposits in
foreign branches; and (ii) satisfactory cross-border resolution regimes and burden-
sharing arrangements between home and host authorities to provide national
authorities with the legal powers to restructure the viable businesses of such
groups and resolve the unviable ones without major systemic disruptions.

Having these elements in place would contribute to financial stability, make
home and host authorities more indifferent as to specific legal structures, and
allow banks to organize themselves in a way that best fits their business models.
Imposing a particular organizational structure across the board would introduce
inefficiencies and eliminate the advantages a given structure provides to a given
business model, while imposing costs on the group’s ability to manage risks dur-
ding normal times and support affiliates at stressful times.

Until adequate progress is made in designing effective cross-border resolution
regimes, resolving cross-border banking groups that are organized as subsidiaries
may, in principle, be less costly or destabilizing than resolving banking groups
organized as branches. For both retail and wholesale banks, healthy subsidiaries
that operate independently of the parent bank will be better able to survive the
failure of the parent or other affiliates within the group than individual branches,
even though remaining subsidiaries could come under pressure due to confidence
effects. In the event of a restructuring of a banking group, separate subsidiaries
may be sold more easily to other investors and banks.

Although a subsidiary structure may partially address financial stability con-
cerns, this solution does not justify abandoning the efforts to achieve the first-best
solution. Effective and harmonized cross-border resolution regimes accompanied
by equitable burden-sharing mechanisms should remain a key priority, along with
adequate risk management systems, strong capital and liquidity frameworks, and
effective home/host arrangements for supervision and coordination.

APPENDIX 11.I. THE SPANISH CROSS-BORDER
BANKING MODEL

Major internationally active Spanish banks enter host-country financial sys-
tems through locally incorporated subsidiaries more often than other large,
mature-market banks. The subsidiaries typically rely on local deposits and
traditional sources of funding that they believe are sufficient for developing
retail-oriented businesses. In case of domestic liquidity shortages, subsidiaries
can tap the parent for assistance, albeit at a premium. In normal conditions,
however, their business model has been designed to be decentralized, so that subsidiaries are self-sufficient in their funding, which is often raised under their own name. Moreover, some of them have implemented a model with decentralized management of the different currencies in which their business units operate.

The subsidiaries have independent governance, though boards of directors are appointed by the head office. Credit risk is managed at the subsidiary level subject to limits and tailored to specific host regulatory requirements. Risk management and control functions at the group level and individual units are characterized by common policies, tools, information systems, processes, and models.

A number of factors play a role in the choice of such a business model:

- The adoption of the subsidiary structure reflects the fact that the group strategy is based on a retail business model aimed at ensuring viability of the enterprise in the longer run. The guiding philosophy is that basing business on a network of self-financed entities provides for better risk management.

- The decentralized model is partly the legacy of past corporate structures and risk management arising from the groups’ acquisitions. In some cases, a process of delocalization of business units was initiated in Latin America at a time when country risk was perceived to be high. Subsidiarization was a conscious choice to limit the spread of problems in individual units to the parent or the group.

- The home-country regulator, the Bank of Spain, supported a model of decentralized liquidity management. Moreover, in principle, it can limit overseas branching of Spanish banks on the basis of a set of factors (e.g., if the branch is not going to be subject to effective host supervisory control) that are more extensive than those with which it can limit subsidiaries.

Although management of funding is decentralized, the broad strategy of liquidity growth and the guidelines of funding policy are often set at the group level. In some cases, if a new funding tool is to be implemented in a particular country unit, the decision is made by the bank group’s Asset Liabilities Committee with subsequent technical support from the parent.
APPENDIX 11.2. BANKING INDUSTRY VIEWS ON THE STAND-ALONE SUBSIDIARIZATION (SAS) APPROACH

<table>
<thead>
<tr>
<th>Banking Groups Interviewed</th>
<th>Views Expressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Investment Bank A</td>
<td>• Trapping pools of liquidity in legal entities should be avoided, and banks should be able to transfer excess liquidity across the group. The bank uses branches in certain locations and subsidiaries in emerging markets and is concerned about losing flexibility in managing capital and liquidity within the group, which may in turn increase systemic risk.</td>
</tr>
<tr>
<td>Global Investment Bank B</td>
<td>• Concerned about the possibility of trapped liquidity at individual subsidiaries (through cushions of liquidity at subsidiaries and treatment of affiliates).</td>
</tr>
<tr>
<td>Global Retail Bank A</td>
<td>• The benefits to stability are significant and the costs manageable. • Subsidiarization provides a medium-term orientation for the business model, including funding stability and discipline for the local subsidiaries. • An important side effect is the development of local capital markets. • Business models heavily focused on local retail banking with minimal reliance on short-term wholesale funding are very compatible with SAS. • Broader franchise and reputational concerns are “an element” in the decision to provide a subsidiary with capital and liquidity support during a crisis (but at market prices or higher). • Forcing branches to convert into stand-alone subsidiaries would likely have a material impact on corporate lending activity for the bank’s wholesale operations.</td>
</tr>
<tr>
<td>Global Universal Bank A</td>
<td>• Capital and liquidity pools in each of its affiliates and the way the bank is structured to ensure self-sufficiency have served the bank well. The bank is concerned about the loss of ability to initiate cross-border support within the group to cope with a temporary liquidity crisis and support affiliates when needed. The loss of these capabilities would be detrimental to the group as a whole. Reputational cost of not supporting subsidiaries is high. It is good to keep flexibility in structure.</td>
</tr>
<tr>
<td>Global Universal Bank B</td>
<td>• SAS will stop consolidation. Country by country silos will reduce banks’ ability to expand in other countries and fund large customers. It will have direct effects on their business models since the banks tend to use a branch model for wholesale activities and a subsidiary model for retail activities. What is needed is an articulation of an effective exchange of information between home and host authorities.</td>
</tr>
<tr>
<td>Global Universal Bank C</td>
<td>• There should not be a forced change to a banking group structure; a mix of branches and subsidiaries should be permitted based on the business model of a particular group. • What is needed is better control/monitoring of capital and liquidity flows within the banking group; enhanced capital and liquidity regimes; effective coordination of regulation and supervision by home/host authorities; strong risk management and governance by banks; establishment of crisis management and contingency mechanisms. • Capital and liquidity being ring-fenced in different parts of the world will reduce the ability to serve large clients, manage liquidity risks, cope with stressful conditions; will lead to higher cost and reduced availability of credit; and cause increased concentration of risk.</td>
</tr>
</tbody>
</table>
This appendix illustrates the potential impact of ring-fencing (i.e., different restrictions on cross-border transfers of excess profits and/or capital between a parent bank and its subsidiaries located in different jurisdictions) on cross-border banks. The cost of ring-fencing for banks is measured in terms of the amount of additional capital that might be needed if these banks were restricted in the extent to which they could reallocate excess profits and capital across jurisdictions following a shock to credit quality in an affiliate. In particular, this appendix simulates the potential capital needs of 25 major European cross-border banking groups resulting from a credit shock affecting their affiliates in central, eastern, and southern Europe (CESE). The simulations show that under stricter forms of ring-fencing, sample banking groups have substantially larger needs for capital buffers at the parent and/or subsidiary level than under less strict (or in the absence of any) ring-fencing.

**Data**

The analysis focuses on 25 European cross-border banking groups that are domiciled in Austria, Belgium, Denmark, France, Germany, Greece, Italy, the Netherlands, and Sweden and that have significant presence in the CESE region (Figure 11.3), including through their 113 subsidiaries operating in 18 CESE countries. Although the main focus is on the groups’ indirect exposures through the subsidiaries incorporated in the CESE countries, their direct cross-border lending and lending through branches in the CESE region are considered as well.

19For more details, see Cerutti and others (2010).
Methodology

The CESE credit shock refers to the deterioration in macroeconomic conditions over the period of 2009–10 that led to an increase in nonperforming loans and a decrease in returns on assets of the CESE subsidiaries. The simulation of the shock relies largely on the actual data for 2009 and on projections using panel regression models for the CESE country-level nonperforming loans and returns on assets for 2010.

