



INTERNATIONAL MONETARY FUND

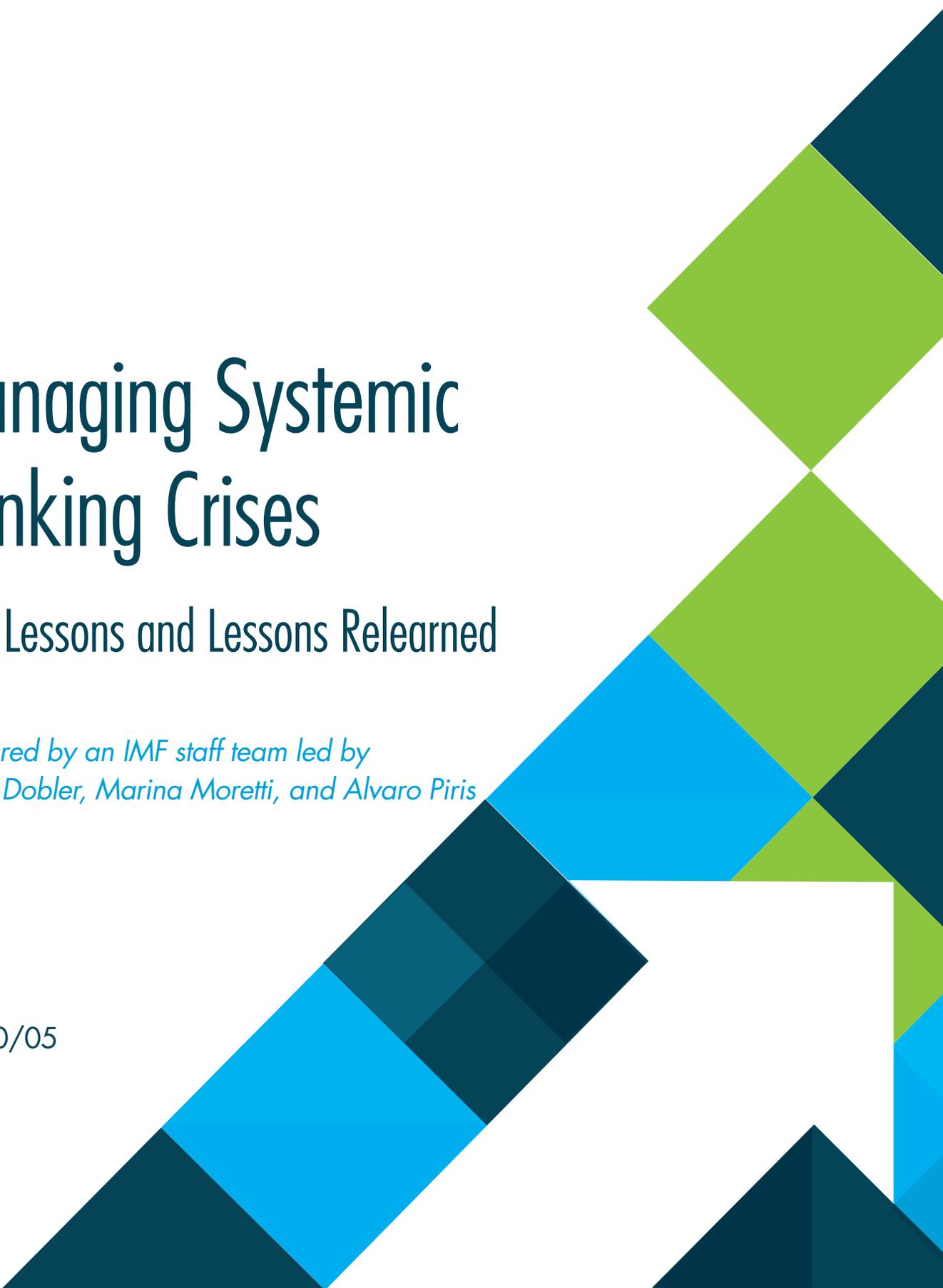
Monetary and Capital Markets Department

# Managing Systemic Banking Crises

New Lessons and Lessons Relearned

*Prepared by an IMF staff team led by  
Marc Dobler, Marina Moretti, and Alvaro Piris*

No. 20/05



Copyright ©2020 International Monetary Fund

**Cataloging-in-Publication Data**  
**IMF Library**

Names: Dobler, Marc. | Moretti, Marina (Economist). | Piris, Alvaro. | International Monetary Fund. Monetary and Capital Markets Department, issuing body. | International Monetary Fund, publisher.

Title: Managing systemic banking crises: new lessons and lessons relearned / prepared by an IMF staff team lead by Marc Dobler, Marina Moretti, and Alvaro Piris.

Other titles: New lessons and lessons relearned.

Description: Washington, DC : International Monetary Fund, 2020. | At head of title: Monetary and Capital Markets Department. | Includes bibliographical references.

Identifiers: ISBN 9781513512273 (paper)

Subjects: LCSH: Banks and banking | Financial crises. | Risk management.

Classification: LCC HB3722.M35 2020

The Departmental Paper Series presents research by IMF staff on issues of broad regional or cross-country interest. The views expressed in this paper are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

Publication orders may be placed online, by fax, or through the mail:  
International Monetary Fund, Publication Services  
P.O. Box 92780, Washington, DC 20090, U.S.A.  
Tel. (202) 623-7430 Fax: (202) 623-7201  
E-mail: [publications@imf.org](mailto:publications@imf.org)  
[www.imfbookstore.org](http://www.imfbookstore.org)  
[www.elibrary.imf.org](http://www.elibrary.imf.org)

# Contents

|   |           |
|---|-----------|
| <b>Preface</b> .....  | <b>v</b>  |
| <b>1. Introduction</b> .....  | <b>1</b>  |
| <b>Part I. Crisis Preparedness</b> .....                            | <b>7</b>  |
| <b>2. The Financial Safety Net</b> .....                            | <b>9</b>  |
| Supervisory Early Intervention.....                                 | 10        |
| Resolution Regimes.....   | 12        |
| Depositor Protection.....   | 15        |
| Emergency Liquidity Assistance .....                                | 18        |
| <b>3. Operational Preparedness</b> .....                            | <b>27</b> |
| Institutional Framework.....  | 28        |
| Recovery and Resolution Framework.....                              | 28        |
| Operational Capacity in ELA Provision.....                          | 30        |
| Domestic and Cross-Border Cooperation .....                         | 30        |
| Crisis Communications.....  | 32        |
| <b>Part II. Crisis Management</b> .....                             | <b>35</b> |
| <b>4. Containment and Stabilization</b> .....                       | <b>37</b> |
| Systemic Liquidity Provision.....                                   | 38        |
| Government Guarantees .....   | 40        |
| Administrative Measures .....                                       | 42        |
| <b>5. Restructuring and Resolution</b> .....                        | <b>47</b> |
| Bank Diagnostics .....  | 48        |
| Systemwide Restructuring and Resolution .....                       | 50        |
| Recapitalizing Banks Using Public Funds.....                        | 55        |
| <b>6. Dealing with Distressed Assets</b> .....                      | <b>65</b> |
| Supervisory Policy.....   | 66        |
| Insolvency and Debt Enforcement for Corporates and Individuals..... | 68        |
| Distressed Asset Markets .....                                      | 70        |
| <b>7. Progress and Remaining Challenges</b> .....                   | <b>75</b> |
| <b>References</b> .....   | <b>79</b> |

**Boxes**

|   |    |
|---|----|
| Box 1. Key Attributes of Effective Resolution Regimes .....         | 23 |
| Box 2. Resolution Funding .....                                     | 24 |
| Box 3. Different Forms of Deposit Preference.....                   | 25 |
| Box 4. Administrative Measures in Iceland, Cyprus, and Greece ..... | 45 |
| Box 5. Good Practices in AQR Design and Implementation .....        | 58 |
| Box 6. Crisis Stress Testing.....                                   | 60 |
| Box 7. Making a Bridge Bank Operational .....                       | 61 |
| Box 8. Good Practice in Public Solvency Support.....                | 62 |
| Box 9. Dealing with Excessive Related-Party Exposures .....         | 73 |
| Box 10. Design Features of Successful Public AMCs .....             | 74 |

**Figures**

|   |    |
|---|----|
| Figure 1. Occurrence and Impact of Systemic Financial Crises, 1980–2017 ..... | 2  |
| Figure 2. The Financial Safety Net .....                                      | 10 |
| Figure 3. Resolution Tools and Policy Trade-offs.....                         | 13 |
| Figure 4. Systemic Bank Restructuring: Decision Tree .....                    | 51 |
| Figure 5. Stylized Balance Sheet Impact of Different Resolution Powers.....   | 53 |
| Figure 6. NPL Resolution Options .....  | 66 |
| Figure 7. ELA and DIS in Low-Income Developing Countries .....                | 77 |

**Tables**

|  |    |
|--|----|
| Table 1. Lessons on the Design of the Financial Safety Net .....                 | 4  |
| Table 2. Lessons on Operational Preparedness .....                               | 28 |
| Table 3. Lessons in Crisis Containment.....                                      | 38 |
| Table 4. Central Bank Liquidity Provision Post-GFC .....                         | 39 |
| Table 5. Comparing Asset Guarantees and AMCs .....                               | 42 |
| Table 6. Lessons on Restructuring and Resolution of Financial Institutions ..... | 48 |
| Table 7. Lessons on Distressed Asset Management.....                             | 67 |
| Table 8. Advantages and Risks of Public AMCs.....                                | 71 |

## Preface

This paper updates the IMF's work on general principles, strategies, and techniques from an operational perspective in preparing for and managing systemic banking crises in light of the experiences and challenges faced during and since the global financial crisis. It summarizes IMF advice concerning these areas from staff of the IMF Monetary and Capital Markets Department (MCM), drawing on Executive Board Papers, IMF staff publications, and country documents (including program documents and technical assistance reports). Unless stated otherwise, the guidance is generally applicable across the IMF membership.

The paper reflects contributions of the Financial Crisis Preparedness and Management Division and the Central Bank Operations Divisions of MCM, as well as significant input from staff of the IMF Legal Department. Special acknowledgements for inputs and comments go to Mark Adams, Atilla Arda, Thierry Bayle, David Blache, Mark Buessing-Loercks, Laszlo Butt, Luis Cortavarría Checkley, Oana Maria Croitoru, Franck Dupont, Ender Emre, Olivier Frécaut, José Garrido, Ivan Guerra, Alessandro Gullo, Joaquín Gutierrez Garcia, David S. Hoelscher, Gayon Hosin, Silvia Iorgova, Jaime Jaramillo Vallejo, Deeksha Kale, Edda Rós Karlsdóttir, Darryl King, Mesmin Koulet-Vickot, Suchitra Kumarapathy, Paul Leonovich, Peter Lohmus, Mario Mansilla, Greta Mitchell Casselle, Johan Molin, Michael K. Moore, Dermot Monaghan, Rafel Moyà Porcel, Diarmuid Murphy, Jan Nolte, David C. Parker, Jean Portier, Oleksandr Pysaruk, Constant Verkoren, and Oliver Wunsch. The authoring team is also grateful to Tobias Adrian and Miguel Savastano for providing intellectual direction and clarity, as well as to Charmane Ahmed and the administrative team for excellent support throughout the project.

The views expressed in this paper, as well as any errors, are the sole responsibility of the authors and do not necessarily represent the views of the IMF Executive Board or other members of the IMF staff.

## Introduction

Systemic financial crises have been a recurring feature of economies in modern times. Panics, wherein collapsing trust in the banking system and creditor runs have significant negative consequences for economic activity—rare events in any one country—have occurred relatively frequently across the IMF membership. Common causes include high leverage, booming credit, an erosion of underwriting standards, exposure to rapidly rising property prices and other asset bubbles, excessive exposure to the government, inadequate supervision, and often a high external current account deficit. Financial distress typically lasts several years and is associated with large economic contractions and high fiscal costs (Laeven and Valencia 2018). Figure 1 shows the prevalence of systemic financial crises over the past 30 years, including the number of crisis episodes each year. The global financial crisis (GFC) was just such a panic, albeit one that transcended national and regional boundaries.

IMF staff experience in helping countries manage systemic banking crises has evolved over time. Major financial sector problems have been addressed in the context of IMF-supported programs primarily in emerging market economies, developing countries and, more recently, in some advanced economies during the GFC. The IMF approach to managing these events was summarized in a 2003 paper (Hoelscher and Quintyn 2003) before there was international consensus on legal frameworks, preparedness, and policy approaches, and when practices varied widely across the membership. The principles outlined in that paper built on staff experience in a range of countries—notably, Indonesia, Republic of Korea, Russia, and Thailand in the late 1990s; and Argentina, Ecuador, Turkey, and Uruguay in the early 2000s. It emphasized that managing a systemic banking crisis is a complex, multiyear process and presented tools available as part of a comprehensive framework for addressing systemic banking problems while minimizing taxpayers' costs. Although these



core concepts and principles remain largely valid today, they merit a revisit following the experiences and lessons learned from the GFC.

The GFC shared similarities with past systemic crises, albeit with an impact felt well beyond directly affected countries (Claessens and others 2010). As in previous episodes of financial distress, the countries most affected by the GFC—the US starting in 2008 and several countries in Europe—saw creditor runs and contagion across institutions, significant fiscal and quasi-fiscal outlays, and a sharp contraction in credit and economic activity (see Figure 1). The reason the impact was more widely felt across the global economy: the crisis originated in advanced economies with large financial sectors. These countries embodied a substantial portion of global economic output, trade, and financial activity and affected internationally active financial firms providing significant cross-border services. The speed of transmission of financial distress across borders was unprecedented, given the complex and opaque financial linkages between financial firms. These factors introduced new challenges, as they impacted the effectiveness of many existing crisis management tools.

Reflecting these new challenges, individual country responses during the GFC differed from past experiences in important respects (Table 1):

- The size and scope of liquidity support provided by major central banks was unprecedented. More liquidity was provided to more counterparties for longer periods against a wider range of collateral. Much of this support was through liquidity facilities open to all market participants, while some was provided as emergency liquidity assistance (ELA) to individual institutions. This occurred against the backdrop of accommodative monetary policy and quantitative easing.
- Explicit liability guarantees were more selectively deployed than in past crises, when blanket guarantees covering a wide set of liabilities were more commonly used by authorities. During the GFC (with some notable exceptions), explicit liability guarantees typically applied only to specific institutions, new debt issuance, specific asset classes, or were capped (for example, a higher level of deposit insurance). However, implicit guarantees were widespread, as demonstrated by the extensive public solvency support provided to financial institutions and markets. Systemic financial institutions were rarely liquidated or resolved,<sup>1</sup> and, of those that were, some proved destabilizing for the broader financial system. This trend reflected in part inadequate powers to resolve such firms in an orderly way.

---

<sup>1</sup>Defined in this paper as the exercise of resolution powers, set out in a country's resolution regime, including or to be accompanied by an insolvency or liquidation proceeding (for example, to wind up parts of the failed bank).

**Table 1. Lessons on the Design of the Financial Safety Net**

| What is Similar?   | What is New?  |
|--|---|
| <ul style="list-style-type: none"> <li>Escalating early intervention and enforcement measures</li> <li>Special resolution regimes for banks</li> </ul>   | <ul style="list-style-type: none"> <li>More intrusive supervision and early intervention powers</li> <li>A new international standard on resolution regimes for systemic financial institutions requiring a range of resolution powers and tools</li> </ul>   |
| <ul style="list-style-type: none"> <li>Establishing deposit insurance (if prior conditions enable)<sup>1</sup> with adequate ex ante funding, available to fund resolution on a least cost basis</li> <li>Capacity to provide emergency liquidity to banks, at the discretion of the central bank</li> </ul> | <ul style="list-style-type: none"> <li>An international standard on deposit insurance, requiring ex ante funding and no coinsurance</li> <li>Desirability of depositor preference</li> <li>Liquidity assistance frameworks with broader eligibility conditions, collateral, and safeguards</li> </ul> |

<sup>1</sup>IMF staff does not recommend establishing a deposit insurance system in countries with weak banking supervision, ineffective resolution regimes, and identifiably weak banks. Doing so would expose a nascent scheme to significant risk, (when it has yet to build adequate funding and operational capacity) and could undermine depositor confidence.

- Difficulties in achieving effective cross-border cooperation in resolution between authorities in different countries came to the fore, given the global footprint of some weak institutions. The lack of mechanisms to enforce resolution measures on a cross-border basis and cooperate more broadly led, in some cases, to the breakup of cross-border groups into national components.
- More emphasis was placed on banks’ ability to manage nonperforming assets internally or through market disposals, with less reliance on centralized asset management companies (AMCs)—public agencies that purchase and manage nonperforming loans (NPLs). Protracted weak growth in some countries, the large scale of the problem, and gaps in legal frameworks also meant that progress in addressing distressed assets and deleveraging private sector balance sheets was slower in some countries than in previous crises.

The GFC was a watershed. Policymakers were confronted with the gaps and weaknesses in their legal and policy frameworks to address bank liquidity and solvency problems, their understanding of systemic risk in institutions and markets, and domestic and international cooperation. Under these constraints, the policy responses that were deployed put substantial public resources at risk. While ultimately successful in stabilizing financial systems and the macroeconomy, the fiscal and economic costs were high. The far-reaching impact of the GFC provided impetus for a major overhaul of financial sector oversight (Financial Stability Forum 2008; IMF 2018). The regulatory reform agenda agreed to by the Group of Twenty leaders in 2009 elevated the discussions to the highest policy level and kept international attention focused on establishing a stronger set of globally consistent rules. The new architecture aimed to (1) enhance capital buffers and reduce leverage and financial procyclicality; (2) contain funding mismatches and currency risk; (3) enhance the regulation and supervision of large and interconnected institutions, including by expanding the supervisory perimeter; (4) improve the supervision of a complex financial system; (5) align governance and compensation practices of banks with prudent risk taking; (6) overhaul resolution regimes of large financial institutions; and (7) introduce macroprudential

policies. Through its multilateral and bilateral surveillance of its membership, including the Financial Sector Assessment Program (FSAP), Article IV missions, and its *Global Financial Stability Reports*, the IMF has contributed to implementing the regulatory reform agenda.

This paper summarizes the general principles, strategies, and techniques for preparing for and managing systemic banking crises, based on the views and experience of IMF staff, considering developments since the GFC. The paper does not summarize the causes of the GFC, its evolution, or the policy responses adopted; these concepts have been well documented elsewhere.<sup>2</sup> Moreover, it does not cover the full reform agenda since the crisis, rather, only two parts—one on key elements of a legal and operational framework for crisis preparedness (the “financial safety net”) and the other on operational strategies and techniques to manage systemic crises if they occur. Each section summarizes relevant lessons learned during the GFC and other recent episodes of financial distress, merging them with preexisting advice to give a complete picture of the main elements of IMF staff advice to member countries on operational aspects of crisis preparedness and management. The advice builds on and is consistent with international financial standards, tailored to country-specific circumstances based on IMF staff crisis experience. The advice recognizes that every crisis is different and that managing systemic failures is exceptionally challenging, both operationally and politically. Nonetheless, better-prepared authorities are less likely to resort to bailing out bank shareholders and creditors when facing such circumstances.

Part I, on crisis preparedness, outlines the design and operational features of a well-designed financial safety net. It discusses how staff advice on these issues has evolved, drawing from the international standards and good practice that emerged in the aftermath of the GFC. Effective financial safety nets play an important role in minimizing the risk of systemwide financial distress—by increasing the likelihood that failing financial institutions can be resolved without triggering financial instability. However, they cannot eliminate that risk, particularly at times of severe stress.

Part II, on crisis management, discusses aspects of a policy response to a full-blown banking crisis. It details the evolution of IMF advice in light of what worked well—or less well—during the GFC, reflecting the experience of IMF staff in actual crisis situations. The narrative is organized around policies for dealing with three distinct aspects<sup>3</sup> of systemic banking crisis:

---

<sup>2</sup>For example, Claessens and others (2010), among many other studies.

<sup>3</sup>While tempting to describe these as phases, they need not be sequential. If the authorities are well-prepared, as described in Part I, shocks that would have triggered a systemic crisis in the past may not do so in the future.

- *Containment*—strategies and techniques to stem creditor runs and stabilize financial sector liquidity in the acute phase of panic and high uncertainty. This phase is typically short-lived, with an escalating policy response as needed to avoid the collapse of the financial system.
- *Restructuring and resolution*—strategies and techniques to diagnose bank soundness and viability, and to recapitalize or resolve failing financial institutions, which are typically implemented over the following year or more, depending on the severity of the situation.
- *Dealing with distressed assets*—strategies and techniques to clean up private sector balance sheets that first identify and then remove impediments to effective resolution of distressed assets, with implementation likely to stretch over several years.

IMF member countries have continued to cope with financial panics and widespread financial sector weakness. The IMF remains fully engaged on these issues, often in the context of IMF-supported programs, with a significant focus on managing systemic problems and financial sector reforms. Staff continue to provide support and advice on supervisory practice, resolution, deposit insurance, and emergency liquidity in IMF member countries learning from experience and adapt policy advice to developments and country-specific circumstances.

# **PART I**

## **Crisis Preparedness**



## The Financial Safety Net

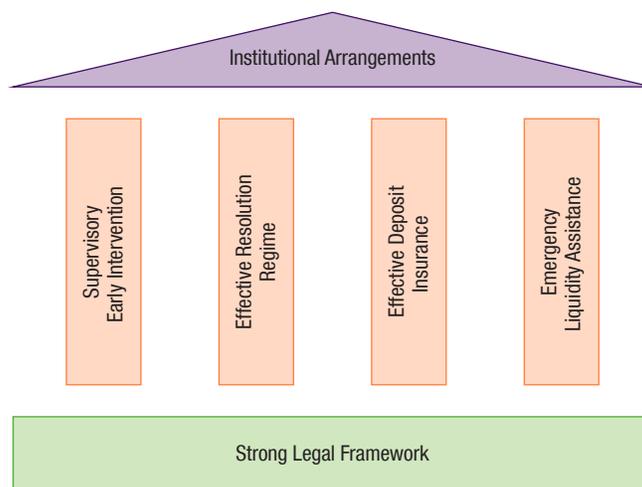
The GFC crystallized awareness of the importance and urgency of reforming countries' financial safety net. The financial safety net comprises four pillars (Figure 2): (1) supervisory early intervention, (2) resolution of financial institutions, (3) deposit insurance, and (4) central bank liquidity assistance. Before the GFC, progress in these areas had been uneven and largely circumscribed to countries that had put frameworks in place (often with IMF support) to address episodes of systemic financial instability. Powers and tools were incomplete in many of the advanced economies affected by the GFC, and policy responses were uncoordinated and lacked consistency across jurisdictions, hampering effective responses to failing cross-border institutions. A consensus began to emerge that a more robust and internationally coherent toolkit was needed to better prepare authorities for a systemic crisis, while reducing the risk that one might occur. In particular, all countries should have an effective financial safety net—one that can support the orderly management of failing institutions, and thereby stem contagion and reduce the likelihood that distress at one or more financial institutions spreads to others and results in a full-blown crisis.

The GFC prompted global regulatory reforms that sought to enhance the financial safety net and ensure wide implementation across jurisdictions. A key pillar of this response was the development of international standards on resolution of financial institutions and deposit insurance. To address key gaps in resolution regimes,<sup>1</sup> the Financial Stability Board (FSB) developed a new international standard—the *Key Attributes of Effective Resolution Regimes for Financial Institutions* (Key Attributes). The International Association of Deposit Insurers (IADI) developed and revised the *Core Principles for Effective Deposit Insurance Systems*. The Basel Committee on Banking Supervision

---

<sup>1</sup>IMF (2014) summarizes the key gaps as inadequate resolution powers and tools, inadequate cross-border cooperation frameworks, and inadequate mechanisms for loss allocation.

Figure 2. The Financial Safety Net



Source: IMF staff analysis.

revised its pre-existing standard—the *Core Principles for Effective Banking Supervision* (Basel Core Principles)—strengthening several areas, including supervisory powers for recovery and early intervention. International good practices in central bank liquidity provision (including ELA) evolved to incorporate new lessons learned during the GFC (Committee on the Global Financial System 2017; Doblér and others 2016).

The financial safety net is a key element of the financial stability framework. It is one of three components (along with financial system resilience, and the regulatory and supervisory framework) of the stability assessments undertaken under the IMF and World Bank Financial Sector Assessment Program (FSAP). Formal assessments of compliance with the Key Attributes for the banking sector, and with the IADI Core Principles, can also be undertaken and published as part of the FSAP. Technical assistance in these areas intensified post GFC, with a notable increase in demand from countries wishing to strengthen their regimes.

## Supervisory Early Intervention

Failure to decisively address problems at weak banks typically leads to greater losses and risk of contagion. Risk taking beyond what an institution can safely handle—such as excessive exposure to liquidity or market risks, or accumulated losses that are not prudently provisioned and actively managed—will contribute to its progressive financial deterioration.

Unchecked bad practices in one entity generate moral hazard<sup>2</sup> and distortions in competition, which can reduce prudence in other institutions and erode confidence in the banking system.

The 2012 revisions to the Basel Core Principles incorporated lessons from the GFC. Changes were made to strengthen supervisory practices and bank risk management, including by increasing supervisory intensity and resources dedicated to supervising systemically important banks; applying a systemwide, macroprudential perspective in supervision; analyzing and taking preemptive action to address systemic risk; increasing the focus on effective recovery measures to reduce the probability of bank failures, and a separate core principle on banks' corporate governance. On early intervention, a new essential criterion was added requiring the supervisor to have "a clear framework or process for handling banks in times of stress, such that any decisions to require or undertake recovery or resolution actions are made in a timely manner."

Reducing the probability and costs of financial distress requires early action, before the financial condition of the institution is significantly impaired. In many cases, warning signs can be detected well in advance in the course of normal supervisory oversight, for example, increasing liquidity risks, deteriorating capital quality, deteriorating asset quality, inadequate pricing of risks, or chronic weaknesses in risk management and unsound governance practices. Enhanced monitoring through more frequent and detailed reporting, onsite inspections (full-scope or targeted) and stress tests should be used to identify the root causes of visible symptoms (for example, weak loan underwriting or liquidity risk management practices) and inform further supervisory actions. Staff typically recommend "a ladder of intervention" with clear but flexible triggers for corrective measures that guide the actions of supervisors. The nature and severity of enforcement actions should be proportional to the seriousness of problems, the strength of the bank's management, and market conditions—both current and prospective. Consistent enforcement of remedial actions is important to build credibility and affect incentives in the financial sector. Supervisory actions should escalate if management and shareholders of a bank fail to comply or cannot restore the bank's financial standing in the time given to do so. An effective resolution regime gives supervisors a credible alternative to forbearance if a systemic institution fails to take remedial action, strengthening enforcement.

A key lesson drawn from supervisory failures leading up to and during the GFC is the crucial importance of supervisors being willing and able to act. To be effective, supervision needs to be intrusive, adaptive, skeptical, proactive, comprehensive, and conclusive. To achieve this, supervisors need

---

<sup>2</sup>Moral hazard occurs when an agent increases risk without facing the full consequences, which in part or in full will be borne by another agent, such as a government bailing out the creditors of a failed bank.

adequate resources, strong legal authority and protection, a clear mandate, operational independence with strong governance structures, and accountability via a transparent framework. The latter prevents supervisors from succumbing to “capture”—either by the banks they oversee or by entrenched political interests. While the Basel Committee on Banking Supervision strengthened the Core Principles in these areas in 2012, weak governance, along with inadequate staffing and budgetary resources—both of which create opportunities for outside influence and pressure—remain the greatest shortcomings in country compliance with the Core Principles (Adrian and Narain 2019; Viñals and Fiechter 2010).

## Resolution Regimes

An effective resolution regime is critical to addressing the problems of weak or failing banks without undermining financial stability. Once the supervisor deems a bank to be unviable (for example, being in serious breach of, or judged to have little prospect of restoring compliance with, regulatory requirements), decisive and rapid actions are required to ensure that depositor confidence in the financial system is maintained and problems do not spill over to the broader economy. Financial stability risks are minimized by ensuring that small depositors—the bulk of bank liabilities in many countries—maintain access to their funds. Economic losses are minimized by preserving the bank’s critical functions<sup>3</sup> and ensuring that performing assets can be managed as going concerns by acquiring or successor entities. Fulfilling these objectives requires strong powers assigned to an administrative resolution authority. These require solid legal foundations to ensure actions taken by the resolution authority (within its legal powers) cannot be undone by legal challenges. Resolution powers need to be exercisable quickly, without shareholder and creditor consent, ideally before the bank is balance sheet insolvent, which raises property rights issues. Legal safeguards (including mechanisms to ensure that creditors are made no worse off than they would have been in liquidation) are a critical component to balance financial stability objectives with private interests (Davies and Dobler 2011).

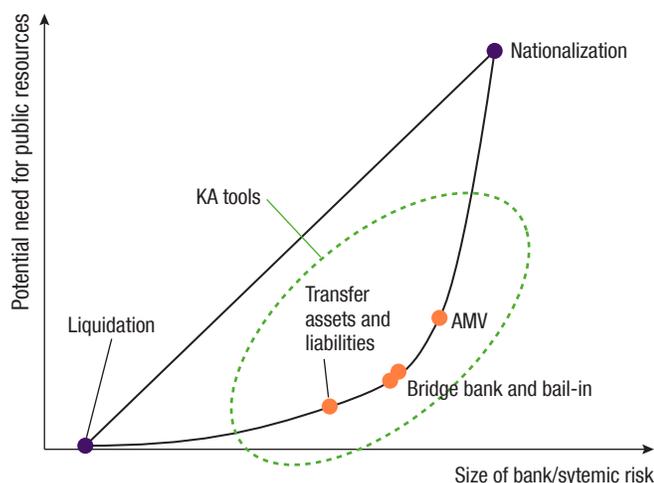
The Key Attributes codified international best practices in resolution that are consistent with, but extend beyond past IMF advice. They provide a widely applicable international standard for resolution regimes for financial institutions (Box 1). The principles embodied in the Key Attributes aim to ensure that the authorities have the powers and tools to act quickly to preserve financial stability in the case of systemic failure, while minimizing taxpayers’ exposure to loss. These aspects, as well as powers for early intervention and to appoint an administrative resolution authority with a range of resolution

---

<sup>3</sup>Financial activities provided by the bank critical to the real economy and financial stability.

powers and tools set out in legislation, correspond with longstanding IMF advice. The Key Attributes additionally widened the resolution toolkit to include statutory bail-in powers (Chapter 5), established arrangements for recovery and resolution planning as well as international cooperation, and codified creditor safeguards.

**Figure 3. Resolution Tools and Policy Trade-offs**



Source: IMF staff analysis.

Note: AMV = asset management vehicle; KA = key attributes.

Although the Key Attributes were designed for global systemically important financial institutions (G-SIFIs), staff consider most of its elements to be more widely applicable. At times of severe stress and heightened risk of contagion, even relatively small banks can present a systemic risk. A range of resolution powers enable authorities to tailor resolution to the specific challenges presented in any failure. Entering the GFC, many authorities had only the corner options depicted on the straight line in the text figure,<sup>4</sup> namely liquidation, which in the case of a global systemically important bank (G-SIB) would risk financial instability, or nationalization, which gives full protection to creditors at substantial cost and risk to public resources. By providing more options, resolution regimes with effective powers can improve the trade-off between the financial stability risks associated with imposing losses on creditors, and the fiscal cost and moral hazard associated with bailing them out (shifting from the straight to the concave line in Figure 3).

Resolution regimes that can allocate losses effectively to bank stakeholders, while preserving financial stability, are beneficial for several reasons. First, stakeholders that could be exposed to loss in the event of failure are likely to impose greater discipline on managers, reducing excessive risk taking and, in turn, the likelihood that banks fail. Second, by recognizing the potential for loss and requiring adequate loss-absorbing capacity, these frameworks may reduce the risk of systemic spillovers. Third, by reducing

<sup>4</sup>Stylized representation only—the order of tools is for illustrative purposes.

the likelihood of, and direct fiscal cost associated with a crisis, they may weaken the feedback effects between sovereign and bank vulnerabilities (the “sovereign-bank nexus”). Fourth, by levelling the playing field and reducing the “too-important-to-fail” discount from which systemic banks benefit through lower funding costs compared to smaller banks.

Sound governance, independence, and resourcing of the resolution authority is critical. The resolution authority should be independent from both the government<sup>5</sup> and the financial sector, and have transparent processes, sound governance, and adequate funding. This includes sufficient operating resources and resolution funds (Box 2), independent decision makers and staff with sound appointment/dismissal procedures,<sup>6</sup> and legal protection. In many cases, staffing of the function is likely to entail a core cadre that undertakes day-to-day resolution responsibilities, which can be supplemented by prearranged additional expertise drawn from the public and private sector (including for asset valuation, legal due diligence, and marketing). In countries where bank failures are likely to be infrequent (for example, those with concentrated banking systems), or there are significant capacity constraints, the central bank or supervisor (if different institutions) may be best placed to assume the responsibility rather than establish a new institution. This would allow the resolution authority to leverage existing in-house capacity and resources and draw upon expertise from other areas (including from the financial stability function) at times of crisis. Adequate firewalls and governance arrangements should mitigate conflicts of interests that can arise when these responsibilities are housed within the same institution. The resolution authority should be subject to ex post evaluation and accountability to assess effectiveness in discharging its responsibilities.

Resolution and liquidation regimes for banks need to be closely aligned to ensure prompt and effective response to a bank’s failure. This can be accomplished effectively in two ways. One is a fully administrative regime whereby both resolution and liquidation of financial institutions are placed under the resolution authority.<sup>7</sup> The other is a “dual regime” wherein a court-appointed liquidator liquidates an entire bank that has failed (but need not be resolved using resolution powers) or the “rump” of a bank that underwent resolution by the resolution authority. In either case, any role for the court should not hinder the prompt and effective implementation, or result in the reversal of, resolution measures taken by the resolution authority acting within its legal

---

<sup>5</sup>Any role for government officials (for example, from the Ministry of Finance) in individual resolution decisions should be limited to cases that involve the use of fiscal resources

<sup>6</sup>Including suitably long contract terms (for example, longer than the electoral cycle) with limited grounds for dismissal.

<sup>7</sup>Many resolution authorities are unlikely to face enough bank failures to justify maintaining the in-house capacity to liquidate banks and should outsource to third parties with the appropriate expertise and capacity.

authority (FSB 2016). A “dual regime” also requires some alignment of the triggers and objectives of liquidation, as well as the liquidator’s mandate, for example, to require the liquidator to continue to provide critical services to an acquiring bank or bridge bank. The administrative authorities should play a significant role in a judicial liquidation framework that applies to banks in terms of initiating liquidation, appointing the liquidator, and monitoring the conduct of liquidation and issuing instruction, as necessary, to meet the public policy objectives of resolution.

## Depositor Protection

### Deposit Insurance

Important lessons pertaining to deposit insurance were learned during the GFC. The crisis severely tested the effectiveness of deposit insurance systems and prompted reforms. These include higher (and, in the European Union, more harmonized) coverage levels; the elimination of coinsurance; faster payouts; enhanced depositor awareness; ex ante funding; restrictions on using deposit insurance funds support to an open bank outside of resolution (so-called open bank assistance); and strengthened information sharing and cooperation with other safety net participants. In the countries directly affected by the GFC, a common early and widespread response was to significantly increase the deposit insurance coverage in the face of a heightened risk of bank runs.<sup>8</sup> Coinsurance, under which depositors were not fully covered (for example, only up to 90 percent of insured deposits) exacerbated bank runs in the UK. Accordingly, the IADI Core Principles (issued in 2009 and revised in 2014) expressly rule out coinsurance. In effect, the perceived financial stability benefits of covering most retail depositors in full, have taken preeminence over moral hazard concerns—the potential impact of deposit insurance on bank risk taking.