The capital needs resulting from the CESE credit shock are estimated in two steps:

- For each subsidiary, the capital need is defined as the amount of capital required to bring its postshock capital-asset ratio back to either the country-specific (Basel II) regulatory minimum or to the subsidiary-specific preshock level. The latter is conservative in that it requires subsidiaries not to run down preshock buffers.

- At the group level, total capital needs are computed by adding up all the capital needs of individual subsidiaries (and also losses on direct cross-border exposures of parent banks, in some simulations) and offsetting them against any other funds (i.e., excess profits and/or capital) that can be reallocated from other parts of the banking group.

Hence, the resulting total capital needs at the group level depend on the availability of excess profits and/or capital in the subsidiaries and parent bank, as well as on the degree to which these funds (excess profits and/or capital) can be reallocated within a group.
Four scenarios with varying degree of ring-fencing are considered in the simulation exercise (see Table 11.2 for the detailed definitions of the banking groups’ capital needs arising from a shock to their CESE subsidiaries):

- **The no ring-fencing** scenario assumes that the parent bank’s profits, as well as subsidiaries’ excess profits and excess capital buffers, can be used to cover a capital shortfall in any of the subsidiaries.
- **The partial ring-fencing** scenario assumes that the parent bank’s profits and only its subsidiaries’ excess profits, but not excess capital, can be reallocated within a group.
- **The near-complete ring-fencing** scenario assumes that only transfers from the parent to the subsidiaries are allowed.
- **The full ring-fencing**, i.e., stand-alone subsidiarization (SAS), assumes that no transfers between any of the group’s affiliates (including from the parent bank to subsidiaries) can take place.

**Results**

For the sample cross-border banking groups, the differences between capital needs under different forms of ring-fencing turn out to be significant: in the ring-fencing/SAS scenarios, the sample banks’ aggregate recapitalization needs are 1.5–3 times higher than in the case of no ring-fencing in response to a simulated credit shock affecting the banks’ CESE subsidiaries over the 2009–10 period (Figure 11.4).

The results are robust to variations in the methodology for computing the banking groups’ recapitalization needs, including (i) adding losses incurred on direct cross-border lending and lending through branches in the CESE region; (ii) redefining the recapitalization need of a subsidiary as the amount of capital required to bring its postshock capital-asset ratio back to the subsidiary-specific preshock (end-2008) level (instead of the country-specific regulatory minimum); and (iii) using different approaches to compute the postshock adjustment in risk-weighted assets for the postshock capital-asset ratios (standardized versus the Basel II Internal Ratings Based approach).

**Table 11.2**

<table>
<thead>
<tr>
<th>Degree of Ring-Fencing</th>
<th>Capital Needs After a CESE Credit Shock (if positive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No ring-fencing</td>
<td>CN(1) = sum of capital needs of all CESE subsidiaries — sum of excess profits and capital of all CESE subsidiaries — profits of the parent bank</td>
</tr>
<tr>
<td>Partial ring-fencing</td>
<td>CN(2) = sum of capital needs of all CESE subsidiaries — sum of excess profits of all CESE subsidiaries — profits of the parent bank</td>
</tr>
<tr>
<td>Near-complete ring-fencing</td>
<td>CN(3) = sum of capital needs of all CESE subsidiaries — profits of the parent bank</td>
</tr>
<tr>
<td>Stand-alone subsidiarization</td>
<td>CN(4) = sum of capital needs of all CESE subsidiaries</td>
</tr>
</tbody>
</table>

Note: CN = capital needs
Figure 11.4  Aggregate Capital Needs Resulting from a CESE Shock (in billions of dollars)
Source: Authors’ estimates
Note: CAR = capital-asset ratio; CN = capital needs.
Redesigning the Contours of the Future Financial System

Laura Kodres and Aditya Narain

INTRODUCTION

The crisis has elicited wide-ranging discussion and deep introspection about what the future contours of the financial system should look like, particularly about how regulation and supervision should be reformed to encourage a financial system that better mitigates systemic risks. This chapter discusses the weaknesses prevalent in the run-up to the crisis, the probable changes in the regulatory environment, and how the financial system is likely to be shaped by them as opposed to what the future contours of the financial system should look like. The chapter also explores the role that the IMF can play in moving toward a more robust and stable global financial system.

A financial system should provide society with the means of matching saving and investment so as to transform today’s resources into tomorrow’s consumption—and to do this efficiently and safely. Ultimately, a smoothly functioning financial system should help to produce stable and sustainable economic growth. In the run-up to the crisis, some of these goals were not met—the behavior of market participants, policymakers, regulators and supervisors, and others interacted in ways that gave rise to extreme instability, resulting in levels of government intervention into the private sector of advanced economies that have not been experienced since the Great Depression.

Although there were many causes of the crisis, the crisis illustrated that regulation and supervision were inadequate for the risks that were undertaken by the market. Implementation and enforcement of existing regulation was also too lax, reflecting a steady drift toward a more hands-off supervisory style in which the belief that the private sector “knows best” was permitted to take hold. In some countries, this caused an under-resourcing of supervisory agencies that then were unable to stay on top of market practices. Moreover, supervisors focused too much on risks of individual entities or markets without explicitly factoring in the potential for a buildup of systemic risks that could result in crisis.

1An earlier version of this chapter was also issued as an IMF Staff Position Note (SPN/10/10) on August 16, 2010.
The regulatory reforms that are emerging in policy discussions are aimed at moving the overall financial system to a lower point on the risk/return trade-off—lowering risks, raising costs, and thus, most likely, lowering returns earned by the sector. Ideally, on economic efficiency grounds, this would be best accomplished by establishing price-based incentives for important parts of the financial system to avoid extreme systemic risks—essentially by making it more expensive for institutions to do so. Alternatives, albeit less preferable, would involve outright quantity constraints on positions, the size and scope of activities, or even limits on the types of instruments that can be purchased or sold. In various venues, both approaches are under discussion.

A financial system that is more tightly regulated and takes less risk is probably less likely to cause large gyrations in financial stability and real economic activity, but at the same time it could be associated with slower economic growth. Although formal studies are scarce, there is a supposition that economies with more financial innovation, higher leverage, and greater ability to take on risks are associated with a steeper economic growth path at least for some time. This effect, of course, is difficult to disentangle from other influences, such as those from fiscal and monetary policies and other factors that accelerate the transmission from real sector innovation to output. Nonetheless, the recent experience suggests that higher growth that is spurred by poor financial innovation, without economic value, may be illusory and come with a heavy price in the form of crises that may have a significant cost in terms of the longer-term growth trend. That said, a more stable financial system may encourage its use, with savers and investors more willing to use financial intermediaries, thereby raising the economic growth trend.

On the regulatory front, two very different scenarios are possible in the period ahead.

• **Scenario 1:** Having skirted systemic collapses, in part due to the rapid deployment of new government facilities and other support mechanisms, and facing strong resistance from the private sector to new regulation and at least a temporary recovery of profits, the official community allows complacency to set in and the difficult reform agenda is allowed to languish.

• **Scenario 2:** The crisis has been so devastating and generated such a public backlash that every public body wants to be seen as responding vigorously. However, action on numerous fronts by the various public entities could result in over-regulation to a degree that certain markets may simply disappear and valuable financial innovations and products are blocked.

Either outcome would be undesirable. Moreover, there is probably little appetite for removing ineffective or outdated regulations, since this might be perceived as further deregulation. Yet, more balancing of the costs and benefits of the proposed regulations is desirable. In short, what needs to occur is that sensible and better regulation is designed, implemented, and enforced—a Goldilocks solution—not too little, nor too much, but just right to do the job of preventing problems where markets fail to operate properly.
The key questions as to what the future financial system will look like can be summarized as follows. Although formal answers are, at this point, a guess, the outlines—the contours—of the more probable responses can be described.

On the financial system as a whole:
- Will the global financial system be safer and simpler?
- What will be the role of banks (i.e., deposit-taking institutions) versus the role of nonbanks in financing growth?
- Will the domestic financial system be smaller as a proportion of the domestic economy?
- At the global level, will financial integration continue or reverse?

On the banking sector:
- What kind of banking system will we have?
- Will bigger banks dominate or will smaller banks be more prevalent, or both?

On financial markets and instruments:
- Which type of markets will we have? Simpler? More transparent?
- Will there be more organized venues for clearing and settlement versus over-the-counter (OTC) bilateral trading?
- Will certain types of instruments be encouraged or discouraged?