Deposit insurance forms a key component of the financial safety net. A well-designed deposit insurance system (DIS) enhances depositor confidence and reduces the risk of deposit runs. By protecting small depositors, who typically do not have the skills to monitor bank risk taking, deposit insurance helps maintain bank deposits as a safe means of making payments, including during times of financial distress, while mitigating moral hazard. Ensuring sufficient coverage to protect most retail depositors by number, but not most deposits by value—by excluding high-value deposits whose holders have greater incentives and should be better able to assess bank risk—is central to a well-designed scheme, as is the capacity to reimburse creditors quickly (that

---

<sup>8</sup>Deposit insurance increased from €20,000 to €100,000 in the EU by end 2010, and from \$100,000 to \$250,000 in the US in October 2008 (on a temporary basis subsequently made permanent).

is, most depositors within seven days) (IADI 2014). It is equally important that a sufficient fund is built over time (for example, about five years) through regular ex ante contributions by all banks. There is no international consensus on how best to determine fund sufficiency, and country practice varies widely (IADI 2018). This is partly because the adequacy of the fund size depends on country-specific circumstances, including the level of coverage, and the deposit system's structure and characteristics (concentration, etc.). Staff tends to rely on cross-country comparisons, historical and expert experience and apply a prudent margin when advising authorities on fund target levels. Adequate arrangements to provide back-up liquidity should be in place, including from the government, as credit lines from the private sector may not be available at times of stress. These, and the other elements are reflected in the IADI Core Principles.

The appropriate mandate for a DIS depends on country-specific circumstances. For some countries with large banking sectors and multiple banks, assigning resolution powers to a stand-alone agency may be appropriate. In many others, however, a narrower mandate offers a better fit. Specifically, in countries wherein bank failures are likely to be infrequent, a “paybox plus” mandate, which allows the deposit insurance fund to both reimburse insured deposits in a bank liquidation and fund a bank resolution on a least-cost basis (which protects insured deposits), would be better suited to available capacity and resources. Under this approach, a separate resolution authority (typically the central bank or the supervisor) can use deposit insurance funds for resolution (Box 2), for instance, to help fund a transfer of assets and insured deposits. Such an approach can provide better continuity of service for depositors, reduce deposit insurance outlays (as only the gap between transferred assets and liabilities needs to be injected not the full value of insured deposits), and maximize asset values compared to a liquidation with a deposit insurance payout. Adequate safeguards are required, however, as, similarly to all insurance schemes, deposit insurance funds are calibrated to cover losses in a fraction of the insured pool, and not to deal with the failure of a large systemic bank or a full banking crisis. Allocating deposit insurance funds in a way that would expose the scheme to significant uncertainty and risk, and erode depositor confidence in the scheme—for example, providing solvency or liquidity support to an open bank outside of resolution (so-called open bank assistance) should be ruled out. Deposit insurers are typically not well placed to judge the risk of such operations, which are likely to be highly risky; especially, for example, if the bank remains in the hands of the original shareholders and managers responsible for its failing.

Since the GFC, greater awareness and emphasis have been placed on ensuring that the deposit insurer has the necessary operational independence to fulfill its mandate (IADI 2014). Core Principle 3 requires there be “no government,

central bank, supervisory or industry interference that compromises the operational independence of the deposit insurer.” From staff experience of risks associated with capture by the industry (for example, as demonstrated by low funding and deposit insurance premiums), the DIS should not include active bankers in their decision-making and governance bodies. Doing so would give rise to several concerns—from conflict of interest to market abuse—and act as an obstacle to information sharing from other members of the safety net, which would hamper the effective fulfillment of the DIS’s responsibilities. To fulfill their public mandate and provide confidence to depositors, a DIS must be well run and funded, with key elements (such as coverage level, contributions from the industry, ex ante funding level) laid down in the law. The need for a sound public backstop for the deposit insurance fund and legal protection for staff would typically call for a DIS to be set up as a public-sector entity to which such prerogatives can be entrusted by the state. Other public-interest functions of a DIS, such as resolution or supervisory powers (for so-called loss or risk minimizer mandates) should only be delivered by a public authority in order to avoid conflicts of interest, moral hazard, and governance issues.

### Depositor Preference

By facilitating depositor protection, depositor preference helps underpin the financial safety net. Depositor preference—which gives depositors a higher priority of claim than other bank creditors to recoveries from the liquidation of a failed bank’s assets—can take different forms (Box 3). It helps reduce the costs of protecting retail depositors, both in countries with deposit insurance (where the savings accrue to the DIS) and in countries without (where it can facilitate preferential disbursement of recoveries, or advance payment, to retail depositors). Depositor preference has several benefits:

- *Reducing the cost of protecting depositors in liquidation or resolution.* Preferring deposits—and subrogating<sup>9</sup> the DIS in place of insured deposits—reduces the cost of deposit payouts or the DIS contribution to a resolution, bolstering credibility of the scheme.
- *Facilitating resolution.* By creating clear legal grounds for preferential treatment of deposits over other unsecured creditors, depositor preference may help reduce legal challenges in case of a transfer of deposits to another institution, or the bail-in of non-deposit creditors.
- *Protecting payments and economic activity.* Deposits are often used as a means of payment rather than a store of value. Deposits of nonfinancial

<sup>9</sup>Substituting the DIS to receive recoveries from the liquidation in place of insured depositors protected by the DIS.

firms and public entities may be used for paying wages and suppliers, and uninterrupted access will avoid payments disruptions.

On balance, either tiered or general depositor preference offer the most advantages in jurisdictions with a DIS (see Box 3). These forms prefer eligible deposits to other senior unsecured creditors. Authorities should not give preference to depositors based on their nationality, the location of the deposit claim, or the jurisdiction in which the claim is payable (Key Attribute 7.4). Such “national depositor preference” would impede cross-border cooperation in resolution. Introducing depositor preference may increase bank wholesale funding costs or incentivize more secured funding, and may need to be accompanied by other measures, such as a regulatory requirement for minimum loss-absorbing capacity (LAC) over and above minimum capital requirements, or a limit on the encumbrance of bank assets, if not already in place.

## **Emergency Liquidity Assistance**

ELA is used by central banks to provide liquidity in the event of an idiosyncratic shock affecting one or a few individual financial institutions. ELA has two principal objectives: to mitigate the risk that temporary illiquidity leads to insolvency and to avoid contagion. It may be required when one or a few individual financial institutions are unable to maintain or roll over funding (whether retail or wholesale). Demand for central bank liquidity may stem from a single institution encountering problems (such as deposit outflows triggered by a large loss), or possibly a few institutions with similar business models or geographical focus. The underlying rationale behind liquidity provision in such circumstances is to mitigate the risk of financial instability, recognizing the risk inherent in bank balance sheets arising from maturity transformation—banks borrowing at shorter maturities than at which they lend. As such, it forms a critical component of the financial safety net. Frameworks should be in place for central banks to provide ELA, at their discretion, subject to safeguards aimed at reducing moral hazard and protecting the central bank from losses that could compromise its independence or interfere with its ability to undertake monetary policy.

International practice related to ELA has evolved in light of experience during the GFC (Committee on the Global Financial System 2017; Dobler and others (2016)). The GFC triggered extensive liquidity provision, with central banks often having to expand and adapt their policy and collateral frameworks significantly to preserve financial stability. This experience challenged some of the traditional thinking on ELA, while highlighting its critical importance in helping contain financial distress. The prior view, first

expounded by Walter Bagehot in the 19th century, was that central banks should lend freely to banks for a brief period, at a high interest rate against good collateral, with the assumption that a bank without such collateral was insolvent, often backed up by formal or informal central bank inspection of financial institutions' solvency. A key lesson from the crisis (and already some central banks' practice prior to the GFC) was that in a systemic crisis, ELA frameworks may need to temporarily replace a large part of the liquidity provided by the private financial system—not just banks, but potentially other systemically important funding markets—implying a need to accept wider collateral and counterparties beyond those accepted for monetary operations. Central banks should prepare for this possibility.

Some central banks have updated their policy frameworks for ELA to expand their facilities and, where these are public, provide greater transparency to the financial sector. Key lessons reflected in these changes include the following:

- **Eligibility:** All banks should be eligible for ELA, not just those pre-designated as systemically important. Even smaller banks can prove systemic at times of widespread market stress, and ELA provision may prevent wider contagion. In countries where nonbank financial entities may be systemic, central banks may need discretion to be able to widen ELA eligibility to certain entities (for example, central clearing counterparties) where necessary to preserve financial stability, provided they are adequately regulated and supervised.
- **Solvency test:** ELA should normally only be provided at the discretion of the central bank to entities deemed by the supervisor (which may or may not be the central bank) solvent and viable. The solvency and viability assessment should be forward-looking, not merely an assessment of the given point in time when the liquidity need arises. It should also consider whether the institution has a credible funding plan to repay ELA. This will often require difficult judgements, and the assessments should be regularly reviewed.
- **Collateral:** ELA should always be adequately collateralized. An entity requesting ELA may have insufficient high-quality collateral, and central banks should be able and prepared to accept a wide range of unencumbered assets where a security interest can be attached and perfected (and if necessary ownership can be transferred), and the risks managed, by the central bank. Systems to value such assets, including predetermined margins (or “haircuts”) and methods for valuing different asset classes should be in place, as well as processes to settle, manage, and realize collateral in case of counterparty default.
- **Duration:** Central banks may need to extend ELA at longer maturities than overnight or short-term facilities, especially in cases where there are systemwide problems (for example, at times of entrenched market

fragmentation). Rolling over short-term facilities may incentivize banks to reduce lending or liquidate other assets (risking asset price spirals) to manage maturity mismatches, and binding maturity limits in legislation could unduly constrain the authorities' ability to act. As a safeguard, the counterparty should prepare detailed funding plans on the use and planned repayment of ELA, subject to intensive supervisory oversight, and with incentives to repay on or before the planned date. Contingency plans should be in place to address the possibility that ELA provision may be discontinued, and alternative strategies implemented. The termination of ELA may trigger nonviability and bank resolution—central banks should work with supervisors, resolution authorities, and others to prepare for and properly sequence resolution.

- **Cost:** It is sometimes suggested that ELA should be provided at “above market rates.” However, there is unlikely to be a genuine market rate for an illiquid bank, or if liquidity stress is systemwide. Central banks need to strike a balance between providing incentives for a distressed institution to seek alternative funding, and moral hazard if ELA were available too cheaply. The rate at which ELA is provided (typically expressed as spread over a policy rate) should be sufficient to discourage use (for example, when there are genuine market alternatives), but not so high as to accentuate the strains the ELA is seeking to alleviate.
- **Governance and indemnities:** Central banks should not assume substantive risks in ELA operations that, if realized, would undermine public confidence in it. If ELA has to be provided for financial stability reasons to firms whose solvency and viability are in doubt, an indemnity should be sought from the government. There should be a clear understanding between the central bank and government on what other circumstances would require ELA to be indemnified (for example, if the central bank has concerns about the duration of the support, exit strategy, quality of the collateral, or the scale of the liquidity needed).
- **Disclosure:** While the ELA framework should allow for the disclosure of ELA, banks facing temporary liquidity pressures should know that confidentiality will be maintained by the central bank until the stress has passed. The central bank's transparency policies should allow for the disclosure of ELA to be delayed until financial stability would no longer be endangered, with transparency only ex post. To facilitate this, central banks should only disclose their full balance sheet with a lag (as, for example, with the US Federal Reserve and the Bank of England). If legal requirements would oblige the applicant to disclose, waivers—such as those provided under the Markets Abuse Directive in Europe—should allow for a temporary delay.

Significant challenges remain to complete these updated ex ante frameworks. They include the following:

- **Stigma** remains a significant challenge, as demonstrated by the unwillingness of banks to approach central bank standing facilities, including the US Federal Reserve's discount window, during the GFC. It may not always be possible to disguise from market counterparties that a bank has accessed central bank liquidity (for example, if a bank previously known to lack liquidity suddenly has high-quality liquid assets), and this in turn may engender speculation, including in the media, about the quality of the bank's balance sheet. Various approaches were taken to try to address stigma during the GFC, such as providing liquidity on a systemwide basis (instead of bilaterally via ELA) through widening central bank open market operations and introducing new facilities extending the eligible collateral, counterparties, and the maturity of central bank liquidity provision.<sup>10</sup> Some central banks also used moral suasion to persuade all banks to access central bank liquidity with varying degrees of success.<sup>11</sup> These approaches were pursued in conjunction with extensive monetary policy easing and unconventional operations by central banks, and it is unclear whether they would be replicable in countries that do not issue international reserve currencies, and may not have the space to use countercyclical monetary policy and quantitative easing.
- **Providing ELA in a foreign currency.** The need for central banks to have the legal capacity and funding to provide ELA in a currency different from their own is critical in countries where a large fraction of deposits is denominated in a foreign currency, or where banks rely on foreign (wholesale) funding. Central banks should hold prudent international reserves. However, these may prove insufficient to meet the very large foreign currency cash calls that could arise in extended periods of distress. During the GFC, major advanced economies and some emerging market economies agreed on central bank swap lines to meet large foreign currency needs. Advance agreement could be sought internationally on the conditions for, and the possible use of swap lines for ELA; however, many countries may find them unattainable. Other aspects of the global financial safety net should also be considered, including regional financing arrangements and IMF support. Finally, the authorities should act to limit foreign exchange liquidity mismatches ex ante, for example, by imposing prudential liquidity requirements in each foreign currency.
- **Liquidity in resolution.** A bank in resolution is likely to need liquidity to ensure continuation of critical functions, for example, when a bridge bank is established. The central bank should be able to provide liquidity,

<sup>10</sup>For example, under the US Federal Reserve's Term Auction Facility, longer-term liquidity was made available to a wider set of counterparties against a wider list of collateral (normally reserved for the overnight discount window).

<sup>11</sup>Larger UK banks committed, after moral suasion from the Bank of England, to draw upon the Special Liquidity Scheme (created in the GFC) for a minimum amount and for a minimum duration (at least three years).

subject to safeguards, to a bank whose current solvency may be in doubt, but which is considered systemic and viable in the context of a realistic time-bound resolution plan. The resolution and/or supervisory authority should first make a positive determination of viability. It should then be up to the central bank to decide on liquidity provision, which may need to be backed by an indemnity from the government. Many central banks are currently unable to provide liquidity in such circumstances, typically because of definitions of solvency and licensing conditions, although progress is being made in some jurisdictions.<sup>12</sup>

---

<sup>12</sup>The Hong Kong SAR authorities announced a new Resolution Facility in August 2019, available to a bank placed into resolution, with any losses being recoverable from the industry via a levy.

### Box 1. Summary of Financial Stability Board Key Attributes of Effective Resolution Regimes

- **Scope:** The resolution regime should cover any financial institution that could be systemically significant.
- **Resolution authority:** The regime should designate operationally independent, administrative resolution authorities with clear mandates, roles and responsibilities, and adequate resources.
- **Resolution powers:** Resolution authorities should be vested with a broad range of resolution powers—including to assume control, replace management and appoint an administrator,<sup>1</sup> transfer ownership assets and liabilities, either directly to a private purchaser or via an intermediate bridge bank, to bail-in creditors by writing down or converting them, and to establish an asset management vehicle (AMV) to purchase NPLs—when the financial entity is no longer viable. These powers should be exercisable quickly by the resolution authority without shareholder or creditor consent.
- **Set-off, netting, collateralization, segregation of client assets:** These arrangements should be protected, subject to the authorities being able to suspend their operation temporarily.
- **Safeguards:** Resolution authorities may depart from the hierarchy of creditor claims for certain reasons, but creditors should receive compensation if made worse off than in liquidation; judicial actions should not delay or reverse resolution measures, if the resolution authority acted within its powers and in good faith.
- **Resolution funding:** Authorities should minimize the risk to public funds and establish privately financed deposit insurance or resolution funds or mechanisms for ex post recovery of temporary public funding.
- **Framework for cross-border cooperation:** Resolution authorities should be empowered and encouraged to achieve cooperative solutions with foreign resolution authorities.
- **Crisis Management Groups:** Home and key host authorities should maintain crisis management groups that actively review and report on resolvability, and on the recovery and resolution planning process for G-SIFIs.
- **Institution-specific cross-border cooperation agreements:** Should be put in place between relevant authorities to manage the sharing of information and specify responsibilities in respect of all G-SIFIs.
- **Resolvability assessments:** Resolution authorities should regularly undertake resolvability assessments for all G-SIFIs and be able to require changes to business practices, structure or organization.
- **Recovery and resolution planning:** Jurisdictions must require planning for the recovery and resolution of financial institutions that could be systemically significant.
- **Information sharing:** Jurisdictions should eliminate impediments to the domestic and cross-border exchange of information among authorities, both in normal times and during crisis.

<sup>1</sup>Staff emphasize that appointing an administrator without taking actions in quick succession to successfully resolve the bank can trigger a run.

**Box 2. Resolution Funding and the Role of Deposit Insurance**

Resolution powers require effective funding arrangements. Orderly resolution tools require sufficient and readily available funding. At the point at which a bank must be resolved, its buffers of liquidity and capital will typically have been eroded. Resolution funding may be needed to effect an orderly resolution, for example by backing a transfer of deposits to another bank; purchasing impaired assets; or injecting liquidity after a bail-in of creditors. Pre-established arrangements should allow the resolution authority to promptly mobilize the financial resources necessary, so that authorities are not constrained to rely on public funds as a means of resolving firms. The Key Attributes accept three types of funding arrangements: (1) privately (industry)-financed deposit insurance funds, (2) privately funded resolution funds, or (3) temporary access to government funds with a mechanism for ex post recovery from the industry for costs incurred by the government. The Key Attributes afford significant flexibility in the design of resolution funding arrangements, including whether they should be funded ex ante or ex post and their optimal size. When advising countries on their resolution funding arrangements, IMF staff weigh the following:

- *Characteristics of the financial system:* The capacity of the financial industry to contribute to resolution funding and the relative significance of the bank versus nonbank sector.
- *Legal and institutional architecture:* Institutional efficiencies within the resolution regime, including synergies in the policy objectives of protecting depositors and effective resolution.
- *Capacity:* The institutional capacity of the authorities including with regard to availability of expertise, governance, and independence.

In many countries, the case for establishing a separate resolution fund is not strong. In countries with no deposit insurance fund, or with a fund that has insufficient resources, priority should be given to increasing DIS resources and making the fund available to support bank resolutions, subject to safeguards. In countries wherein there may be good reasons for establishing a separate resolution fund (for example, to support the resolution of systemic nonbanks) it may be advisable to set up an ex post resolution fund, if scarce national savings would be better deployed elsewhere. Separate resolution funds should have clear legal and operational frameworks and be subject to safeguards to minimize moral hazard.

---

Source: Croitoru, Dobler, and Molin (2018).

### Box 3. Different Forms of Depositor Preference

When depositor preference is established, depositors are given a more senior (or higher) claim than other unsecured creditors of the bank over the liquidation proceeds of a failed bank’s assets. This means that depositors must be paid in full before other unsecured creditors can collect on their claims. Following are three ways of broadly stipulating depositor preference (Box Tables 3.1 and 3.2):

- **Insured depositor preference** that gives preference to deposits covered by the deposit insurance scheme—those eligible and below the deposit insurance limit—and the scheme through subrogation (in cases where it has paid out insured depositors in a resolution or liquidation). It ranks all other ordinary, senior (non-subordinated) unsecured creditors (for example, bondholders, interbank deposits), including uninsured deposits, equally (or *pari passu*) thereafter.
- **Tiered depositor preference** (with two tiers) gives preference to insured deposits (and the scheme through subrogation) over uninsured eligible deposits (deposits eligible for insurance coverage, but above the limit), and prefers both over other senior unsecured, general creditors.
- **General depositor preference** gives preference to all deposit liabilities, regardless of eligibility and coverage of deposit insurance, over other senior unsecured creditors. The scheme is subrogated for insured deposits and, thus, bears losses to the same degree (*pari passu*) as all deposits.

**Box Table 3.1. Forms of Depositor Preference**

| Without  | Insured (or ‘Single Tier’ <sup>1</sup> )   | Tiered   | General   |
|--|--|--|---|
| (1) All deposits (with DIS subrogation to insured deposits) rank equally with other senior unsecured claims. | (1) Insured deposits <sup>1</sup> (with DIS subrogation).<br>(2) Other general unsecured (including unsecured deposits and bondholders). | (1) Insured deposits <sup>1</sup> (with DIS subrogation).<br>(2) Eligible deposits, <sup>2</sup> exceeding the deposit insurance limit.<br>(3) Other general unsecured general claims (including non-eligible deposits). | (1) All deposits (with DIS subrogation).<br>(2) Other general unsecured claims. |

Note: A higher position within each column and darker shading, indicates a more senior claim.

<sup>1</sup>Or in the absence of deposit insurance, deposit claims up to a certain limit.

<sup>2</sup>Or in the absence of deposit insurance, deposit claims exceeding the limit.

**Box Table 3.2. Relative Advantages and Disadvantages**

|   | Insured | General | Tiered |
|---|---------|---------|--------|
| • Enhance depositor confidence and reduce contagion           | +       | +++     | ++     |
| • Facilitate a resolution in which all deposits are protected |         | ++      | +      |
| • Reduce the costs of bank failures to the DIS and/or state   | ++      |         | ++     |
| • Protect payment system and economic activity                | +       | +++     | ++     |
| • Maximize market discipline for wholesale creditors          | +       | ++      | ++     |



## Operational Preparedness

One of the best-known lessons from the GFC: “a plan beats no plan.” This quote from former US Treasury Secretary Timothy Geithner embodies the current focus on ensuring adequate crisis preparedness in good times. In addition to a comprehensive set of powers and tools, as described in Chapter 2, this requires establishing permanent institutional arrangements and operational frameworks that allow authorities to prepare effectively for contingencies while minimizing moral hazard.

The GFC re-enforced the importance of strong institutional frameworks and operational preparedness. Strong institutions are needed to counter opposition from the financial industry and political pressures, establish legitimacy and accountability, and foster inter-agency cooperation. For crisis preparedness, this translates into a need to ensure that the core entities of financial safety net—central bank, financial supervisory and regulatory agencies, resolution authority, deposit insurer, and Ministry of Finance—have clear mandates and sufficient operational independence to be able to prepare, coordinate, and execute their tasks, including under time pressure. Specific guidance to enhance domestic and cross-border cooperative arrangements was incorporated in the new international standards on resolution and deposit insurance.<sup>1</sup> The Key Attributes also call on jurisdictions to put in place and regularly update recovery and resolution plans, requiring financial firms, as well as supervisory and resolution authorities, to be prepared to implement corrective actions and resolution well ahead of a firm’s potential failure, with the resources and expertise to do so.

---

<sup>1</sup>“Coordination” and “cooperation” are *not* used synonymously in this paper. Coordination is deemed the deliberate unity of action by authorities in the pursuit of a common purpose; cooperation a more voluntary, less-formal effort.

**Table 2. Lessons on Operational Preparedness**

| What is Similar?  | What is New?  |
|---|---|
| <ul style="list-style-type: none"> <li>• Coordination arrangements between central bank, supervisory authority, ministry of finance</li> <li>• Effective crisis communications</li> </ul> | <ul style="list-style-type: none"> <li>• Permanent crisis management committee including all domestic financial safety net authorities</li> <li>• Cross-border cooperation arrangements: crisis management groups for G-SIBs and equivalent arrangements for systemic cross-border banks</li> <li>• Recovery and resolution planning</li> </ul> |

Note: G-SIB = global systemically important bank.

## Institutional Framework

An effective financial safety net requires strong institutional foundations. While there is no one-size-fits-all approach to institutional arrangements, it is important that the supervision, resolution, and ELA functions be operationally separate, and adequate safeguards be put in place to minimize conflicts of interest. These could arise, for example, if one single agency acts as the resolution authority effecting a transfer of parts of a failed bank; as the supervisor of the purchasing bank; and as a creditor following ELA provision. Having multiple authorities with single mandates may be appropriate in some jurisdictions but not in countries with limited capacity, when the frequency of bank failures is likely to be low. In such cases, the risks in assigning the resolution function to a pre-existing authority (such as the supervisor or central bank) can be mitigated by functional separation—assigning day-to-day operations and the preparation of decisions to separate organizational units reporting to different senior executives. Crisis management expertise will need to be developed and maintained, including via the preparation of crisis and resolution manuals, undertaking table-top exercises and simulations, and so on. Financial safety net authorities and their current and former officials, staff, and agents should also be covered by effective legal protection.<sup>2</sup> This should protect against liability for actions taken and omissions made in good faith while discharging their duties in the exercise of their mandates, including actions in support of decisions by foreign authorities. Operational arrangements should be put in place to make legal protection effective, including to cover legal costs.

## Recovery and Resolution Planning

The Key Attributes introduced the concept of recovery and resolution planning. Recovery and resolution plans should be updated regularly—or when there are material changes to a firm’s business or structure—and cover, at a minimum, domestically incorporated financial institutions that could be systemically significant or critical if they fail. The Key Attributes require home

<sup>2</sup>As enshrined in international standards—Core Principle 2 of the Basel Core Principles, Key Attribute 2 of the resolution standard, and Principle 11 of the deposit insurance standard.

and key host authorities to put in place arrangements to cooperate on the preparation of these plans and facilitate the management of a cross-border failure—via crisis management groups for G-SIBs, and other cooperative processes for banks systemic in more than one jurisdiction

- *Recovery plans* serve to guide the recovery of a distressed financial entity. They are developed and maintained by the entity’s management, reviewed and approved by the firm’s Board of Directors, and assessed by supervisors as part of the supervisory process. They should include measures at pre-identified triggers to reduce the risk profile of a firm and conserve capital, as well as strategic options to bolster capital and liquidity, such as the divestiture of business lines and restructuring of liabilities in periods of stress (prior to resolution). Supervisors should have the power to require the implementation of recovery measures.
- *Resolution plans* serve to guide the resolution of a failing firm. Usually resolution authorities will develop and regularly update these plans<sup>3</sup> and ensure that any impediments to effective resolution are removed. For example, to simplify group structures, ensure adequate LAC, including in the relevant group entities (such as overseas subsidiaries), strengthen servicing agreements and contractual arrangements for critical outsourced functions, etc. For cross-border firms, resolution strategies may follow single point of entry (SPE) and multiple point of entry (MPE) strategies—with SPE focused on resolution at the very top of the financial group by the home resolution authority with operating parts of the group preserved and with MPE focused on separate resolution of operating affiliates in different jurisdictions by the respective resolution authorities.<sup>4</sup> Resolution plans and ongoing supervision need to ensure that adequate LAC is issued from the right group entities to effect the preferred resolution strategy—for example, a non-operating holding company for an SPE strategy, and material subsidiaries (or “resolution entities”) in an MPE strategy.
- The FSB monitors progress with resolution planning for G-SIBs through the so-called *resolvability assessment process* (or RAP). Under the RAP, home authorities report annually on progress and material issues with respect to resolvability. High-level findings from the RAP are summarized in the FSB’s annual resolution report. IMF staff do not participate in firm-specific recovery and resolution planning (including crisis management groups).

---

<sup>3</sup>In some countries, such as the US and Canada, the institutions themselves prepare the resolution plans, which the resolution authorities review.

<sup>4</sup>For details, see IMF (2014).

## Operational Capacity in ELA Provision

Many central banks (including in advanced economies) are yet to implement the arrangements needed to accept a wide range of collateral in ELA operations. This requires prior investment in central bank risk management systems and staff to manage the significant operational and financial risks incurred in accepting lower quality collateral. Central banks manage financial risks on the collateral eligible in central bank open market operations and standing facilities through minimum credit quality requirements (for example, rating requirements), haircuts (derived primarily from observable market price volatility), concentration limits, and margin calls. The risks associated with accepting nonstandard, nontraded, illiquid bank assets with idiosyncratic characteristics (for which observable credit quality information and/or market prices are lacking) are considerably higher. The due diligence required to assess the underlying credit quality of individual loans will be challenging. There are no easy solutions but prepositioning<sup>5</sup> of eligible loan pools and pre-specifying eligible debtors (corporates, private households) and minimum prudent haircuts for loans of different credit quality (for example, applying a higher haircut for nonprime retail mortgages with higher loan-to-value ratios) can significantly reduce risks and help accelerate the process of providing ELA. In countries with well-developed markets for bank securitizations, utilizing existing market expertise, conventions, and standardized contracts (including for underlying loans and their securitization) can greatly facilitate central bank risk management. In countries without such markets, and little standardization of credit contracts, risks can only be managed by applying larger haircuts to protect the central bank from greater uncertainty. Prepositioning of collateral should be undertaken for systemic entities under recovery and resolution planning. Ensuring that the central bank can make legally enforceable its security claim on nonstandard collateral, so that no other party (for example, another creditor or a bankruptcy trustee) can claim the same collateral, may also present legal challenges. Other legal obstacles that may exist in some jurisdictions—such as requirements to inform, or even receive consent from, the debtor upon the transfer of the credit claims—may limit the use of credit claims as ELA collateral and require ex ante changes to national legislation.

## Domestic and Cross-Border Cooperation

Information exchange and cooperation are key to successful crisis management. Managing a failing domestic systemically important bank (D-SIB) or a systemwide crisis requires cooperation among the financial safety net author-

---

<sup>5</sup>When the central bank conducts due diligence on (pools of) collateral in advance.

ities, including foreign agencies, if the failing firm has a material cross-border presence. This, in turn, requires legal and operational capacity to cooperate and exchange information across the relevant agencies, subject to confidentiality safeguards.

At the domestic level, formal coordination arrangements are increasingly replacing the informal or ad hoc mechanisms that were prevalent in previous financial crises. A crisis preparedness function should formally be assigned to an inter-agency committee (such as a “crisis management” or “financial stability” committee). All financial safety net authorities should be included—the financial supervisory authorities, the central bank, the resolution authority, the deposit insurance agency, and the Ministry of Finance (as applicable in different jurisdictions). It should function as a forum where the authorities work together on crisis preparedness and management, while each agency retains its own responsibility and autonomy for the exercise of relevant powers within its mandate. Such committees should have clearly specified roles, responsibilities, and operating procedures (for example, modalities for information exchange) and meet periodically in normal times to actively oversee the preparation and maintenance of national and agency-specific crisis plans. IADI Core Principle 6 prescribes that the deposit insurance agency—irrespective of its mandate—should be a member of the national crisis-management cooperative framework. Where the financial stability committee has a dual mandate for both macroprudential policies and crisis management, two standing working groups can be established with the deposit insurance authority participating in the latter.

The Key Attributes have been instrumental in enhancing expectations for cross-border cooperation on resolution. As stress builds, incentives to cooperate may diminish and relationships become strained, given potentially competing objectives in different jurisdictions (for example, whether to protect or not protect the creditors in subsidiaries or branches abroad using national funds). The Key Attributes recognize that a lack of communication could precipitate or worsen a cross-border crisis and that cooperation requires mechanisms to give effect in one jurisdiction to resolution measures taken in another. Accordingly, they call for national resolution regimes to (1) empower and strongly encourage the resolution authorities, wherever possible, to act to achieve a cooperative solution with foreign resolution authorities; (2) empower the resolution authorities to share information with their foreign counterparts, provided that arrangements are in place for the protection of confidential information; and (3) provide for transparent and expedited processes to give domestic effect to foreign resolution measures.

Regular intra- and inter-agency financial crisis simulation exercises, which should include foreign agencies, where relevant, are advisable to test and

enhance operational preparedness. Authorities should conduct regular crisis simulations and table-top exercises, with participation by senior policymakers:

- *Contingency planning:* In addition to their operational readiness for “business as usual”—such as the failure of a non-systemic bank—authorities need to be ready for unexpected events and systemic shocks. Plans should identify the human resources, legal bases, lines of communication with other domestic and foreign agencies, and action plans for managing, for example, the failure of an SIFI or a systemwide crisis. Plans should include all systemic financial subsectors (banking, insurance, securities, etc.).
- *Crisis simulations:* Simulations test capacity to respond to a severe shock and should be undertaken periodically to identify gaps in preparedness. Simulations aim to test the roles and actions of all relevant authorities in a systemwide crisis scenario. They may be modeled on a previous or a hypothetical shock and apply stress test models to determine the impact on specific sectors and individual institutions. The simulation could overlay contemporaneous developments—for example, a deposit run—and be used to check the authorities’ capacities for information sharing, cooperation, and decision-making. Simulations can be undertaken on a national or a cross-border basis. The Nordic-Baltic Financial Crisis Simulation exercise in 2019, for example, entailed the participation of 31 authorities across 8 countries (Danmarks National Bank 2019).
- *Table-top exercises:* These typically focus on the failure of one or more systemic banks, for example, a large, cross-border bank. They test policymakers’ ability to develop an agreed diagnosis and set of policy responses to the emerging problems. Table-top exercises lend themselves to testing recovery and resolution plans for individual institutions and arrangements for cross-border cooperation.<sup>6</sup>

Domestic and international cooperation is also important in the context of ELA provision. Although central banks should retain discretion over ELA, clear communication is essential with other authorities, both domestic and potentially foreign; for instance, with central banks in host jurisdictions that may be considering ELA provision (or not) to the same financial group.

## **Crisis Communications**

Crisis communication planning and templates should be prepared in advance during “normal” times. Successful crisis management depends critically on the authorities’ ability to convey consistent messages on the circumstances (the facts and figures) and the policy responses to special events. A clear

---

<sup>6</sup>Resolution authorities in the United States have conducted such exercises with UK and EU officials.

lesson from past and more recent crises: when official communications are lacking, unclear or inconsistent, or only identify problems without announcing credible solutions, they will likely exacerbate contagion.

Although each crisis will have varying origins and unfold differently, a few key principles apply in communicating with the public in a systemic banking crisis:

- **Do not communicate problems without solutions:** An effective communication strategy must be part of a comprehensive policy package, which credibly addresses the root causes and not just the symptoms of the crisis and is not an attempt to gain time or deliver platitudes. Describe what the issue is, who it affects, and what is being done about it.
- **Deliver bad news in clear, definitive, but not alarmist terms:** If creditors will bear losses, explain clearly which (and, most importantly, which not) and why in plain language, easily understood by the public, without a high likelihood of subsequent revision (barring clearly unexpected new shocks).
- **Do not overpromise:** Address the identified problems without saying or implying that there will be no more bad news. For example, saying that no more banks will fail while conditions remain turbulent may lead to a subsequent loss of credibility.
- **Speak with one voice:** The authorities need to communicate clearly and consistently, without contradictions or inconsistent messages. A comprehensive package of policies and consistent communication through one (or a select few) spokesperson(s) requires effective coordination as well as flexibility and capacity to respond quickly to emerging developments.

It is important to prepare in advance: While decisions will have to be made “in the moment” in any crisis, many draft decisions and materials can be prepared in advance. This would include identifying target groups for communication, such as the public, depositors, market participants, and the financial press; identifying communication channels, such as conventional media and social media; preparing draft templates for internal and external communications, such as press releases and responses to followup questions, and to preempt or neutralize false or exaggerated stories or rumors. Ongoing education and communication during “normal” times about the financial safety net will deliver a better-informed public and media, better able to interpret communications by the authorities in crisis.



## **PART II**

# **Crisis Management**



## Containment and Stabilization

Containment measures during a financial panic must focus on ensuring that banks can meet maturing liabilities and deposit withdrawals. As financial sector problems become widespread or systemic, creditors may no longer be able to distinguish viable from nonviable banks, and confidence in the overall financial system (and often the currency) is undermined, resulting in a liquidity crisis. Central bank liquidity can help unfreeze markets, reducing incentives to run as deposits and other short-term bank liabilities continue to be honored. By helping to ease depositor and creditor fears and allowing the payment system to continue to operate, liquidity provision can provide time to diagnose the problems and implement a comprehensive strategy. In this context, ELA is the main instrument used to restore confidence, and the first line of defense. If this proves insufficient to quell panic, other extraordinary measures may also be needed.