The chapter first reviews how the financial system ended up in the situation of today (see the section below, “What Went Wrong”), before attempting in the third section to answer these basic questions in light of potential regulatory responses. This is followed by a discussion of the role of the IMF in the financial sector reform efforts.

**WHAT WENT WRONG**

The financial crisis unfolded in an environment where financial institutions and other investors were excessively optimistic about asset prices and risk against a backdrop of low nominal interest rates. Indeed, in the five to six years prior to the crisis, several trends signaled that the financial system was becoming more vulnerable.2

First, although not a determining factor in which countries were hit by the crisis, a rapid expansion of the financial sector was evident in many countries. Some of this was spurred by high levels of household borrowing for the purchase of real estate, some of which was based on a loosening of underwriting standards.

Second, reliance on nondeposit-based funding became prevalent in the banking systems of the subsequently hardest hit countries. In part, this development was linked with a need to finance structured credit instruments held in off-balance-sheet vehicles.

---

2The following refers to an examination of these countries: Australia, Brazil, Canada, China, France, Germany, India, Singapore, Switzerland, the United Kingdom, and the United States.
Third, in the banking sector of many countries, trading account income, as well as commission and fee income, rose while net interest income from the traditional banking business was lackluster. Using traditional measures of leverage of banks’ balance sheets, overall banking system leverage was either elevated or grew rapidly in the advanced countries that suffered the most (Germany, Switzerland, the United Kingdom, and the United States).

These same trends were evident in three important emerging market countries (Brazil, China, and India) though to a much lesser degree. Growth in financial system assets was less steep. Banking system assets were mostly stable, implying that what growth did occur was in the nonbank financial sector. However, most of this recorded growth took place in mutual and pension funds, not in leveraged entities, as in the advanced economies. Hence, these countries were initially less vulnerable to the shocks that transpired.

Although the global trends were evident to many onlookers, their potential risks were largely dismissed, in part because of the belief that market discipline would rein in excessive risk taking, at least in market-based systems. But the crisis revealed significant shortcomings in widely held views regarding risk management and the effectiveness of market discipline and self-regulation in the financial sector, as well as in the regulatory approaches based on them.

• Although credit-risk transfer is a powerful innovation, it often did not spread risk to those outside (or even more widely within) the banking system best able to handle the risks, as assumed. Nor did supervisors, and in some cases the banks themselves, understand where risks were located even inside a specific bank. The regulatory focus was on capital standards for credit risk. The increased access to wholesale funding markets was welcomed, but the risk that it could dry up suddenly was largely ignored. Moreover, the use of various “Tiers” of capital and inconsistent treatment of intangible assets let capital of lesser quality count in the regulatory ratios.

• Nonbanks proved to be systemically important, not just because of their size but because of the interconnectedness to other important intermediaries. The size and interconnectedness of nonbank entities therefore caused several to be the recipients of government support previously reserved only for banks.

• Leverage was greater than initially thought, in part because it was embedded in instruments in ways that were not transparent and in part because regulatory ratios did not adequately incorporate some risks. The procyclicality embedded in the financial system was also stronger than initially perceived, due to feedback effects between financial institutions’ balance sheets, asset prices, and the economy, building up latent instability in the upswing and amplifying damage in the downturn.

• Short-term incentive structures, which relied excessively on self-regulation, also encouraged outsized risk taking. Regulators did not recognize that such incentives would undermine market discipline and thus did not impose

©International Monetary Fund. Not for Redistribution
offsetting changes in accounting, transparency, governance, or risk management systems.

• Inadequate resolution schemes for financial institutions and a lack of information about the potential spillovers compounded initial difficulties when they arose.

The inability to effectively supervise and efficiently resolve large, complex, cross-border financial institutions became evident as a major source of moral hazard, systemic risk, and eventual fiscal cost. Subsequent responses by governments also demonstrated that actions cannot be easily directed to domestic institutions or markets without affecting others and can have very rapid effects in other countries during a period of high uncertainty.

As reviewed in detail in Chapter 2 of this volume, the underlying philosophy of regulation changed with the crisis—policymakers recognize that prudential regulation to ensure the safety and soundness of individual institutions will not be sufficient to address systemic risks. The changes being proposed to the framework for financial regulation to address systemic risks fall into one of two broad categories: those that are aimed at reducing the likelihood of future crises and those that are aimed at managing them better.

• Preventive measures. Preventive measures focus on strengthening existing microprudential regulatory requirements and developing a framework for macroprudential (system-wide) regulation and supervision to enhance the shock absorbers available in the system—namely by increasing the buffers to cover losses and liquidity shortages, placing constraints on overall leverage in the financial system, and extending the regulatory perimeter to include all systemically important institutions, markets, and instruments.

• Resolution measures. The latter efforts focus on developing special resolution regimes for financial institutions to assure the continuity of financial services during an unwinding or bankruptcy, avert a disruption in the flows of payments, underpin confidence in the financial system, and help avert panics and runs. They also aim at removing some of the informational and incentive problems that plagued securitized products, as well as at improving transparency of markets. As the crisis has shown, lack of transparency in markets can lead to mispricing, misuse, or risk concentrations and lay the basis for an eventual destabilizing adjustment.

THE FUTURE OF THE FINANCIAL SYSTEM: ACTION AND REACTION TO THE CRISIS AND REGULATORY REFORMS

The aim of many in the international financial community is to make the system less crisis-prone. But what will be the private sector’s reactions to the set of regulations that are being introduced or contemplated?
For the System as a Whole

Will the Global Financial System Be Safer and Simpler?

With higher capital charges and less ability to use leverage in the banking system, will the global financial system be prone to less volatility? Most likely yes, at least for a while. Institutions that carry out maturity transformations (for instance, borrowing short-term to lend longer-term) will be subject to more oversight regarding mismatches between the maturities of their assets and liabilities and will be required to hold more loss-bearing capital, cushioning the institution in downturns. Even without regulatory reform, many institutions are rethinking their risk-taking activities and how they can better align risk taking with employee compensation. The removal or modification of policies that tended to add to procyclicality and exacerbate financial cycles will also reduce the buildups of risk and leverage in the upswing and temper the outcomes of deleveraging and risk reduction in the downswing. The global financial system should become less risky if the reform agenda is carried out.

Will the global financial system be simpler? Again, yes, for the time being. After witnessing how complexity can obscure risks and blunt attempts to resolve crises, simplicity is being welcomed by many investors. Simplicity will be easiest to see in the types of financial instruments produced and traded. During the crisis, counterparty risk was heightened by uncertainties surrounding nontransparent and difficult-to-value complex securities. This has made many financial institutions more wary about these securities. Moreover, some reforms intend to apply higher capital charges on nonstandardized products to encourage standardization. Although there will always be a place for designing instruments and transactions tailored to satisfy specific clients’ needs, less of this activity will occur.

To better anticipate where systemic risks are building up, supervisors and regulators will encourage simpler institutional arrangements among and within regulated financial institutions. This may mean certain activities are only permitted in certain types of institutions. This, in turn, should facilitate better reporting of risk exposures, and alongside that it should lower the hurdles to sharing information across regulatory entities and across borders. The unknown interconnections surrounding credit default swap (CDS) contract holders in the fall of 2008 is a prime example of what both the private sector and the official sector are already addressing through increased use of data repositories and information sharing. Those responsible for overseeing financial stability will also benefit from the ability to see through organizational structures and gain relevant aggregated and disaggregated information.

To the extent that the global financial system becomes safer and simpler, it will have an effect on the overall trend of economic growth. After deleveraging has run its course and the steady state is attained, the safer system should result in a dampening of the amplitude around the growth path. Whether this leads to a higher or lower growth path will depend on whether stability encourages more use of the financial system to intermediate between savers and investors, or whether the regulations have slowed innovation, inhibiting efficient intermediation. However,
it may be that some of the previous increase in the growth potential that was attributed to financial intermediation was illusory and that some financial innovations were counterproductive—producing products that did not benefit society at large. If so, then these resources could be redeployed and better used in other nonfinancial activities, thereby supplementing growth.

**What Will Be the Role of Banks versus the Role of Nonbanks?**

With banks constrained, nonbanks are bound to thrive. Lower leverage and higher required liquidity holdings within the banking system will likely result in greater demand to access credit through capital markets (e.g., corporate bonds). The need for higher lending spreads means that bank credit will be more expensive, and hence those who are able to tap the now relatively cheaper capital markets for funding their investments will be more inclined to do so. Although there may be higher demand for nonbank credit, a question remains as to whether there will be enough incentive to channel savings through alternative financial intermediaries (e.g., mutual funds, life insurance companies) to supply it. Will the less heavily regulated parts of the financial system be able to obtain funding and provide credit to households and corporations to replace the lower amounts supplied by banking institutions? Unless savers become highly risk-averse, placing their funds in protected deposit accounts, intermediation outside the banking system is going to grow.

Because of the higher capital required to be held against risky assets, risky credits will likely shift out of the banking sector to the nonbank financial system. Regulations will need to be adopted to oversee the risks in the nonbank sector better. An important question is whether bank-like regulation will need to be extended to other institutions (e.g., private equity, hedge funds, real estate investment trusts) currently viewed as “nonbank” but similarly characterized by high leverage and asset-liability mismatches in maturity, liquidity, or currency terms. If it does need to be extended, will these institutions also be eligible for access to the same protections provided to deposit holders and for central banks’ liquidity support mechanisms? Alternatively, policymakers may decide that such risk-shifting is acceptable as long as it remains outside a well-protected banking system. The key will be to be transparent about what the acceptable risks are for various institutions to take and what protections apply.

The extent of credit risk transfer (e.g., securitization) outside the banking system that takes place will depend, importantly, on how regulation is formulated. New regulations have already constrained some previously used forms of securitization—generally the more complex forms—but securitization benefits economic growth and should thus be revived on a safer footing. For securitization to be sustained, longer-term investors (insurers, pension funds, and so on) will need to be convinced that the new regulations on securitization are adequate to prevent the abuses that occurred in the run-up to the crisis. But if regulations applied to securitization are too strict, originators may not find it economical to originate loans to distribute, potentially limiting the usefulness of securitization. A careful re-regulation of securitization markets is needed to restart this credit channel.
It could be that other institutional forms are used for risk taking, though they may seek safer ways to take specific risks. Allocations to proprietary trading desks in banks are being scaled back in anticipation of increased regulatory and capital costs. Counterparty risks will be reduced through better margining and centralized counterparty clearing facilities, but with higher costs of financial resources that serve as leverage, hedge funds and private equity funds may try to take on more specific types of risks rather than leverage up on commonly held trades.

**Will the Financial System Be Smaller as a Proportion of the Economy?**

The new higher capital requirements and other regulatory strictures on banks imply that in the steady state, after the deleveraging effects of the crisis have worn off, the banking system is likely to be smaller overall. In the near term, bank deleveraging may overshoot and reduce the size of the banking system below its long-run equilibrium. In this interim stage, the public sector has played, and may need to continue to play, a more important role in support of the intermediation of saving to ensure that credit continues to be supplied. After this interim period, the banking sector will likely be scaled back to a smaller but more stable size, particularly if the activities that a bank is able to undertake are more restricted.

If a smaller banking sector results, the likely size of the financial system, both bank and nonbank (in terms of the value added to the economy, or assets, or assets as a percentage of GDP), could be difficult to judge, with factors pulling in both directions. To the extent that households in advanced economies need to rebuild saving and hence demand other financial services (not necessarily credit services), for example, services related to retirement, the nonbank sector will expand, at least partly offsetting the decline in traditional banking. Alternatively, if households and other investors become more cautious in light of recent shocks, they may prefer to place their funds in low-risk investments, such as insured bank deposits or government securities that do not require much financial management. In that case, depending on how the funds are used, the financial system could shrink overall.

**At the Global Level, Will Financial Expansion and Integration Continue?**

At the global level, the degree of cross-border financial flows is difficult to predict and thus no easy answer is possible. Although many assume that the globalization of finance is an unstoppable trend, the crisis has led some countries to rethink their openness and their vulnerability, skeptical of mature markets’ integrity. Fallout from the crisis may lead some countries to dissuade foreign entrants, and governments may decide to encourage the nationalization of certain financial institutions. Domestic investors may prefer to invest at home. There could be a generalized pull-back from cross-border relationships as the cost of managing a global institution on a consolidated basis increases, offsetting the gains that can come from managing liquidity on a global basis. Outright protectionism, such as instance prohibitions of foreign ownership of domestic assets or firms, may increase, though it should be resisted.
On the more positive side, if globally connected institutions are identified and their contribution to systemic risks, if any, is dealt with through enhanced cross-border cooperation to prevent crises or manage crises if they occur, globalization could be enhanced. Regarding the prevention of crises, globally accepted methods are not out of reach. For instance, the oversight of some cross-border financial institutions is being strengthened through “colleges of supervisors,” in which supervisors from different countries exchange supervisory information and examination strategies about financial institutions that operate in each of multiple countries. The various international bodies that coordinate banking supervision, securities market oversight, and accounting rules already provide venues for discussion and re-regulation.

That said, there are some very difficult issues when it comes to managing and resolving crises that still require agreement, including the application of insolvency regimes and the sharing of losses. Some groups, including the IMF, are working to develop proposals for cross-border resolution regimes. The IMF has recently proposed an approach to cross-border resolution focused on enhanced coordination among national authorities (see Chapter 6). This proposal does not involve legally binding instruments such as treaties but, rather, promotes cross-border collaboration between countries that adhere to certain “core coordination standards.” These core standards would seek to ensure that national bank supervisory and insolvency regimes were sufficiently robust and harmonized in key areas and that national bank insolvency regimes treated domestic and foreign creditors in a nondiscriminatory manner (IMF, 2010g).

Emerging and developing economies have made good progress over the years in adopting global financial standards, constructing compatible market infrastructure, and improving their legal systems. In many cases, these economies have reaped the benefits of their financial development. However, the crisis has shaken confidence in this approach, causing some countries to question whether they are adopting potentially flawed regulations and supervisory practices. Is the “originate to distribute” model employed by financial institutions in some advanced countries still to be emulated? To keep globalization moving forward to the benefit of all countries, emerging and developing countries should continue to adopt tried and tested financial regulation and infrastructure, making sure their systems are resilient and robust.

For the Banking Sector

What Kind of Banking System Will We Have? Bigger Banks? Smaller Banks?

Whether large global banks become smaller or the system is made up of fewer very large institutions (i.e., more concentrated), or smaller ones, or some of each, depends on several forces. The most likely outcome is a more bifurcated system. Higher capital requirements and a supervisory focus penalizing “size” and complexity could drive banks to curtail growth and to divest themselves of noncore businesses. Even without additional regulation, the higher-cost environment and the recent difficulty of managing complex organizational structures may cause
Redesigning the Contours of the Future Financial System

Bank managers to decide that divesting business lines and being more specialized may improve profitability. Indeed, some large banks are doing this already. Smaller, cooperative banks or mutual institutions may also thrive. These banks, less reliant on shareholders’ expectations, were generally able to avoid many of the mistakes made by larger private sector institutions. Though not always considered the most efficient, vibrant, or innovative institutions, in many countries they dependably and safely supply the small and medium-sized enterprises and many households with their credit needs.

Pressures that lead banks to become larger include a funding advantage for firms believed to be “systemic” or too important to fail (TITF) and thus backstopped by the government, remuneration schemes linked to size or number of deals rather than risk-based profitability, and a belief that a “full service” global bank is necessary to service clients requiring a global reach and broad product capabilities. As noted above, regulations are directed toward changing this landscape, making it more expensive to become systemically important. Competition policy, however, is ill-suited to address systemic risk, given its focus on financial product pricing distortions rather than financial stability. As a result, determining whether financial stability will be undermined by a financial institution's merger or acquisition should be undertaken not by competition authorities but by those assigned the task of maintaining financial stability. New methods for this type of analysis will be required, since it is much more related to issues of interconnectedness and the overall importance of an institution for the financial system rather than whether prices of bank services are too high because of a lack of competition with other banks. Thus, new measures need to be designed alongside actions to dissuade institutions from acquiring the status of TITF.