The GFC affected reserve currency issuers, a key difference with past crises that impacted the size and scope of central bank liquidity support. For countries issuing non-reserve currencies, providing liquidity assistance on a systemwide scale can have destabilizing macroeconomic effects through inflationary and exchange rate pressures and can compromise monetary transmission. Such effects, which typically call for a monetary policy response that tightens liquidity (especially as runs, and by implication money demand, begin to stabilize) were often absent during the GFC. As a result, compared to previous crises, central banks were able to provide more liquidity to more counterparties for longer periods, often in parallel with quantitative easing measures by the central bank. Such widescale liquidity provision, which, in some cases, has extended into the medium term, is unlikely to be replicable in countries that do not issue reserve currencies.

Other extraordinary containment measures were also employed, albeit selectively, during the GFC. Compared to previous episodes, there was more

**Table 3. Lessons in Crisis Containment**

| What is Similar?   | What is New?  |
|--|---|
| <ul style="list-style-type: none"> <li>• Use of central bank emergency liquidity to stem creditor runs and contagion</li> <li>• Widespread implicit creditor guarantees</li> </ul> | <ul style="list-style-type: none"> <li>• Central bank market-wide emergency liquidity</li> <li>• Foreign currency swap lines and ELA in foreign currency</li> <li>• Raised deposit insurance limits, more selective rather than explicit, blanket guarantees</li> </ul> |
| <ul style="list-style-type: none"> <li>• Infrequent use of administrative measures</li> </ul>  | <ul style="list-style-type: none"> <li>• Use of electronic payments to facilitate day-to-day transactions under deposit restrictions</li> </ul>   |

limited recourse to undertake blanket public sector guarantees covering all bank liabilities, and more emphasis on limited guarantees applying only to specific institutions, new debt issuance, or specific asset classes. Several countries also permanently increased the level of deposit insurance. Administrative measures (such as deposit and capital controls) had to be deployed in some cases, where contagion and capital flight threatened to deplete system liquidity or cause the payments system and the currency to collapse, and sovereign guarantees would not have been credible because of the size of the financial system.

Containment measures can provide only temporary relief. They will be unable by themselves to stabilize the situation if the underlying causes of the loss of confidence are not addressed, for example, when the bank experiencing runs is known to have solvency problems and does not have a credible path to viability. ELA or other containment measures may buy time, however, while a comprehensive strategy is developed and deployed to address underlying weaknesses.

The rest of this chapter discusses systemic liquidity provision and other extraordinary containment measures. Conditions under which ELA should be granted and made operational are covered in Chapter 2.D and Chapter 3.C.

## Systemic Liquidity Provision

Systemwide provision of central bank liquidity to alleviate the adverse effects of market-wide shocks was a defining feature of the GFC response. This wider support—to all financial institutions of a certain type or to specific financial markets, as distinct from idiosyncratic provision of ELA targeted to individual institutions (Table 4)—was provided through central bank liquidity facilities being opened to a wider set of market participants. This provision also had a monetary policy objective as well, which was a new feature of the GFC compared to previous crises. Specifically:

- *Support to financial institutions.* In the case of a market-wide shock, where there may be uncertainty as to whether banks demanding support have liquidity or solvency problems, the central bank may need to provide

**Table 4. Central Bank Liquidity Provision Post–Global Financial Crisis**

|                               | Idiosyncratic Provision—ELA   | Systemic Provision  |
|-------------------------------|---|---|
| Domestic and Foreign Currency | To a bank or a few banks:<br>(potentially also systemically important nonbank financial institutions) | <b>To the banking system:</b><br>Systemwide actions targeted at addressing market failures, with broad participation by banks |
|                               |   | <b>To markets:</b><br>Systemwide actions targeted at addressing market failures   |

liquidity systemwide to restore the monetary policy transmission mechanism and ensure markets can continue to function. This can be implemented through a change in the terms on which open market operations are provided (such as lengthening the tenure and expanding the collateral accepted) and facilitating the onward lending of liquidity. Proper due diligence of collateral and valuation, with appropriate haircuts, should be applied to minimize risks, protect the central bank balance sheet, and minimize moral hazard. The effectiveness of these measures hinges critically on those institutions with access to central bank liquidity being willing and able to on-lend the liquidity to institutions in need, which may not be the case at times of severe stress. In such cases, new facilities may be required to directly address the fragmentation issues.<sup>1</sup>

- *Support to financial markets.* In financial systems where market-based financing is important, market-wide shocks may result in the freezing of key financial markets, increasing systemic risk (see King and others 2017). A fire sale of bank assets can precipitate solvency problems and reduce the market value of central bank collateral. The GFC showed that central banks may have to respond to freezes in individual market segments, such as the US asset-backed commercial paper market in 2008. Central banks would need to identify the particular markets that are important to financial stability, together with the relevant indicators that point to a breakdown in the functioning of those markets. Programs to restore market functioning should aim to incentivize participants to re-enter the market, while considering the costs and risks to the central bank and concerns about moral hazard.

Liquidity provision in a systemic crisis entails heightened risks. Although the approaches proved effective in the GFC and should be considered as part of contingency planning, their advisability in practice depends more generally on market structure and on central banks' ability to contain potentially adverse macro implications of a large expansion of liquidity, including the impact on the exchange rate in an open economy.

<sup>1</sup>For example, during the GFC, the Term Auction Facility expanded the US Federal Reserve's counterparties well beyond the normal small group of (nonbank) primary dealers (Dobler and others 2016).

## Government Guarantees

### Liability Guarantees

Government guarantees on bank liabilities may be necessary to stem creditor runs and restore confidence. A widely used option during the GFC, countries would significantly increase the deposit insurance coverage limits on pre-existing schemes. This may be credible only if the DIS has a backstop from a creditworthy government otherwise the measure may have the opposite effect and undermine depositor confidence in the credibility of the scheme. Furthermore, if coverage levels are already high, the marginal benefit in terms of additional depositors covered may be small. More generally, the authorities that adopt these measures will have to evaluate whether and how, postcrisis, temporary deposit insurance arrangements could be unwound or risk a permanent need for a larger deposit insurance fund (IADI and IMF 2010).

Under highly stressed financial conditions, government guarantees on a wider set of bank liabilities may be necessary to ensure that creditors continue to provide financing. If ELA or increases in deposit insurance coverage prove insufficient to stem depositor and creditor runs, broader guarantees can be offered. “Blanket guarantees”—covering all bank liabilities except capital, subordinated debt, and other loss-absorbing liabilities such as long-term bonds—were used frequently in past crises (including Indonesia, Japan, Mexico, Sweden, Turkey) and less so in the GFC (Iceland, Ireland).

Although blanket guarantees can be effective in stemming runs, they are very dependent on the credibility of the sovereign’s promise to cover the liabilities. If sovereign debt sustainability is in question, or the government faces significant constraints in raising funds, blanket guarantees may not succeed in restoring confidence. As with all crisis containment measures, guarantees are likely to be tested by the market. Concerns about the solvency of the sovereign, or constraints posed by inflationary or exchange rate impact of honoring the pledges, may make the guarantees not credible to investors and fail to stem creditor flight. Credibility will be particularly in question where sovereign debt dynamics are perceived as not sustainable, or financial dollarization is high and foreign assets scarce. Blanket guarantees also constrain resolution options (as they rule out imposing losses on creditors), raise moral hazard concerns, and tighten the nexus between sovereign solvency and the condition of the banking sector. Removing a blanket guarantee can take time and prove sensitive, as long as there is residual uncertainty that creditor or depositor runs could begin again.

Although partial guarantees limit the contingent liability of the state and therefore may be more credible, they may not be sufficient to preserve confidence. If lack of confidence is pervasive, market pressures and creditor withdrawals may simply emerge in other, non-guaranteed liabilities, forcing the authorities to extend guarantees further.<sup>2</sup> During the GFC, implicit guarantees of a broad range of bank liabilities also appeared to be demonstrated in many cases by the extensive public solvency support provided to financial institutions and markets.<sup>3</sup>

Although they entail significant risks, government guarantees may be needed at times of severe stress. Based on experience, IMF staff advise that liability guarantees should be a part of authorities' contingency planning, with a range of options specified for different scenarios of varying severity. Guarantees do not solve the underlying causes of the banks' problems and transfer significant risk to the government, which can undermine sovereign debt sustainability. If they need to be deployed, they should be temporary and subject to a fee to reduce moral hazard and to incentivize private sector restructuring efforts (although, if set too high, it could undermine the restructuring). Although it is unlikely that authorities would have the capacity (or need) to honor the total stock of banking sector liabilities guaranteed, it is critical that they have enough resources to cover the liabilities of the weakest institutions. Guarantees can also limit options and increase public costs. If the guarantee is called, any losses that would have accrued to the guaranteed creditors are transferred to the public sector, significantly reducing the degrees of freedom if the entity must subsequently be resolved. Although resolution powers and tools can subsequently still be used to clean up balance sheets, guarantees imply that the state must cover larger costs (and may become the economic owner), once losses exceed non-guaranteed liabilities. Experience in several countries during the GFC clearly demonstrated the risks of the "bank sovereign nexus" under which extensive implicit and explicit guarantees (along with the impact of the crisis on government finances) can precipitate a sovereign debt crisis.<sup>4</sup>

---

<sup>2</sup>In 2007, the guarantee on the UK's Northern Rock had to be expanded twice from existing retail deposits to new retail deposits, and then to wholesale deposits within about three months of first being issued.

<sup>3</sup>With similar effects, starting in 2009, some euro area governments guaranteed bank bonds to help solvent systemic banks generate eligible collateral for central bank liquidity. Acceptance of these bonds as collateral in Eurosystem operations was restricted in 2012 and discontinued in 2015, although they remain eligible collateral for ELA from national central banks.

<sup>4</sup>Dell'Ariccia and others (2018b) estimate the conditional probability of a sovereign debt crisis occurring when a banking crisis emerges at 51 percent.

**Table 5. Comparing Asset Guarantees and Asset Management Companies**

|                 | Advantages   | Disadvantages  |
|-----------------|--|--|
| Asset guarantee | <ul style="list-style-type: none"> <li>• Can be deployed quickly, for example, in response to “sudden stops” in market funding</li> <li>• Quick/easy to exit</li> <li>• Contingent liability, no immediate impact on government debt</li> </ul>  | <ul style="list-style-type: none"> <li>• Temporary only, does not permanently clean up bank balance sheet (if guarantee not called)</li> <li>• Upside retained by shareholders/creditors of the distressed bank</li> </ul>   |
| Public AMC      | <ul style="list-style-type: none"> <li>• Permanent removal of risk from balance sheet</li> <li>• Upside value secured by the AMC/government</li> <li>• Potential efficiencies in loan workout, for example, if pooling homogenous NPLs from different banks</li> <li>• Improves bank liquidity if payment for transferred assets is in cash or government bonds eligible for central bank funding</li> </ul> | <ul style="list-style-type: none"> <li>• Upfront cost and time required to establish and operationalize AMC</li> <li>• Immediate impact on government debt (unless structured to avoid consolidation)</li> <li>• Time to exit—winding up an AMC may take many years (depending on the assets)</li> </ul> |

Note: AMC = asset management company.

### Asset Guarantees

Asset guarantees were widely deployed during the GFC.<sup>5</sup> Government guarantees on pools of assets (for example, asset-backed securities) that remained on banks’ balance sheets provided a floor on the losses the bank could suffer, reducing uncertainty about the bank’s solvency by removing downside risks and helping stabilize market funding. Banks retained ownership of the asset, leaving the upside (if recovery values exceed the expected value) with the bank. Guarantees were usually provided for a fee and were partial—a first loss tranche (at least) was borne by the recipient. Asset guarantees provide relief only during the term of the guarantee, but, if called, they permanently remove downside risk from the bank’s balance sheet. As such, guarantees that are called have economically similar effects to government asset purchases, such as through centralized asset management companies (Chapter 6 and Table 5).

### Administrative Measures

Capital controls may be needed in some circumstances, and authorities may have to impose deposit restrictions as a last resort to stop runs. In a bank run, depositors concerned over losing access to their funds swap longer duration assets for more liquid ones. They may convert deposits into physical cash or other nonbank assets, move funds away from banks perceived as weak, and convert local currency holdings into other currencies or move funds abroad, putting pressure on banks’ liquidity positions, the currency, and the balance of payments. As part of a broad policy package to support the necessary macroeconomic adjustments and financial stability, or to gain time for these policies and measures to bring results, authorities may have to resort to administrative measures in certain circumstances such as restrictions

<sup>5</sup>Examples include the Asset Protection Scheme in the UK and the Asset Guarantee Program for Citigroup and Bank of America in the US.

on deposit withdrawals and controls on capital outflows. Four countries used such measures during the GFC (Box 4).

Deposit restrictions should contain destabilizing outflows while aiming to minimize negative economic impacts. Although they may be needed to protect the banking system at times of severe stress, deposit restrictions interfere with payments and economic activity, and cause significant disruption, loss of depositor/investor confidence, and economic damage. They should be used only when absolutely necessary. To the extent possible, depositors should remain able to use cash and bank deposits for day-to-day transactions, with restrictions preventing the transfer of financial savings outside of the banking system or the country. Restrictions should be designed to allow households and firms to withdraw cash up to a certain amount over a certain period, calibrated to the type of depositors (for example, individuals versus firms) and currency, based on available liquidity in the banking system. The widespread use of electronic payment methods in countries that introduced cash withdrawal restrictions during the GFC facilitated domestic transactions, while maintaining funds within the domestic banking system. It also had the added benefit that the traceability of such transactions contributed to improved tax collection. For example, the deposit withdrawal restrictions adopted by Greece in 2015 contributed to significant increase in the use of debit and credit cards. This technological advance helped significantly compared, for example, to freezing all bank deposits and securitizing them to create a means of payment (as used in Ecuador in 1999 and Argentina in 2002). However, in cases where a subset of banks is perceived as weak, depositors may have the incentive to move funds to safer banks aggravating liquidity stress in parts of the financial system. In such cases, restrictions on transfers within the domestic banking system on domestic transactions may also be needed, for example, by subjecting higher transfers to an approval process, requiring adequate documentation of the purpose of the transaction (for example, Cyprus in 2013).

Restrictions on external transfers may be needed to protect the liquidity of the banking system and contain balance-of-payment pressures in certain circumstances. Similar to restrictions on domestic transfers, limitations on cross-border flows can be designed with a combination of thresholds (below which transactions may be performed without limitations), as well as conditions for approval (or verification) of larger transactions. In designing exchange controls on current and capital account transactions, the authorities should ensure compliance with the country's obligations under Article VIII of the IMF's Articles of Agreement and the *Institutional View on the Liberalization and Management of Capital Flows* (IMF 2012).<sup>6</sup> Capital flow man-

---

<sup>6</sup>Exchange restrictions (and multiple currency practices) can be introduced only with prior approval of the IMF Executive Board, for balance of payments (BOP) reasons and must be temporary and applied with-

agement measures (restrictions on transactions on the financial account) on outflows can be introduced consistently with the *Institutional View* in crisis or near-crisis circumstances as part of a broad policy package to address the fundamental causes of the crisis. They should be rescinded once the crisis is over.

Deposit withdrawal restrictions and capital flow management measures are distortive and typically entail significant operational resources to enforce. To be effective, the compliance framework may require significant human resources, both for the authorities and banks, with staff having to be trained at short notice. Ineffective processes can lead to delays for legitimate transactions, further encouraging liquidity outflows from the financial system through loopholes, reducing the effectiveness of the measures, and exacerbating economic damage. Residents and nonresidents will “test” the limits imposed, which may result in a temporary surge of certain types of transactions (for example, depositors withdrawing cash up to the daily limit). The financial system (if necessary, with the authorities’ support) should be prepared to cope with such spikes as a shortage of physical cash at branches and automated teller machines, which otherwise would further undermine confidence.

Administrative restrictions should be removed as soon as conditions allow. Decisions on when to gradually ease administrative measures should be driven by conditions—based on a thorough assessment of the variables that the measures were designed to ameliorate their macrofinancial impact. For example, if bank deposits start to increase and reliance on central bank funding declines, this may suggest that deposit withdrawal restrictions can be eased, while capital flow measures can be lifted if exchange rate pressures ease and bonds can be issued successfully in international capital markets. Their removal should be gradual, with steps sequenced in tandem with economic recovery and the strengthening of the financial system. Country circumstances and priorities should be respected, for example, if attracting foreign direct investment is a priority, liberalization of the repatriation of dividends to nonresident shareholders should precede lowering surrender requirements for exporters.

---

out discriminating among IMF members. Multiple currency practices can also be approved for non-BOP reasons, if they do not impede the effective BOP adjustment of the country and do not discriminate between IMF members.

#### Box 4. Administrative Measures in Cyprus, Greece, and Iceland

Cyprus, Greece, and Iceland adopted administrative measures to arrest financial distress during and after the GFC. In Iceland, loss of market access and limited lender of last resort capacity in foreign currency caused three systemic cross-border banks to default on their foreign liabilities in 2008 and to be split into two entities—one holding domestic assets and claims, and the other (mainly) foreign assets and claims; currency depreciation caused widespread financial distress in the private sector. In Cyprus, depositors suffered losses in two systemic banks in 2013, raising the risk of a systemwide run. In Greece, a collapse in confidence and doubts over continuing access to euro funding by distressed banks prompted significant deposit outflows until deposit controls were adopted in mid-2015. Despite underlying differences, the restrictions had important similarities:

- **Bank holiday.** Multi-day bank holidays were declared in Cyprus and Greece (not Iceland), while the authorities decided on broader stabilization measures. Although bank branches were closed for several days, the availability of cash machines (subject to withdrawal limits), enabled individuals to access funds to cover everyday transactions, allowing the continuation of basic economic activities.
- **Types of restrictions.** In Cyprus and Greece, limits on domestic cash withdrawals and in Cyprus on domestic transfers mitigated the risk of deposits migrating within the banking system. Cross-border transactions (and in Cyprus domestic transfers) exceeding defined amounts per day or week had to be scrutinized by bank officials. For amounts above the limit an approval committee was established, to which transaction documentation had to be submitted. In Iceland where the deposits of the new domestic banks were guaranteed, cash withdrawals and transfers in domestic currency within the domestic banking system were not restricted but controls on capital outflows were maintained for several years.
- **Calibration.** The limits chosen were calibrated for everyday transactional needs and took account of the funding capacity of banks based on available data (and pressures on the balance of payments in the case of Iceland), including on precrisis payment flows. The initial limits which were subsequently raised or lifted as conditions improved, are summarized in Box Table 4.1.