It may be that the new financial system forces a more tiered system, with some banks becoming larger and others opting to be smaller. Some banks may be willing to pay the “systemic risk tax” (the design of which is being avidly discussed) and remain large or even grow larger and expect to receive public support once having paid their dues. Other banks may decide they are unlikely to need public support and prefer to avoid the additional costs that go with systemic importance, deciding to divest themselves of some business lines or become smaller to avoid such a tax.

For Financial Markets and Instruments

What Type of Markets Will We Have? Simpler? More Transparent?

More transparent markets with greater amounts of trade information supplied to them should be forthcoming to satisfy investor requirements. Already in many markets, participants are demanding better information and are receiving it. The calls for standards on information provision and best practices are emerging to cover a number of areas previously deemed to have lax reporting or where little information was available. If improvement is not provided by the private markets on their own, given that opacity is often in the interest of private firms, regulators should assess what information should be given out (and what should not) and to whom the information should be provided, as well as the cost of collection and disbursement. Too much information about an institution’s positions or exposures
could lead others to behave strategically in a way that undermines the trading process. However, further global coordination on what confidential information could be reported to supervisors could lower costs and allow various authorities to foresee dangerous developments.

**More Organized Clearing Venues versus Bilateral OTC Trading?**

Risk mitigation infrastructure will be an important part of the new financial system, with clearing facilities developing to lower OTC risks. The ability to identify and unwind positions smoothly is a prerequisite to allowing shocks to be absorbed easily in a financial system. This lesson is being relearned, since much of the recent instability arose because of a lack of transparency in OTC markets about who owed what to whom, which increased perceived counterparty credit risks. For instance, the troubles in counterparty risks in credit default swaps—all of which were traded OTC—has motivated netting initiatives and the construction of several central counterparties (CCPs) for these contracts. Through multilateral netting, these CCPs allow counterparties to offset exposures with each other in a way that lowers the overall exposures to the participating counterparties. By putting many trades in one place, however, the structural integrity of a CCP needs to be impeccable so that it can withstand the default of one or more of its counterparties without others being affected.

Although CCPs are effective when instruments are standardized, other mechanisms will also reduce risks, such as valuation and matching facilities. More robust margining systems, in which cash or collateral is held to protect against default or nonpayment, will also help in this regard. Already, resources devoted to these issues are bearing fruit in the form of better modeling of margining systems and the development of trade repositories.

**Will Some Instruments Be Encouraged or Discouraged? For Which Institutions/Investors?**

Regulation will both explicitly and implicitly discourage certain types of instruments or markets. It is important that this be done consciously and not left to the realm of unintended consequences of actions taken. Regulation is mostly likely to discourage instruments that contain a high degree of risk (especially leverage), are difficult for users or investors to price, and may have some type of systemic or destabilizing effect on markets. Although standardization is to be encouraged, it will also make it more difficult to hedge custom-made or specialized risk, raising costs to some set of end users. Overall, then, the key will be to ensure that there are standards defining acceptable use by certain types of investors and greater disclosure of a product’s risks and returns.

If regulation is insufficiently consistent globally, however, the use of some types of instruments will simply move to unregulated, or less regulated, jurisdictions. This is especially problematic when the jurisdiction now originating the associated risks does not have the capacity to oversee their effects, particularly when the impact is felt cross-border. Worries about offshore financial centers fall into this category.
THE ROLE OF THE IMF

The IMF is playing a key role in the development of financial regulation and its implementation by national authorities. The IMF serves as a forum to ensure that reform efforts are sustained, coordinated, and globally consistent. With its knowledge of members’ financial systems and experience in monitoring global standards and codes, the IMF is uniquely positioned to help ensure that a redesigned financial system benefits all its members, not just some. It is able to see the pros and cons of different regulatory structures, what has worked well, and what has not, and can help translate this into practical regulation. The IMF could advise countries about where they could best place a mandate for financial stability, depending on their current financial architecture. It may thus be able to help minimize collateral damage to households and firms that would otherwise occur if the reform of the financial system failed to occur or occurred in an uncoordinated way, leading to an unlevel playing field. Through its surveillance activities, the IMF could help to bring peer pressure to bear on those countries that fail to conform to international best practice.

To help foster a more stable global financial system, the IMF will need to refine its surveillance of the financial system using a more global approach, including by looking at the connections between the financial system and the macroeconomy—the so-called macro-financial linkages—and to remove the data gaps that inhibit the observation of various linkages. IMF policy advice is being strengthened by enhancing the interaction between multilateral and bilateral surveillance and through more targeted technical assistance in the areas of supervision, regulation, and crisis management. Assessment of contingent fiscal liabilities to the financial sector and their impact on systemic risk is becoming a particular focus.

The IMF already contributes to ongoing discussions on regulatory reform through its interactions with the financial sector standard setters, specifically the Basel Committee on Bank Supervision, the International Organization of Securities Commissions, the International Accounting Standards Board, and the International Association of Deposit Insurers. The IMF has been increasingly interacting with the Financial Stability Board (FSB) and the Bank for International Settlements (BIS) on topics of mutual interest. The roles of these bodies will become further intertwined as the FSB helps advance the agenda for international financial regulatory changes, the BIS collects data and performs research, and the IMF brings to bear its members’ experience, tracking and encouraging the implementation of new standards and regulatory changes through its surveillance activities and technical assistance.

There is already an explicit expectation from the G-20 that the Financial Sector Assessment Programs (FSAPs) and the reviews of standards and codes process be expanded to include surveillance of the evolving framework of macro-prudential supervision once it is in place. The IMF’s unique position in monitoring implementation and enforcement through the FSAP should help to spur reform efforts. To assure compliance with emerging regulations, best practices,
and guidelines, the IMF has recently developed additional methods for reviewing the implementation of new standards and codes, and adopted proposals for making the FSAPs and reviews of standards and codes more flexible in their application and more targeted and timely in their delivery.

CONCLUSION

In sum, the overall contours of the future financial system will likely be a simpler, safer, higher-cost financial system with perhaps slower but more stable growth and fewer crises—assuming financial regulation and supervision are effectively reformed. The financial system will evolve to where there is less leverage, less profit, but more bona fide intermediation between savers and investors. This new and improved system may look less innovative and dynamic and more old-fashioned, but it will likely deliver financial products that do a better job of satisfying the needs of households and firms. There will probably be less credit provided exclusively by banks and a larger diversity of types of institutions in the nonbank sector. Some banks may become smaller and more specialized, others may continue to be large and global, but with tighter strictures and oversight on how they operate.

To get to this safer, sounder financial system, coordinated and consistent implementation of better, smarter regulation and oversight will be needed. The IMF is well placed to help its member countries obtain this objective. The recognition that individual financial institutions were inadequately regulated and supervised, in part because they were evaluated without regard to their increasing interconnections and the systemic risks they posed, will lead to a regulatory framework that is more holistic and better suited to mitigate systemic risks. For this to occur, however, monetary, fiscal, and financial authorities need to work together across their usual policy boundaries to make sure their policies are not at cross purposes. The more regulation can be made to set incentives so that the private sector operates safely and effectively, the less constrictive it will need to be. There is a risk, however, that at least some influential parts of the private sector will resist even “incentive compatible” regulations, since their flexibility and compensation would be reduced. Reforms will therefore need to be introduced with determination. To make such a transition to the new system in the more globalized financial world of today, a firm commitment to do so and international cooperation on the new financial regulatory structure will be essential.


References


©International Monetary Fund. Not for Redistribution


References


FINMA (Swiss Financial Market Supervisory Authority), 2011, “Addressing ‘Too Big to Fail’: The Swiss SIFI Policy” (Bern, June 23).


Goodhart, C., 2010a, “Are CoCos from Cloud Cuckoo-Land?” VoxEU.
References


______, 2010b, “European Bank Bail-In Survey Results,” J.P. Morgan, Europe Credit Research (October 14).


International Association of Insurance Supervisors, 2003, “Insurance Core Principles and Methodology” (Basel, October).


References


©International Monetary Fund. Not for Redistribution


Index

[Page numbers followed by f, n, or t refer to figures, footnotes, or tables, respectively.]