It took some months for the framework to work effectively and some restrictions remained in place for years. Capacity to monitor compliance and process a large number of approval requests had to be developed quickly—staff had to be trained and the documentation requirements developed. After the implementation phase, the processing of approvals took one to three days. Transaction limits were thereafter gradually increased, after which certain types of deposit access were liberalized. The liberalization of cross-border transactions marked the last step, which happened three years after the imposition of restrictions in Cyprus and eight years in Iceland. The final cross-border restrictions in Greece were lifted in September 2019.

**Box 4. Administrative Measures in Cyprus, Greece, and Iceland (*continued*)**

**Box Table 4.1. Calibration of Selected Administrative Measures**

|                |  |
|----------------|--|
| <b>Greece</b>  | <ul style="list-style-type: none"> <li>• €420 limit on cash withdrawals per week (any currency); no cash drawn via checks or credit cards</li> <li>• Domestic credit card payments on goods and services unlimited</li> <li>• €2,000 foreign cash limit per individual per foreign trip</li> </ul>   |
| <b>Cyprus</b>  | <ul style="list-style-type: none"> <li>• €300 limit on cash withdrawals (including withdrawals via bank tellers and debit, credit or prepaid cards) per day in each credit institution; cash could not be drawn on checks</li> <li>• Domestic card payments on goods and services limited initially but lifted two days later</li> <li>• Domestic transfers between accounts in different banks limited to €5,000 per day, per bank account (higher with committee approval)</li> <li>• Payments abroad by card limited to €5,000 per month per person</li> <li>• Foreign transfers limited to €5,000 per day (higher with committee approval)</li> <li>• €1,000 foreign cash limit per individual per foreign trip</li> </ul> |
| <b>Iceland</b> | <ul style="list-style-type: none"> <li>• No limits on domestic currency withdrawals and domestic payments/transfers</li> <li>• ISK 500,000 foreign cash limit per individual per foreign trip</li> <li>• Credit card companies/banks introduced their own limits on payments abroad</li> </ul>   |

## Restructuring and Resolution

Restoring confidence and the efficient functioning of the financial sector requires policies to address the underlying problems in individual financial institutions. Once containment measures have stabilized liquidity, the authorities should turn to ensuring that each institution is viable on a forward-looking basis—that is, able to meet capital, liquidity, and other regulatory requirements; attract market funding and satisfy redemptions; and generate adequate returns. Effective restructuring and resolution of financial firms or systems requires a robust diagnosis of the causes and impact of the financial distress, followed by resolution of nonviable entities and restructuring of weak but viable ones. If the financial safety net does not have some of the pillars described in Chapter 2, emergency legislation may be needed to strengthen it, including to authorize public solvency support, if needed on an extraordinary basis.

Diagnostic examinations of the financial health of all or a majority of banks from the system have been a common element of crisis-response strategies both before and during the GFC. conducted or assisted by independent third-party private firms (for example, in Turkey in 2001), such diagnostics have aimed to establish credible valuations of bank balance sheets as a basis for further intervention, or more generally to enhance confidence in the health of the financial system. Creditor confidence relies on trustworthy disclosure of banks' health and the transparency and quality of financial reporting are of paramount importance (Ong and Pazarbasioglu 2013). The use of stress tests as part of the bank diagnostic toolkit was an innovation of the GFC—first introduced by the US authorities in 2009 and conducted by supervisory authorities in many other jurisdictions subsequently. Experience in Europe (first in Spain and then Ireland) led to the development of a standardized approach to estimating problem assets on bank balance sheets (so called “asset quality reviews” or AQRs).

**Table 6. Lessons on Restructuring and Resolution of Financial Institutions**

| What is Similar?  | What is New?  |
|---|---|
| <ul style="list-style-type: none"> <li>• Using external expertise to assess the financial condition of most or all banks</li> </ul>   | <ul style="list-style-type: none"> <li>• Using stress tests as part of comprehensive diagnostic exercise including of forward-looking assessment of viability and standardized approaches to diagnosing capital shortfalls (asset quality reviews)</li> </ul> |
| <ul style="list-style-type: none"> <li>• Assessment of resolution options in-crisis</li> </ul>  | <ul style="list-style-type: none"> <li>• Implementation of resolution plans if available</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Preference for use of partial transfer powers to resolve nonsystemic institutions</li> </ul> | <ul style="list-style-type: none"> <li>• Statutory bail-in to resolve large and complex, cross-border institutions</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Staff advice on good practices in providing public solvency support</li> </ul>               | <ul style="list-style-type: none"> <li>• Enhanced expectations on loss absorbency by creditors ahead of solvency support</li> </ul>   |

## Bank Diagnostics

A comprehensive diagnostic is needed to enable effective bank restructuring and resolution in a crisis. Weaknesses in accounting and prudential rules and their enforcement are common when banking problems are widespread. In the emerging phase of a systemwide crisis, bank managers may face strong incentives to hide problems, delaying loss recognition and loan loss provisions that would adversely affect profitability and capital. These problems tend to be exacerbated by weaknesses in governance, external audit, and banking supervision. Analyzing resolution and restructuring options requires up-to-date financial statements that give an accurate point-in-time representation of a bank’s condition. Bank diagnostics typically address two fundamental needs—identifying the size and distribution of losses and identifying the viability of individual institutions.

### Systemwide Diagnostics

An asset quality review (AQR) and a forward-looking assessment of viability are critical when distress affects the whole financial system. Systemwide diagnostics entail a complex process that will take time to design, agree with relevant stakeholders, including the banks, and implement. Depending on specific country circumstances, a comprehensive approach, or one more focused on problematic areas (for example, the loan books of banks) may be appropriate. If diagnostics are not undertaken on a suitably prudent basis using realistic assumptions (Box 5), they are likely to underestimate capital needs. Over-optimism on the pace of economic recovery, NPL valuations, and bank profitability may lead to recurrent episodes of capital shortfall in banks, which undermine depositor and investor confidence. Key elements of a successful diagnostic approach include the following:

- An AQR, which applies a uniform and rigorous set of valuation criteria to all banks, through a centralized process that values assets and liabilities to identify losses and recapitalization needs in each institution. Participation of external parties (for example, an international audit firm) or applica-

tion of new valuation standard (such as International Financial Reporting Standards (IFRS), or more robust loan classification and provisioning rules) can help bolster confidence in cases where weak bank supervision and local auditing practices have been a factor contributing to financial vulnerabilities. AQRs can also offer insights into other elements that underpin the viability of financial institutions, such as instances of weak risk management controls or hidden liabilities.

- An assessment of viability on a forward-looking basis, comprising a business plan assessment and, where appropriate, systemwide stress testing (Box 6) to form a forward-looking view of banks' resilience under baseline and adverse economic scenarios. Viable financial institutions must show sustainable profitability and capacity to meet regulatory requirements. Unrealistic assumptions should be identified and corrected in viability assessments. For example, optimistic growth assumptions may be inconsistent with macroeconomic prospects or the plans of other banks, while new private investors will only be interested in a profit-making banking franchise. Viability assessments enable a "triage" of financial institutions into three categories: (1) viable and compliant with regulations; (2) viable but undercapitalized and/or illiquid; and (3) nonviable. For entities in the second category, further decisions would have to be made on whether they can be recapitalized by their owners, or if the use of public funds may be warranted.

### **Individual Bank Valuations to Support Resolution**

For banks that have been identified as failing or likely to fail, quick and reliable valuation of assets and liabilities is a prerequisite of effective resolution. An accurate valuation is needed to ascertain that the resolution triggers (based on nonviability criteria) are met, and determine the least costly resolution option, best able to preserve financial stability. A valuation of the entities' assets and liabilities is needed to determine the extent of losses and decide which resolution powers to use and how to apply them. To be able to implement a bail-in of creditors or determine which liabilities to leave behind to incur losses when capitalizing a bridge bank, first requires an accurate and prudent estimate of the "size of the hole." This is the shortfall in net assets that will need to be "filled" in resolution either by imposing losses on shareholders and creditors or using resolution funds (Chapter 2). The valuation will also have to estimate what the assets would have realized in liquidation (using gone-concern valuation principles), and what each of the creditor classes would have received if, instead, the bank had been placed in liquidation (on the date of resolution). This "counterfactual valuation" is needed to ensure, with a prudent margin, that creditors are not made worse-off under resolution. Typically, this valuation will need to be re-run subsequently, based on the actual resolution effected (at that date), after more information

has become available, with adequate disclosure of the valuation to mitigate potential “no creditor worse off” risks and litigation risks. The latter tend to be greater in jurisdictions without a track record of imposing losses on bank creditors of failed bank.

The information needed by resolution authorities will be more granular and up-to-date than that available from routine supervisory reports. Ensuring that banks have the management information systems and capacity to provide the necessary data quickly should be covered under firm-specific recovery and resolution planning.<sup>1</sup> While some resolution authorities may have the in-house capacity to undertake the valuations needed for resolution, this function (or aspects of it, for example, to value nonperforming assets) can be outsourced to private sector experts, such as an audit firm. For the valuation undertaken ex post to assess the “no creditor worse off” safeguard, an independent valuer can afford greater protection against litigation to the resolution authority than doing the valuation in-house. Contractual arrangements should be put in place to outsource at short notice, with established policies for determining the valuation principles and assumptions, including on macroeconomic scenarios.

## **Systemwide Restructuring and Resolution**

Once the systemwide diagnostics are complete, a clear and comprehensive restructuring strategy is necessary to restore the banking system to soundness. A plan for managing the results of the diagnostic exercise is needed well in advance of the results, to allow for any legislative reforms and preparations required. The plan needs to cover a triage of viable and non-viable banks with the actions to strengthen the former through restructuring and recapitalization, and to intervene and resolve the latter (Figure 4 shows a stylized decision tree). While a common response, supervisory forbearance and delaying resolution is typically<sup>2</sup> the least advisable route, as it will usually result in higher resolution costs.<sup>3</sup> The strategy should outline actions, timelines, responsibilities, and options for each entity examined. Communication with the banks and the broader public is key to maintaining public and investor confidence, emphasizing the objectives of the process, how deposits

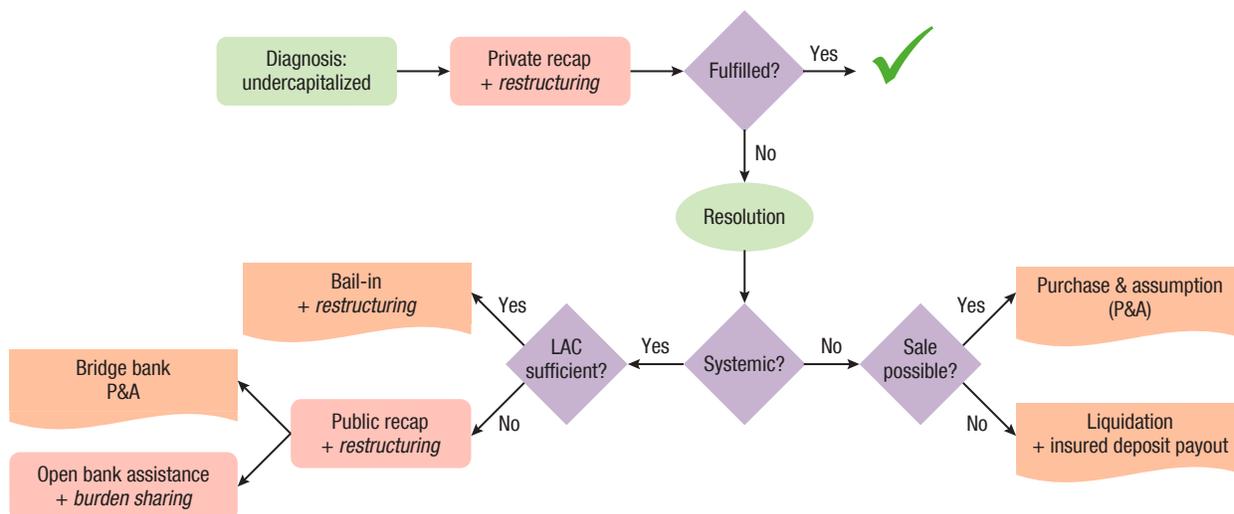
---

<sup>1</sup>If a valuation needs to be performed without adequate information, resolution authorities should add a prudent margin to the loss estimate.

<sup>2</sup>Regulatory forbearance arises when the supervisory authorities opt not to enforce prudential regulations, hoping that more favorable economic conditions will materialize and help gradually resolve problems. Forbearance can be informal, that is, turning a blind eye to violations, or formal, that is, an agreement to waive certain prudential rules for a limited period. Timebound formal forbearance may be necessary on an exceptional basis, for example, in response to a natural disaster or as part of a systemwide restructuring plan in a systemic crisis.

<sup>3</sup>For a sample of US banks, Cole and White (2017) estimate that resolution costs increased by 37 percent compared to an assumed counterfactual of resolution at an earlier juncture.

Figure 4. Systemic Bank Restructuring: Decision Tree



Source: IMF staff analysis.  
 Note: LAC = loss-absorbing capacity; P&A = purchase and assumption.

and financial stability will be protected, and clarifying expectations for other creditors and shareholders. The design and implementation of the strategy should involve all the members of the financial safety net.

Banks with viable business models and recapitalization plans should be subject to intensive supervision before returning them to regular supervisory oversight. A systemic banking crisis tends to have long-lasting effects on the macroeconomic and business environment, and there will be a need for close attention to banks’ implementation of their recapitalization plans. The business plans submitted by the bank should be used as a monitoring tool to ensure that any weaknesses uncovered by the diagnostic review process are adequately and quickly addressed. When supervisory and/or resolution authorities conclude that the problems revealed by the diagnostics cannot realistically be addressed by the shareholders, the bank should be resolved.

### Assessing Resolution Options

Resolution tools had been developed and used well before the GFC, but adoption across countries was uneven, and there was no credible or widely agreed approach to resolve “too big to fail” banks. The result was periods of benign neglect if a systemic institution were close to failure, followed by public solvency support to preserve financial stability. These experiences highlighted the importance of adequate resolution tools and loss absorbency

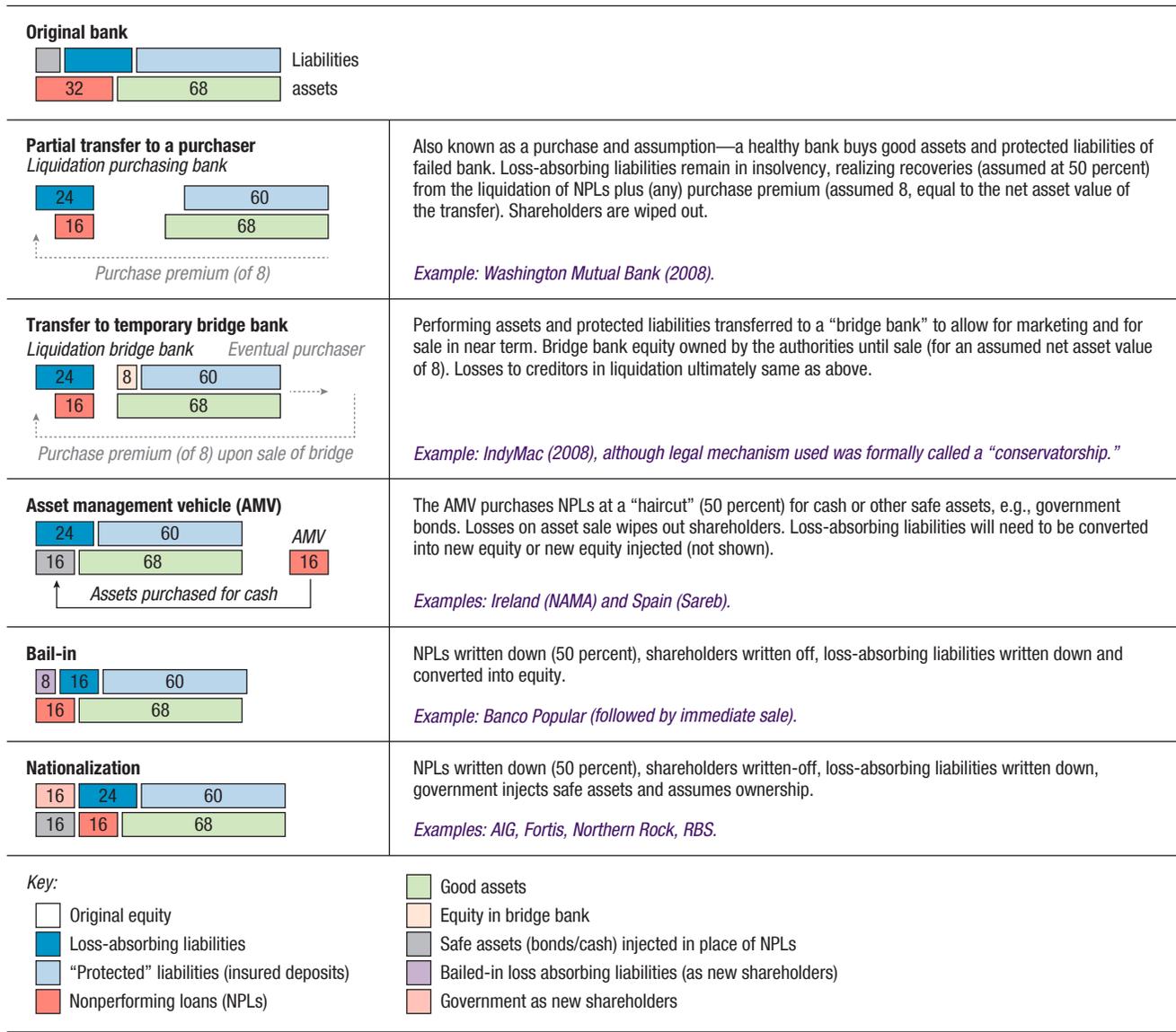
to support effective resolution of systemic banks while minimizing taxpayers' exposure to loss—as described in earlier sections. This new toolkit remains largely untested, but it offers an alternative to the unlimited use of public money in the event of failing systemic banks.