A
Accountability
  of macroprudential authorities, 30
  subsidiarization rationale, 226
  of supervisors, 5, 20, 21, 93, 94

B
Bail-in proposals, 151–153, 172
Bank for International Settlements, 5, 24, 29, 30, 258
Bank holding companies, 54, 201, 204, 205, 207, 209
Bank Holding Companies Act, 205
Basel Committee on Banking Supervision
capital and liquidity requirements, 3, 18, 38, 43–52, 57, 161, 182–183
countercyclical risk calculation, 29, 41–42
Core Principles for Effective Banking Supervision, 87, 88–89
  in future of regulatory reform, 258
  minimum common equity ratio, 144, 163–164
  phased implementation of capital and liquidity rules, 4, 18–20, 19r, 40, 41t, 46, 64t, 182
  point of nonviability proposal, 169–170
  regulatory reform proposals, 38–40
  on supervision of cross-border operations, 58, 234–235
Bear Sterns, 72

C
Capital and liquidity buffers
  composition, 19–20, 40, 43, 54, 63–64
  current reform efforts, 3
  effects of reform proposals on LCFIs, 43–52, 57
  effects of reform proposals on size of financial system, 254
  goals for financial system, 1, 16
  goals of new prudential regulation, 78
  intangible and qualified assets in, 19–20, 40, 63
  macroeconomic impact of reforms, 18
  market-maker obligations to improve, 81
  methodology for estimating impact of reforms, 61–64
  origins of global financial crisis, 14, 18
  phased implementation of Basel III requirements, 4, 18–20, 19r, 40, 41t, 46, 64t, 182
  reforms in response to global crisis, 18–20, 40–41, 163–164, 182–183
  risks for centralized LCFIs, 104–105
  safeguards to prevent systemic risk, 57–58
  for SIFIs, 8, 145–146, 154, 170, 171
See also Contingent capital instruments
Central banks
  access to discount withdrawal facility, 201
  access to emergency liquidity facilities of, 28, 120, 121, 146, 165, 172
  in development and use of macroprudential policies, 30
  regulator relationship, 93
  risk assessment activities, 82

©International Monetary Fund. Not for Redistribution
Central counterparties clearance, 27–28, 257
Choice between branch and subsidiary structure
business model considerations, 226–227, 229–230
cost considerations, 225, 237, 242–244
credit supply considerations, 232–233
current geographical distribution, 227, 231–232
degrees of centralization, 222, 223–224
determinants of, 222, 228–230, 238
financial stability and, 223–227
home/host country factors in, 227, 228–229
liquidity management considerations, 226
management structure and function, 224
policymaker perspective, 232–237, 238
resolution considerations, 236–237, 239
risk management considerations, 226, 238–239
sharing of affiliate losses, 225, 235
stand-alone subsidiarization, 236, 241–242
supervision responsibility, 222, 233, 234–235
trade-offs in, 221–222, 235–236
vulnerability to shocks, 225, 233–235
See also Cross-border operations; Subsidiarization
Clearing and settlement activities, 27, 54, 77, 79, 81, 127, 226, 257
Collateralized debt instruments, 80
Collateral valuation, 27
Competition
distortions associated with SIFIs, 136
expected reform outcomes, 11
goals for financial system, 1, 17
Volcker Rule effects, 209
Concentration of banking system, 39f, 134f, 255–256
Contingent capital instruments
applications, 165, 173
conversion rate, 166–167, 180–181
in crisis management framework, 8, 26, 173
current interest in, 145, 161
with debt write-off features, 166–167
design, 173
distinctive features, 163
future prospects, 167–169, 173
versus hybrid instruments, 163, 182–184
as loss-absorbing buffer, 170–172
modeling of, 163, 173–177
monitoring, 173
purpose, 162
rationale, 8, 145, 161, 163–164
recent implementations, 169–172
tax and regulatory treatment, 167–168
trigger conditions, 26, 164–166, 169–170, 173, 178–179
Contingent convertible bonds. See Contingent capital instruments
Counterparty risk, 252, 254, 257
Basel Committee proposals, 18, 40, 61, 140
branch versus subsidiary model, 226
concerns, 27
oversight, 73, 76, 81
requirements for ring-fenced banks, 211, 214
Credit default swaps, 80, 252
Credit rating agencies, 28, 204
Cross-border operations
centralization decisions, 222
crisis prevention and preparedness, 109, 111
future prospects, 254–255
growth of, 103–104
implementation of recovery and resolution plans, 192
implications for utility banking proposals, 200
international standards for supervision, 108
need for international coordination on, 237
origins of global financial crisis, 2, 38, 238
proposal for subsidiary structure of SIFIs, 10, 56–57, 112, 143–144, 190–191
as source of systemic risk for host jurisdiction, 105
Spanish model, 239–240

©International Monetary Fund. Not for Redistribution
structure and organization, 104–105, 221–223
supervisory function in, 96, 103, 233, 234–235
See also Choice between branch and subsidiary structure; Resolution framework for cross-border banks

D
Deferred tax assets, 63–64
Deposit guarantee scheme, 120
Derivatives markets
  clearing facilities, 257
effects of reforms, 52, 54–55
evolution of financial industry supervision, 74, 84
scope of regulation, 81
strategies for improving resilience of, 27–28
systemic risk prevention, 141n
Dodd-Frank Act, 54–55, 142, 150
  See also Volcker Rule

E
Economic growth
effect of capital and liquidity requirement reforms, 18
future prospects, 252–253
goals of financial system reform, 3, 247
risk taking and, 16, 248
size of financial sector, 15f
effects on structure of banking system, 255–256
future prospects, 12, 15–16, 32, 248–249, 251–257
goals, 1, 2, 3, 11–12, 16–17, 31–32, 247
macroprudential strategies for enhancing resilience, 24–30
rationale, 59–60
response to global crisis, 2, 3f, 11, 13, 15–16, 35–36, 38–42, 247, 251
role of International Monetary Fund, 258–259
  See also Implementation of reforms; Regulation
Fixed income, commodities, and credit instruments, 54–55
Fortis Group, 109, 110

G
Glass-Steagall restrictions, 142, 204–205
Global financial crisis
  bail-out rationale for TITFs, 194
determinants of country outcomes, 83
effects of hybrid capital instruments, 163
lessons of, 75, 247
reform efforts in response to, 2, 3f, 11, 13, 15–16, 35–36, 38–42, 72–73, 161
regulatory approach preceding, 71–72
supervision failures in, 86–87
Global systemically important banks, 145, 170
Group of Twenty, 1, 13, 22, 27, 30, 38, 71, 96, 101, 186

H
Hedge funds
  assessment challenges, 207
contingent capital instruments market and, 168, 182
Glass-Steagall restrictions, 205
rationale for regulation, 76, 203
regulatory response to crises, 72, 73, 76
Volcker Rule requirements, 26, 52, 54, 142, 204, 207
Household borrowing, 249
Household borrowing and saving, 254

Implementation of reforms
international framework for resolution, 23–24, 58, 102, 124–125
key tasks, 3
monitoring effects of, 31
need for global consistency and coordination in, 11, 31, 32, 56, 58, 101
phased-in capital and liquidity requirements, 4, 18–20, 19t, 40, 41t, 46
policy implications of SIFI reform proposals, 216–217
prevention of unintended consequences of regulatory reforms, 75
private sector role in, 3, 13
recovery and resolution plans, 9, 151, 188–189, 191
role of international institutions, 13, 32, 33t, 258–259
significance of, in reform effectiveness, 87
systemic risk shifting in response to, 4, 8, 36, 56, 193, 195, 200, 216–217
Independent Commission on Banking (United Kingdom), 144, 204, 209–215, 216
Insurance, bank involvement in
Basel capital requirements, 45, 53
globalization trends, 103
market value of, 156
principles of supervision, 90
reforms in response to global crisis, 72–73
supervision before global crisis, 84
Interest rates
competitive advantages of SIFIs, 136, 136f
macroprudential policies to reduce systemic risk, 30
International Accounting Standards Board, 258
International Association of Deposit Insurers, 258
International Association of Insurance Supervisors, 82, 87, 90
International Monetary Fund, 2, 5, 13, 17, 18, 24, 27, 28, 29, 30, 32, 33t, 58, 147, 255, 258–259
International Organization of Securities Commissions, 80, 81, 82, 87, 89–90, 258
International Swaps and Derivatives Association, 127
Investment banks
branch versus subsidiary structure, 226–227
definition, 156
effects of regulatory proposals, 52, 53f, 54–55
proposed capital and liquidity requirements, 4, 44–45, 52
Volcker Rule requirements, 203