The tools in an effective resolution regime aim to allocate the losses of the failed bank to its shareholders and creditors. They seek to do so in a manner that ensures continuity of systemically important financial services and payment, clearing, and settlement functions, as well as avoiding unnecessary destruction of value. Having an array of resolution tools, with different properties, enables resolution authorities to tailor resolutions to the specific characteristics of any case. Figure 5 presents stylistic examples of the balance sheet effects of using different resolution tools. The examples assume that all financial entities considered have adequate LAC (that is, liabilities that can absorb losses without propagating contagion and financial instability), or that the authorities have adequate resolution funding. For example, if there were insufficient loss-absorbing liabilities to allow for a bail-in (without risking systemic disruption), there would also be inadequate liabilities left behind in liquidation incurring losses as needed to implement a partial transfer or a bridge bank.

### **Partial asset and liability transfer**

Transferring deposits to a healthy bank instead of paying out the depositors of the bank in liquidation has clear advantages. Transfer of (insured) depositors to a healthy bank with the deposit insurance fund covering any gap in the assets transferred (on a least cost basis) delivers significant benefits compared to placing the whole bank into liquidation and paying out deposit insurance. Depositors retain continuing access to their deposit accounts at the acquiring bank, minimizing disruptions. Experience from the US, where this type of resolution tool is known as a “purchase and assumption” (P&A), suggests that it can secure higher “going-concern” values for the assets of a failed bank than liquidation; and often a small premium from the purchaser for the deposit book (as banks incur costs to attract deposits). For this reason, all resolution regimes, even in relatively simple deposit funded banking systems, should have transfer powers. Deposit insurance schemes should be able to support such a resolution on a least cost basis (Chapter 2). Implementing a P&A in a short period may not always be possible; however, for instance, if the failing bank is large and complex; if the authorities are unprepared; or if no purchaser can be found (for example, in concentrated banking systems).

Figure 5. Stylized Balance Sheet Impact of Different Resolution Powers



**Further details on referenced cases**

Banco Popular: <https://srb.europa.eu/en/content/banco-popular>  
 IndyMac: <https://www.fdic.gov/news/news/press/2008/pr08056.html>  
 Nama: <https://www.nama.ie/uploads/documents/NAMA-Annual-Report-and-Financial-Statements-2018-English.pdf>  
 Sareb: [https://www.sareb.es/file\\_source/web/contentinstances/documents/files/sareb.-activity-report-1h2018.pdf](https://www.sareb.es/file_source/web/contentinstances/documents/files/sareb.-activity-report-1h2018.pdf)  
 Washington Mutual: <https://www.fdic.gov/news/news/press/2008/pr08085.html>

### **Bridge bank**

Bridge banks allow more time to market a partial transfer (P&A). Using this tool, a resolution authority can move performing assets and some portion of liabilities (at a minimum insured deposits) from the failed bank into a temporarily government-owned “bridge bank” and liquidate the remainder of the failed bank (see Box 7). The bridge bank can be marketed to prospective private owners, and then sold to a third-party as soon as feasible—although country circumstances and the speed of economic recovery will affect investor appetite and a quick sale may be unrealistic in the midst of a systemic crisis. As a new legal entity, a bridge bank can be designed such that it does not carry contingent liabilities from the failed bank (for example, off-balance sheet obligations or litigation against the failed bank). Owing to the nature of the bridge entity, some jurisdictions do not require bridge banks to be capitalized; however, it is preferable to establish a clear ownership and governance structure from the outset. While the Key Attributes require powers to transfer assets and liabilities back from a bridge bank to the original legal entity in liquidation, these powers should be used only in strictly limited circumstances and within a short period. If financial creditors transferred to a bridge bank are subsequently transferred back into liquidation on a significant scale, this could risk undermining the bridge bank as an effective resolution tool by incentivizing creditors of the current or future bridge banks to run. This puts a high importance on getting the valuation right and not underestimating the size of the capital needs before establishing the bridge bank.

### **Bail-in**

Bail-in powers have received considerable attention since the GFC, but practical experience to date is limited. Resolving a bank via statutory<sup>4</sup> bail-in involves writing down and converting loss-absorbing liabilities of a bank in resolution into equity. The statutory bail-in powers were conceived during the GFC as a way of imposing losses on creditors, without having to liquidate the original legal entity and transfer assets and liabilities associated with its critical services to a third party. This was thought to entail fewer execution risks when resolving large and complex cross-border banks, as the legal powers would apply to fewer contracts governed by foreign law (those of the bailed-in liabilities only) than with a transfer of most assets and liabilities to a bridge bank. Since the issued securities will likely be governed by the laws of relatively few jurisdictions (for example, those of major financial centers), it may be more straightforward to achieve cross-border effect through bail-in than through transfer powers. The latter would require achieving legal effect

---

<sup>4</sup>As opposed to contractual arrangements with write-off or conversion features such as contractual contingent convertible instruments (CoCos), which can be triggered outside of resolution.

in all of the countries with jurisdiction over the tangible and intangible property of a failing cross-border group. The entity would also retain its existing contractual arrangements with group entities and licenses and regulatory permissions, facilitating continued access to payments and settlements infrastructure (Zhou and others 2012). However, implementing bail-in has many complexities; for example, in the interaction with securities regulations on suspending, canceling, or listing shares, as well as the need to ensure compliance with fit-and-proper criteria for new owners (FSB 2018b). Countries with relatively simpler banking systems (for example, deposit funded without significant cross-border linkages) may not need a bail-in tool, as other resolution tools may achieve the same loss absorption by shareholders and creditors through simpler legal mechanisms.

Imposing losses on creditors in a systemic crisis requires that banks have adequate loss-absorbing capacity. The case of Cyprus in 2013 highlights the disruptive effects on public confidence of seeking to impose losses on depositors in the absence of adequate LAC. Reforms post-GFC have sought to enhance the total loss-absorbing capacity (TLAC)—unsecured liabilities including common equity, subordinated debt and some senior debt (excluding deposits and structured debt) with a maturity of at least one year—of G-SIBs, adding clarity on the types of claims that qualify for loss absorption, and the amounts and location within a financial group’s structure of such claims (FSB 2015). Some jurisdictions have also required D-SIBs to maintain a buffer of LAC to facilitate their resolution. It is crucial that unsecured and uninsured bank creditors understand the risks they are incurring by investing in banks and can absorb losses. In this regard, G-SIBs have been issuing TLAC-compliant debt (which excludes short-term debt claims) to mitigate potential liquidity risks and spillovers. To facilitate effective bail-in, retail investors’ exposure to bail-in-able financial instruments should be subject to strong investor protection, such as through sufficiently high minimum lot sizes (that is, the minimum value of instruments an investor can buy) to exclude retail investors, and stringent and adequately enforced requirements of suitability in marketing and selling the securities.

## **Recapitalizing Banks Using Public Funds**

Although ensuring banks have adequate capital is the responsibility of shareholders, a residual risk remains that temporary support from the government may be needed to preserve financial stability. In a large-scale financial crisis, government funds may be needed to recapitalize entities that prove systemic. At times of acute contagion risks when markets are dislocated or frozen, it will be difficult for the private sector collectively to generate new private capital for banks. If placing financial institutions into resolution would exacerbate

the risk of contagion and further undermine confidence, public funds may need to be temporarily deployed (Dell’Ariccia and others 2018a). This would be the case, for example, if the LAC of some large financial entities is insufficient to cover potential losses or if doing so would trigger contagion (for example, creditors will reduce their claims on other banks).

Using public resources for bank recapitalization should be a last resort, used only when financial stability is severely threatened, and subject to strict conditions (Box 8). Resolution regimes, funding arrangements, and contingency planning should build in sufficient flexibility to allow for public support, should it be required, including scope for recovery of resources ex post from the industry. Prior conditions for government support should include all losses first being recognized (and equity capital written down) before public funds are injected, to avoid bailing out shareholders. If losses exceed equity capital, attribution of losses to other creditors will be a key decision in the resolution strategy, balancing financial stability with cost minimization and moral hazard concerns.

Ownership interests in banks following full or partial recapitalization should be the responsibility of the finance ministry (or a specialized agency). As managers of liquidity to the banking system and sometimes as supervisors, central banks have significant conflicts of interest as owners of banks. In addition, provision of capital funds to some banks can easily create conflict with the primary mandate of preserving monetary stability. Deposit insurers have a conflict of interest in owning an entity whose depositors they are insuring, and competitiveness and fairness concerns arise for the other contributors to the scheme. Such ownership also introduces scope for losses, which can undermine the credibility and balance sheets of central banks or deposit insurers.

Different recapitalization instruments have different benefits and costs. Equity participations—which trigger an immediate dilution of any remaining shareholders and afford ownership rights to the government—are advisable when losses have already accrued, capital needs are urgent, and ownership and management can be credibly separated. The provision of non-core capital (for example, contingent convertible instruments, redeemable preference shares or other subordinated instruments) may avoid the stigma associated with government ownership but are only appropriate if the bank already meets minimum core (for example, Tier 1) capital requirements and its current owners and managers are considered fit and proper. Contingent capital is best used when the authorities deem it necessary to increase bank buffers on a precautionary, temporary basis (such as due to shortfalls in a stress test adverse scenario), in realistic expectation of forthcoming private solutions.

Sovereign financing constraints may affect the choice of cash versus bond-based recapitalization. Although government bonds are frequently used to eliminate negative equity, recapitalization using cash is preferable and corresponds to the standard regulatory concept of a capital infusion. However, if a sovereign lacks market access, the only option may be to recapitalize using government bonds instead of cash, bearing in mind that if the sovereign has difficulty borrowing, the feasibility of a recapitalization strategy could be questioned and trigger adverse market reactions.<sup>5</sup> The characteristics of the bonds used for this purpose are important, in particular: (1) interest rates should be high enough to allow the recipient bank to remain profitable; (2) maturities should be consistent with the expected recovery in the franchise value of the bank; and (3) the bonds should be marketable and, as such, acceptable as collateral for central bank operations (Andrews 2003).

---

<sup>5</sup>For example, at the onset of the 2008 banking crisis in Iceland, the authorities announced they would recapitalize a large bank. This triggered a sovereign downgrade as Iceland's external reserves covered only a small fraction of banks' foreign liabilities. All banks in Iceland subsequently faced foreign funding and deposit outflows, and margin calls.

**Box 5. Good Practices in Asset Quality Review Design and Implementation**

Good practices to follow when designing an asset quality review to be undertaken by independent firms include the following:

- Develop comprehensive terms of reference for the scope and assessment methodologies, with sufficient detail on essential elements, such as loan classification and provisioning, to ensure objectivity, transparency, and rigor.
- Set the accounting, collateral valuation, and regulatory standards to be applied, which may involve prior passage of regulatory reforms ensuring that there is an adequate legal basis for prudent assessment, and, critically, enforcement of capital requirements or other actions to follow up on the findings.
- Provide macroeconomic forecasts for key variables (for example, GDP growth, unemployment, exchange rates, interest rates) and property values (residential real estate index, commercial real estate index) to ensure consistent collateral values are applied and conjunctural risks captured.
- Use a disciplined project management framework with an explicit governance structure and strong oversight. Allocate sufficient resources (and cultivate political will) to review and redo work if gaps are identified. Include local participation in the independent expertise used, to bring local knowledge and enhance ownership.
- Decide ex ante on the strategy and financing sources that will be used to cover identified shortfalls; the absence of sufficient resources (private or public) for recapitalization can undermine creditor confidence and the credibility of the exercise, and lead to speculation that the results were “tailored” to fit the resource envelope.

Prudent internal credit rating systems and loan-loss buffers should be a focus. The terms of reference should include an assessment of credit risk infrastructures in the bank, including the objective criteria and the risk drivers followed in grading loans and provisioning. It is typical to see large volumes of loans reclassified from performing to distressed grades following an independent diagnostic, and this should result in regulatory re-classification and the application of higher regulatory risk weights and additional loss reserves. Loss estimates should be based on conservative assumptions, with recovery values based on the expected value at the time of liquidation, taking account of forecast changes in collateral market prices and currency fluctuations, as well as conservative discounts for forced-sale and for the time-value of money.

Independent valuation of collateral is needed. The terms of reference should require that independent valuation be done by accredited agents, using an internationally recognized valuation approach (such as International Valuation Standards). Given that some valuation techniques can significantly overestimate collateral value in a distressed environment, the valuations should be limited to the income (for assets with cashflows)

---

Source: Gutierrez, Monaghan, and Piris (2019).

**Box 5. Good Practices in Asset Quality Review Design and Implementation (*continued*)**

or the market approach. The diagnostic also often has to consider the effectiveness of the creditor rights and institutional (especially judicial) frameworks and their impact on collateral values. In addition to sampling actual loans and collateral, the assessment must test the reliability and credibility of the methodologies used to estimate loss provisions. The assessment should cover individual and general provisions. An assessment of the credit information available, the rigor of the loan underwriting process, the effectiveness of internal loan review and risk controls, and the policies and capacity for loan recovery and debt restructuring should also be covered.

### Box 6. Crisis Stress Testing

Stress tests, commonly used as a supervisory tool, were used as part of systemwide diagnostic and recapitalization exercises during the global financial crisis (GFC). Stress testing has gained increasing prominence following the crisis, and has been used in different ways:

- **Ongoing supervision:** Under which bank supervisors conduct regular stress tests—for example, the annual Comprehensive Capital Analysis and Review by the US Federal Reserve, and the annual EU-wide stress tests by European Bank Authority—to assess capital adequacy under potential stress scenarios of banks using common assumptions. The results are used to enhance financial resilience, for example, by requiring higher capital (under Pillar 2 of the Basel capital framework), identify risks and vulnerabilities and assess banks' risk management. Since the GFC such stress testing has become a central component of ongoing banking supervision.
- **Macroprudential diagnostics:** Under which authorities assess systemwide vulnerabilities (typically including feedback/second-round effects) that can be used in different ways, including: (1) to calibrate *macroprudential policies*, and (2) as a forward-looking diagnostic exercise as part of a *crisis response*.

In the latter case, the stress tests should include all systemic as well as distressed and near-distressed institutions, with the baseline determined by the realized shock (which may so severe as to require little or no further stress overlay is needed). The results can be used for a triage which differentiates the soundness of banks in the system and identifies capital needs on a forward-looking basis. As part of a comprehensive crisis resolution strategy with prudent and transparent assumptions and communication, combined with credible arrangements to inject the necessary capital (from private or if necessary, public sources) such stress tests can play a crucial role in regaining public trust in the banking system, for example as demonstrated by the Supervisory Capital Assessment Program in the United States during the GFC.

---

Source: Ong and Pazarbasioglu (2013).

**Box 7. Making a Bridge Bank Operational**

- **Advanced preparation.** The authorities must be able to incorporate and license a new bank on short notice and transfer assets and liabilities to it quickly. A bridge bank needs a management team, a business plan, and the ability to manage day-to-day operations. This requires pre-preparation by the resolution authority, for example, by drafting a bridge bank charter in advance and pre-identifying a list of potential managers which meet fit and proper criteria.
- **Prudential requirements.** The supervisors should be able to expedite a banking license to the new institution. The resolution framework should stipulate if some prudential requirements can be met with a delay on an exceptional basis.
- **Ownership and governance.** The government should be the owner and adequate governance arrangements adopted (Box 8).
- **Valuation and transfer of assets and liabilities.** Before transferring assets and liabilities to the bridge bank, the resolution authority should undertake a prudent valuation. When deciding which balance sheet items to transfer, the resolution authority should be guided by their marketability. A narrow subset of good assets and deposit liabilities will facilitate the sale to another bank. The bridge bank might not be stable if the liabilities transferred to it are callable and are not (explicitly or implicitly) protected. For this reason, only good assets and liabilities that need to be protected to preserve financial stability should be transferred into the bridge bank.
- **Reverse transfer powers (put-back option).** Powers to transfer assets and liabilities back to the entity in liquidation should be subject to a time limitation and only be used under a narrow set of circumstances (such as to address valuation errors). Otherwise, they will undermine confidence in the bridge bank tool, as creditors will fear being transferred back and have incentives to run.
- **Time limits.** The resolution framework should include incentives for the state to divest as soon as feasible. Strict time limits on a bridge bank are not advisable as they could undermine the authorities' negotiating power with potential buyers.

**Box 8. Good Practice in Public Solvency Support**

Public solvency support to problem banks involves significant cost, risk, and moral hazard. Private solutions and, if unattainable, orderly resolution without recourse to public funds, are much less distortionary. However, public solvency support may be unavoidable in exceptional circumstances; for example, when spillovers are high, or an effective resolution regime is not in place. In such circumstances, staff consider that government support to banks should only be provided under strict conditions that maximize burden-sharing, minimize moral hazard, and protect taxpayers.