L
Large and complex financial institutions (LCFIs)
asset composition leading up to crisis, 38
definition, 35n
effects of proposed capital requirements, 42–47, 61–64
effects of proposed liquidity requirements, 42–43, 47–52, 48t
effects of proposed regulations, 36–37, 56
evolution of financial industry supervision, 85
financial system reform needs, 2
growth of, 103–104
origins of global financial crisis, 2, 35, 37–38, 134, 251
reform efforts in response to global crisis, 36
risks for centralized organizations, 104–105
structure and organization, 104
See also Systemically important financial institutions (SIFIs)
Lehman Brothers, 22, 27, 72, 109, 110

©International Monetary Fund. Not for Redistribution
Leveraging of financial system
   current reform requirements, 40
   filter rule test, 218–220
   goals of new prudential regulation, 78
   origins of global financial crisis, 14, 218, 250
   rationale for regulation, 75–76, 77
Liquidity Coverage Ratio, 40
Living wills. See Recovery and resolution plans
Long-Term Capital Management, 73, 76

M

Macroprudential policies
   financial system reform needs, 3, 30
   goals for financial system reform, 17
   monetary policy and, 30
   reform rationale, 59–60r
   reforms in response to global crisis, 2, 41–42
   research needs, 30, 31
   strategies for increasing systemic resilience, 24–29
Market functioning
   branch versus subsidiary structure
      considerations, 227, 230, 233
   distortions associated with SIFIs, 136–137
   entry and exit, 1, 17
   future prospects, 256–257
   origins of global financial crisis, 72, 75
   strategies for enhancing resilience in, 27–29
   transparency, 29
Microprudential policies
   goals for financial system reform, 17
   reform rationale, 59–60r
   reforms in response to global crisis, 2
   strategies for increasing institutional resilience, 17–24
Mortgage servicing rights, 64

N

Narrow funding banks, 193, 195,
   201–202, 217
Net stable funding ratio, 19, 40–41, 49
   methodology for assessing impact of, 65–66r
Nonbank financial system
   future prospects, 253
   in global financial crisis, 15
   growth of, 16f, 250
   regulatory goals, 17, 19, 31, 253
   resolution, 6, 23, 103, 106, 150

O

Off-balance-sheet activities
   accounting rules, 29, 149
   current status, 15
   regulatory reforms, 72
   supervision, 86, 91
   trends before global crisis, 35, 72, 84, 249

P

Prevention and preparedness, 109, 111, 251
Private equity investments
   bail-in debt to aid resolution of, 151–153
   regulatory goals, 76, 82
   Volcker Rule on, 26, 52, 54, 142, 204, 205
Private sector
   debt-for-equity conversions for resolution, 22–23
   funding of resolution process, 120–122
   in implementation of reforms, 3, 13
   industry views on potential impacts of reforms proposals, 67–69r
   origins of global crisis, 2
   supervisor relationship with, 95
Procyclicality
   contingent capital investments and, 8, 170, 173, 183–184
   current reform efforts, 41–42
   goal of reforms, 1, 2, 16, 24, 252
   origins of global financial crisis, 250
   research needs, 29
Proprietary trading
   complementary regulations to ban on, 216, 217
   filter rule test, 218–220
   future prospects, 209, 254
   LCFI activities, 56r
   Volcker Rule on, 26, 52, 54, 142, 203, 204, 205, 207, 209

©International Monetary Fund. Not for Redistribution
R

Rabobank Senior Contingent Notes, 167
Recovery and resolution plans, 22
benefits, 188, 191
in crisis management framework, 186
cross-border implementation, 192
data needs for, 187, 188–189
definition, 185
development of, 187–188
effects on business strategy, 56–57
goals for SIFIs, 186, 237n
implementation challenges, 9, 151,
188–189
interaction with other plans, 189–191
policy implications, 191–192
rationale, 9, 151, 185–186
recent implementations, 191
recovery component, 186–187
resolution component, 187
structure, 151
subsidiarization and, 237
Reducing size of SIFIs
challenges to, 10, 143
potential negative consequences of,
10, 22
rationale, 9, 142, 194
recent initiatives, 142–143
separation of financial and nonfinancial
activities, 79–80, 142–143
strategies for, 9, 22
structural constraints to, 26–27
utility banking proposals, 196–201
Regulation
branch versus subsidiary structure
considerations, 227, 228, 233–235
of companies with financial and
nonfinancial activities, 79–80
conduct-of-business, 77
of credit rating agencies, 28
current compliance with good
practices, 20, 21f
design of new prudential regulation,
77–80
effects of proposals on LCFIs, 36–37
financial system reform needs, 2, 3, 31
future prospects, 32, 248, 251–257
goals for financial system reform, 17,
73, 75–77
implications for bank business
strategies, 52–56
industry views on potential impacts of
proposals, 67–69t
lessons from global crisis, 4, 75
of nonbank institutions, 253
organization and governance of, 80
origins of global financial crisis, 2, 4,
13, 14, 15, 37–38, 72, 73–75, 86,
247, 250–251
prevention of unintended
consequences of, 57–58, 72, 75
procyclicality risk, 16, 24, 41–42, 147
of products, 80–81
rationale for limiting, 71–72, 75
rationale for wider perimeter of, 4, 17,
58, 71, 75
recommendations for expanded
perimeter, 73, 75, 82
reform challenges, 4–5
reforms in response to global crisis, 2,
3f, 11, 13, 15–16, 35–36, 38–42,
72–73, 248, 251
research needs, 31
scope of financial institutions subject
to, 77, 78–79
supervision and, 5, 93
systemic risk assessment to determine
boundaries of, 25, 82
systemic risk shifting in response to, 4, 8,
36, 56, 193, 195, 200, 216–217, 253
Remuneration practices, 74
Repo markets, 27
Resolution framework for cross-border
banks
authority for, 116–117, 125
basic elements, 114–115
challenges to development, 6, 9
communication and information
management in, 124
coordination standards for, 115,
116–119, 255
corporate solvency model, 112–114
costs of current approach, 108–109
creditor safeguards in, 117, 118
Cross-Border Bank Resolution Group
initiatives, 110–112, 125–127
current status, 150, 255
deposit guarantee scheme, 120

©International Monetary Fund. Not for Redistribution
funding of resolution process, 115, 120–122
harmonization of national law for, 116–118
implementation issues, 23–24, 58, 102, 124–125
leadership for implementation, 122–123
modification of national law for, 114, 115–116
national frameworks, 105–107
need for, 6, 17, 58, 101–102, 103–104, 124, 153, 237, 239
nonbank institutions and, 103, 106, 123
objectives, 101–102, 251
obstacles to, 150
proposed structure, 6, 23
risk mitigation mechanisms, 126–127
scope of activities in, 102
strategies for, 22
supervision frameworks and, 103, 107, 108, 118–119
territoriality approach to insolvencies, 107
transfer of contractual relationships, 127
treaty approach, 102, 111–112
United Nations Model Law, 113, 127–131
universality approach to insolvencies, 107, 111–112, 114
See also Cross-border operations
Resolution of failed institutions
bail-in power to aid in, 151–153, 172
cross-border banks. See Resolution framework for cross-border banks
current status of plans for, 6
debt-to-equity conversions for, 22–23, 151
funding for cost of, 22
goals for financial system, 1, 3, 16, 17
lesson from global crisis, 22
levy on SIFIs to reduce effects of, 22, 25–26
origins of global financial crisis, 251
proposed framework, 23–24
reform challenges, 6, 23
SIFIs, 6–7, 8, 149–151
significance of, in reform effort, 6, 22
strategies for, 22
use of contingent capital instruments, 165, 166
See also Recovery and resolution plans
Ring-fencing
capital costs, 242–244
cross-border resolution and, 23, 105, 106, 130
motivation, 107, 115, 195, 210
policy implications, 195
protection from contagion, 211–212
recent policy formulations, 142–143, 193, 195, 209–210
requirements under, 195, 210–211, 213–214
retail operations, 214–215
See also Subsidiarization
Risk management
benefits of utility banking, 197–198
counterparty clearance, 257
current trends in global financial system, 252–253
economic growth and, 16, 248
goals of regulation, 75–77
goals of Volcker Rule, 203
growth of cross-border operations, 104
incentives, 73, 79, 248
levies and surcharges to improve, 25–26, 144–145, 146–147
liquidity risk assessment, 146, 146n
models of bailout and, 173–177
origins of global financial crisis, 2, 13, 14, 35, 37–38, 72, 73–75, 250–251
prevention of unintended consequences of reforms, 57–58, 72, 75, 216–217
procyclicality effects, 29
rationale for contingent capital instruments, 163, 164–166
rationale for limiting prudential regulation, 71–72
recommendations for capital and liquidity requirements, 18
remuneration practices and, 74
securitization and, 28–29
shielding ring-fenced banks from contagion, 211–212, 213–214
in SIFIs, 8, 194
strategies to reduce systemic risk, 25–27, 35–36
supervision failures in global financial crisis, 86–87
systemic risk assessment, 24–25, 73, 82
TTFF problem, 133–134
in traditional banking, 193–194
transparency and disclosure for, 5
See also Reducing size of SIFIs; Regulation; Supervision

S

Securities market
origins of global financial crisis, 74–75
reforms in response to global crisis, 72–73
scope of regulation, 81
Volcker rule effects on competition in, 209

Securitization
effects of reforms, 52
evolution of financial industry supervision, 84
future of regulation, 29, 253
origins of global financial crisis, 28, 74, 75
reforms in response to global crisis, 28–29

Shadow banking
assets, 71
definition, 56n
financial sector interconnectedness, 38
growth, 16f
liabilities preceding crisis, 39f
origins of global financial crisis, 15, 38, 39f
systemic risk shifting in response to regulation, 4, 8, 36, 56, 193, 195, 200, 216–217, 257

Special Investment Vehicles, 76, 77
Stand-alone subsidiarization, 236, 241–242r

Subsidiarization
allowable activities, 210–211
assessment challenges, 213–214
costs, 144, 190–191, 242–244
home/host country policy decisions, 232–237
implementation in United Kingdom, 209–215
management structure, 212
objective, 210
organization of retail banking, 214–215
protection from contagion, 211–212
prudential capital constraints, 212, 212r
rationale, 10, 56–57, 112, 143–144, 195, 210
restrictions on intragroup transactions, 212, 213–214
systemic risk for host jurisdiction in, 105
See also Choice between branch and subsidiary structure; Ring-fencing Supervision
accountability for, 21, 93, 94
agency mandates for, 20, 21
characteristics of financial industry oversight, 84
colleges, 111, 119n, 255
compliance-based, 84
doctrine of cross-border operations, 96, 222, 233, 234–235
current compliance with good practices, 20, 21f, 87–90
as determinant of financial crisis outcomes, 83
development of recovery and resolution plans, 188
enforcement-based, 84
evolution of, in financial industry, 84–85
framework for enhancing, 20, 21
future prospects, 252
goals for new prudential regulation, 78
international cooperation in resolution and, 103, 107, 108, 118–119
international standards, 98–100r, 108, 118–119, 255
legal authority, 92
lessons from global crisis, 85
objectives, 94
operational independence for, 94
organization and processes, 93
origins of global financial crisis, 2, 13, 86–87, 247, 250–251
professional status, 96
recommendations for, 95–96

©International Monetary Fund. Not for Redistribution
reforms in response to global crisis, 72–73
regulation and, 5, 93
relationships with other agencies, 93
relationship with industry, 95
requirements for effectiveness, 5, 20, 85, 90–95, 97
resources for, 21, 92, 94, 96
ring-fenced banks, 213–214
risk assessment capacity for, 21
risk-based, 84
scope of activities in, 83
of SIFIs, 5, 8, 147–148
significance of, in reform effort, 5, 20, 83
strategy for, 21, 93
Volcker Rule implementation challenges, 207
Swap Push-out Rule, 143
Systemically important financial institutions (SIFIs)
bail-in power to aid resolution of, 151–153, 172
bail-out decisions, 139, 140, 194
benefits of, 135–136, 221
capital and liquidity buffer requirements, 145–146, 154, 170, 171
competitive advantage, 136–137
cross-border activity, 138
current risk mitigation efforts, 2, 41–42, 422, 140
data template for, 5
definition, 73, 75–76, 133n
design of new prudential regulation, 78–80
economies of scale/scope, 155
financial stability contributions, 22, 25–26
frequency of distress, 138–139, 138f
future prospects, 135, 154
interconnectedness, 134, 137f, 138
interest rates charged to, 136, 136f
market value, 155–156
origins of global financial crisis, 134, 194
outcomes of global financial crisis, 134
policy implications of reform proposals, 216–217
political influence, 137
recent growth, 137, 137f, 139–140
recovery and resolution plans, 151, 186
reform challenges, 6–8, 143
reform goals, 11–12, 73, 135, 140
resolution strategies, 22, 149–151
risk assessment, 24–25, 73
risk-based levies and surcharges, 25–26, 144–145, 146–147
risk-based prudential requirements, 25
risk of unintended consequences in rescoping of, 195–209, 216–217
risks associated with, 194, 221
size characteristics, 137–138, 157–159
strategies for risk reduction, 8, 25–27, 135, 140, 141–142, 141f
194–195, 221
subsidiarization proposals, 10, 56–57, 105, 112, 143–144, 190–191
supervision needs, 5, 147–148
transparency of operations, 8, 148–149
See also Recovery and resolution plans; Reducing size of SIFIs; Too-important-to-fail institutions

T

Taxation
branch versus subsidiary structure considerations, 227, 228–229
of multinational groups, 104
to reduce institutional risk taking, 26
risk-related levies and surcharges, 144–147
treatment of contingent capital instruments, 167
Too-important-to-fail institutions
bail-out rationale, in global crisis, 194
capital and liquidity buffer requirements, 154
contingent capital strategies for, 162–164
financial system reform needs, 2
nature of risk associated with, 133–134, 153, 221
origins of global financial crisis, 2, 15, 134
outcomes of global financial crisis, 134
strategies to reduce risk from, 153–154, 221
See also Recovery and resolution plans; Reducing size of SIFIs; Systemically
important financial institutions (SIFIs)
Traditional commercial banks
  efficient size, 155
  growth, 16f
  liabilities preceding crisis, 39f
  ownership concentration, 39f
  proposed capital and liquidity rules, 4, 52
  Volcker Rule requirements, 203
Transparency
  to assess systemic risk, 73
  expected reform outcomes, 11
  financial system reform needs, 2, 5
  future prospects, 256–257
  goals for financial system, 1, 16, 17
  origins of global financial crisis, 14, 37–38
  in SIFIs, 8, 148–149
  significance of, in reform effort, 5
  strategies for enhancing market stability, 29

U
Universal banks
  branch versus subsidiary structure, 222, 226–227
  current capital structure, 43
  definition, 103n, 156
  growth of, 103–104, 194
  proposed capital requirements, 44–45, 46, 53
  ring-fencing, 209–210, 211, 213
SIFI banks, 138, 139, 140
  transformation into utility banks, 196f, 200–201, 216
  Volcker Rule and, 52, 54
  vulnerability to shocks, 194
Utility banking
  adjustment costs, 200–201
  definition, 196
  impact analysis, 199f
  implementation challenges, 200
  policy implications of SIFI reform proposals, 216–217
  rationale, 196
  risk reduction benefits, 197–198
  scope of proposals for, 196–197, 197f
  social costs, 198–199
  transformation of universal banking into, 196f, 201, 216f

V
Volcker Rule
  challenges to implementation, 195
  effects on competitiveness in securities markets, 54, 209
  essential requirements, 26, 52, 56, 195, 204–205, 205f, 206f
  implementation, 204
  implementation challenges, 193, 205–209
  Independent Commission on Banking ring-fencing rules and, 214, 215f, 216
  rationale, 142–143, 203–204
  risk of unintended consequences, 193, 195, 209

©International Monetary Fund. Not for Redistribution