- **Systemic stability.** Public support should be used only for cases with a material risk of destabilizing the financial system or jeopardizing the continuity of essential payment, clearing, and settlement functions.
- **Burden sharing.** All unrecognized losses must be identified, ideally via a comprehensive asset quality review, if time allows, and the bank's equity and other capital instruments written down for the losses, prior to providing public funds. To the extent compatible with financial stability and permissible under the legal framework, loss allocation should continue in accordance with the creditor hierarchy, ultimately affecting claims of uninsured, senior unsecured creditors.
- **Restructuring.** Solvency support needs to be paired with a comprehensive restructuring plan that addresses structural weaknesses and helps restore long-term viability, including via cost-cutting and strengthening the risk management framework, capital, and liquidity planning, etc. Public solvency support should be remunerated to help mitigate moral hazard. Plans should provide for recovery of public support within a reasonable timeframe, if necessary, via divestitures of selected assets and business lines.
- **Governance.** Managers responsible for the failure of the bank should be replaced, executive compensation capped, and any bonuses paid to senior management prior to the failure clawed back (if possible). To allow internal capital generation, dividend payments (if any original shareholders remain) need to be suspended until solvency support is repaid. The authorities should establish a high-level inter-agency committee to coordinate the operation, ensure timely and consistent information is released publicly, and manage the public sector's interest on an arm's length basis. Central banks and supervisors should not contribute to recapitalizations to avoid potential conflicts of interest. The central bank, however, may need to provide collateralized liquidity to viable banks that have been recapitalized in, or outside of, the resolution regime.
- **Strict oversight.** Recipients of public support must be subjected to strict supervision and enhanced reporting to prevent excessive risk taking, foster robust governance and safe and sound practices, and ensure consistent implementation of the restructuring plan. Supervisors should establish measures to prevent asset stripping, monitor and, if needed, block intra-group and insider transactions.

Source: Dell'Ariccia and others (2018a).

**Box 8. Good Practice in Public Solvency Support (continued)**

- **Exit planning.** Divestment strategies should be carefully analyzed and initiated as soon as market conditions allow. While exit scenarios should aim to ensure a reasonable return on the financial contribution, for example, via market-based remuneration and/or the issuance of equity warrants to the government, the overarching objective should be to return the bank to private ownership within a reasonable period—even if that entails losses on the original investment.
- **Review.** A review, conducted with independent expertise, should focus on the events that led up to the failure, and identify the structural weaknesses in the bank’s business model, governance, and risk controls—with the aim of drawing lessons that could help prevent recurrence, and determining the culpability of senior management. The supervisor should also closely evaluate its own role, so that improvements to supervisory procedures, the reporting framework, and instruments for early intervention can be identified.
- **Transparency.** Ongoing disclosure on the actual and estimated cost of the public solvency support and any recoveries realized (updated periodically) is crucial for accountability to taxpayers.



## Dealing with Distressed Assets

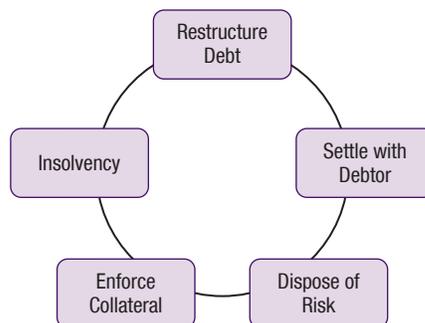
High NPLs can weigh on bank viability, credit growth, and economic recovery. NPLs affect banks' net income and profitability through loan loss provisions and interest suspension, tie up capital (given high risk weights on NPLs net of provisions), and affect bank funding costs due to lower expected profitability and higher risks for investors. Weak balance sheets and higher funding costs make banks uncompetitive and hinder new lending. Although managing moderate volumes of problem assets like NPLs is part of normal banking business, dealing with very large NPL portfolios is not a core competency of banks or their managers, and requires specialist skills. With respect to the distressed borrowers, heavily indebted firms have less incentive to invest (profits will go to repay debt), damping cyclical recovery and lowering the value of distressed debt and corporate assets.

International experience before and during the GFC suggests that a comprehensive strategy is most effective in resolving high NPLs (Aiyar and others 2015). Banks have five basic options to deal with NPLs (Figure 6): restructure the loan terms, settle with borrower at a discount to the amount due, dispose of the risk to third parties, enforce their rights against loan collateral, or seek insolvency proceedings.<sup>1</sup> A strategy that facilitates the efficient execution of these options can help maximize value recovery from distressed assets and minimize overall economic losses. Such a strategy typically includes three core elements: tightening regulation and intensifying supervisory oversight; eliminating gaps that may exist in the insolvency and enforcement framework; and introducing measures to facilitate disposal of risky assets including development of a distressed debt market. Typically, these measures have to be supported by changes to the tax regime and reforms to improve access to

---

<sup>1</sup>Common loan restructuring tools include extending the maturity, reduced-interest loans, debt-for-equity swaps, repayment reduction through "warehousing" a portion of the debt, and write-offs of portions of the debt (typically based on repayment performance for the remainder of the debt).

Figure 6. Banks' NPL Resolution Options



Source: IMF staff analysis.  
 Note: NPL = nonperforming loan.

information. Efforts to address NPLs should start as soon as possible during a crisis, not least because most measures take time to be implemented and bear fruit. Reducing large NPL stocks is a protracted process that often takes years, and significant progress may occur only as the economy recovers.

Compared to previous crises, the GFC made more use of decentralized debt workout strategies and less of centralized ones. Many economies suffered from weak post-crisis economic recoveries, which permanently impaired borrowers' repayment capacity. Accordingly, over time, emphasis was placed on incentivizing banks to improve governance and develop credible NPL reduction plans. Centralized AMC's were, however, established in some countries (for instance, Ireland, Slovenia, and Spain), where there was a clear case that such entities would help address difficult multi-creditor issues for large value, non-core illiquid assets and deliver economies of scale in managing them in an environment wherein sufficient fiscal resources were available to fund them.

### Supervisory Policy

Sufficient loss-absorbing capacity in banks is a precondition to effective loan workout. Loans that are not adequately provisioned cannot be restructured (or liquidated) without fully recognizing the loss and charging it against income and capital. Hence, banks that are capital constrained or unprofitable—which is a common occurrence in the wake of a financial crisis—have incentives to underreport NPLs on their balance sheets, capitalize interest payments due but not received, and wait for a general improvement in economic conditions that may restore viability to the borrower. When NPLs have risen to systemic levels, such delaying tactics

**Table 7. Lessons on Distressed Asset Management**

| What is Similar?   | What is New?   |
|--|--|
| <ul style="list-style-type: none"> <li>• High levels of NPLs as a crisis legacy that must be resolved</li> <li>• Tightening of loan classification and provisioning rules to force timely loan loss recognition</li> </ul> | <ul style="list-style-type: none"> <li>• Supervisory guidance and intensified monitoring to ensure consistent and prudent application of collateral valuation and impairment provisioning</li> <li>• Enhanced prudential oversight, including to banks' governance, operational targets for NPLs reduction, banks' internal NPLs management capabilities, supervisory reporting and public disclosure</li> </ul> |
| <ul style="list-style-type: none"> <li>• Centralized, public AMCs to separate illiquid, distressed assets from bank balance sheets (although more selectively used than in the past)</li> </ul>                            |  |

Note: AMC = asset management company; NPL = nonperforming loan.

undermine credit conditions, business and investor confidence and, hence, economic recovery.

Swift loan loss recognition and robust provisioning, income recognition, and write-offs underpin banks' incentives to tackle high levels of NPLs. Although these aspects were equally critical in previous crises, the GFC brought into focus the role of supervisors in loan-loss provisioning within the rules set by accounting standards (Gaston and Song 2014). Supervisory regulation and guidance on collateral valuation and provisioning can help ensure a consistent and prudent application of accounting rules, for instance with regard to impairment triggers, provisioning methodologies for collectively assessed loans, and management judgment and assumptions. Supervisory policy and guidance are particularly critical on the following aspects:

- *Classification and forbearance*, of loans to ensure that those that are past due, unlikely to pay, or have been granted temporary payment relief in part or in full, are classified appropriately
- *Loan restructuring*, and conditions that would allow a restructured loan to no longer be considered impaired
- *Interest accrual on NPLs*, to avoid accrual of uncollectible income on loans past due, which distorts profitability
- *Collateral valuation*, to ensure that credit-enhancing collateral, which is used to reduce the amount of provisioning, is conservatively valued (for example, through guidance on appraisal practices)
- *Write-offs*, to support timely write-off for uncollectible loans (where feasible through time-bound requirements) without having to first exhaust legal remedies to collect the debt
- *Disclosure*, to increase market transparency and discipline.

Prudential oversight can also foster active NPL resolution by placing banks with high NPLs under enhanced monitoring, requiring them to develop internal NPL management capabilities, plans, and tools, and setting oper-

ational targets to reduce NPL levels using the tools described above, or write-off the problem loans.

Separating management of impaired loans from regular loan servicing—placing them into a different unit or legal entity—can facilitate the management of NPLs. The creation of in-house or subsidiary units can help banks manage large amounts of distressed assets by separating these functions from core operations (raising funds and making loans) and allocating scarce specialist skills (such as real estate or industrial sector experts) to recovering value from NPLs. Separating distressed portfolios also helps accountability, although it will not allow a clear break in financial terms as in-house or subsidiary workout units should consolidate accounts with the bank or financial group. Consolidated supervision and adequate provisioning remain critical in this regard, to avoid the risk of banks boosting their capital by transferring problem assets to subsidiaries at above-market values.

A targeted approach is required in cases where asset quality concerns are due to excessive related-party exposures (Karlsdóttir and others, forthcoming). Persistently high related-party transactions remain a challenge in some countries and are often associated with nontransparent bank ownership and broader governance challenges. Achieving progress with resolving these legacy problems requires a three-pronged strategy whereby legal reforms and targeted bank diagnostics allow removing unfit shareholders and unwinding related-party exposures (Box 9). As the recent experiences of Ukraine and Moldova show this process may take some years, depending on the size and nature of exposures and broader financial stability considerations.

## **Insolvency and Debt Enforcement for Corporates and Individuals**

Effective resolution of NPLs requires a well-functioning set of legal tools for debt collection, restructuring, and disposal. These tools are important for managing NPLs in normal times and form the basis on which additional measures can build in the aftermath of a systemic crisis. NPL resolution is based on the two key pillars of enforcement and insolvency. The legal framework should enable the timely, transparent, and predictable recovery of claims while protecting value for all the concerned parties. A clear and efficient legal framework underpins both individual enforcement actions and insolvency proceedings. Clarity on the likely outcome of a legal process enables a more accurate assessment of the costs and benefits of debt workout options. This strengthens the incentives of viable but distressed debtors and all creditors to participate in meaningful out-of-court debt restructuring. In turn, distressed asset prices are heavily influenced by the duration, cost, and effectiveness of the legal tools for debt restructuring and insolvency or enforcement.

An effective legal framework for insolvency and debt enforcement requires both appropriate legislation and robust institutions (IMF 1999; UNCITRAL 2004; World Bank 2016). Legal tools should be designed to facilitate speedy in- and out-of-court solutions. An adequate institutional framework, including well-resourced courts and insolvency practitioners, should support the consistent, efficient, and predictable implementation of the laws. Reforms in both areas are often needed to address a systemic crisis. An assessment of the existing framework is the essential first step to introduce reforms. Examples of reforms addressed at specific problems in crisis countries include the following:

- Enhancing debt enforcement and foreclosure processes to achieve faster asset recoveries: for instance, ensuring clear legal title to collateral, limiting appeals, and setting short preclusive deadlines; and introducing e-auction platforms
- Strengthening the judicial system by increasing the specialization of judges, rationalizing fees, and introducing performance measures for insolvency professionals
- Augmenting out-of-court frameworks with hybrid features that generate more rapid and cost-effective results, to help address the extraordinary burden on the courts in case of a crisis<sup>2</sup>
- Facilitating the rapid exit of nonviable firms and the rehabilitation of viable firms, including via expedient in-court approval of settlements negotiated out of court, and simplified, cost-effective insolvency processes for small and medium enterprises (SMEs; Bergthaler and others 2015) and
- Facilitating, where possible, the participation of public creditors in the restructuring process by eliminating super-priorities of public claims (where they exist), introducing flexibility on the debt relief that can be offered on tax liabilities, and providing general guidance for insolvency and debt restructuring decisions.

Informational and tax obstacles to effective restructuring should be removed. Credit bureaus for banks with relevant information on debtors (for example, on tax liabilities), and publicly searchable debt and property registers are important for efficient debt workouts. From the debtor's perspective, lack of information on options, legal advice, or counseling act as impediments to effective workout. Tax disincentives—not allowing or limiting tax deductions for write-offs or loan loss provisions, for instance—can substantially raise the financial hurdle for a viable restructuring.

---

<sup>2</sup>“Hybrid” procedures are those for which the involvement of the judiciary or other authorities is an integral part of the procedure, but those procedures are less intensive than in formal insolvency proceedings.

If the crisis is systemic, additional steps may be needed. Where high NPLs reach proportions affecting the whole banking system or significant parts of the corporate sector, the economic effects may warrant additional public policy interventions. These can take the form of efforts to ensure creditor coordination and standardized approaches to restructuring liabilities (and sometimes operations) of similar debtors. Such measures may seek to simplify and expedite debt restructuring by committing creditors (usually banks, as in the “London” or “Istanbul” approaches) to accepting prespecified debt restructuring formulas for qualifying debtors, without additional scrutiny or negotiation.<sup>3</sup> While such approaches can be successful, they require extensive negotiation and agreement among many stakeholders, and may only be effective as the economy recovers. Agreement, or concessions, from public creditors, may also be needed to make these approaches workable, and a public sector role may be needed to coordinate discussions toward a workable package of measures.<sup>4</sup>

## **Distressed Asset Markets**

Distressed assets disposal alleviates the burden they place on bank balance sheets. The disposal of risky assets can take place via outright sales and securitizations. Distressed asset management is a specialized task where value can be created through applying specific expertise or through taking advantage of economies of scale in managing large volumes of NPLs. Typically, the distressed asset market comprises a mix of specialized nonbank participants, and joint ventures comprising specialists, banks, and investors. These entities can support an efficient market, which can raise recovery values of distressed assets, free up lending capacity at banks, and facilitate a more efficient redeployment of resources across economic activities. A reliable and efficient legal framework to enforce creditors’ rights and adequate availability of risk capital are prior conditions for a successful market in distressed assets. In many countries, these conditions are not met, and deep private markets are relatively rare, as the volume of bad assets available in the normal course of business is too low to justify development of a stand-alone industry in most countries. The legal, information, and incentive problems noted above may also hinder the development of such a market.

Legal and regulatory reforms are often necessary to support the development of a distressed asset market. Legal obstacles to the transfer of assets, such as requiring the permission of the debtor before a loan can be transferred, must be removed. Shortening foreclosure and liquidation court proceedings increases recovery values and reduces uncertainty. Other necessary reforms may include clarifying uncertainties in the priority of claims in liquidation;

---

<sup>3</sup>See Pomerlano and Shaw (2005) and Laryea (2010) for a description of these approaches.

<sup>4</sup>For a discussion of public support to mortgage modification programs, see Laeven and Laryea (2009).

**Table 8. Advantages and Risks of Public Asset Management Companies**

| Advantages   | Operational Risks   |
|--|---|
| <ul style="list-style-type: none"> <li>• <i>Economies of scale and scope</i>—consolidating assets from many banks can address multi-creditor issues</li> <li>• <i>Bargaining power</i>—due to their size, especially with large borrowers and syndicated loans</li> <li>• <i>Specialized skills</i>—concentrating scarce expertise in financial and operational restructuring</li> <li>• <i>Uniform valuation criteria</i>—can help price discovery and credit discipline</li> </ul> | <ul style="list-style-type: none"> <li>• Political and stakeholder interference/pressures</li> <li>• Unclear objectives, weak organization and skills, or a weak legal framework</li> <li>• Accountability, transparency, and media pressures</li> <li>• Inappropriate financial structure, given cash flow</li> <li>• Inflated acquisition prices</li> <li>• Inadequate documentation</li> </ul> |

facilitating timely and accurate information on distressed borrowers and asset sales; ensuring collateral valuations are realistic; removing fiscal obstacles or impediments to public sector participation; and licensing (or simplifying licensing processes for) nonbanks to buy distressed assets and undertake debt restructuring.

### Centralized Asset Management Companies

Centralized AMCAs can be useful elements of the policy mix to address systemic crises but are no panacea.<sup>5</sup> Fully or partly state-owned AMCAs buying assets from several financial institutions (hence, “centralized”) formed a key facet of public support in past crises (for example, the Nordic and Asian crises), and were used in a few cases during the GFC (for example, Sareb in Spain, NAMA in Ireland, Maiden Lane in the US). AMCAs can reap economies of scale and scope by consolidating creditor claims and scarce expertise. Efficiency gains are most likely where problems are widespread, and NPLs are large, syndicated, and relatively homogenous (such as corporate or commercial real estate loans). AMCAs may also encourage the development of distressed asset markets through setting benchmark prices and adopting standard procedures for workouts and asset sales. But AMCAs’ operations entail fiscal costs and risks, as well as governance challenges. The costs and benefits of establishing an AMC need, therefore, to be carefully weighed on a case-by-case basis (Table 8).

Establishing AMCAs may entail significant upfront costs to the government as well as fiscal risks. Cases where centralized AMCAs contributed to recovery without incurring substantial costs to the government are rare. Centralized AMCAs are typically fully or partly state owned and publicly funded (directly or by issuing bonds with public guarantees). AMCAs need liquidity to cover negative cash flows in their first years of operations, as recoveries take time to be realized, even in favorable conditions. Adequate capital to absorb initial losses will be necessary, as will good practice governance frameworks (Box 10). Central bank ownership or funding of AMCAs is not advisable, as it exacerbates conflicts of interest.

<sup>5</sup>The ability to establish an AMC as an asset separation tool is one of the Key Attributes resolution powers.

Centralized AMC's raise complex governance challenges. The large-scale transfer of risk from banks to the public sector creates the conditions for political interference, overpaying for assets, or corruption. Without tightly defined mandates or "sunset clauses," AMC's have on occasion become permanent bureaucracies and generated moral hazard. To be successful, centralized AMC's should have robust governance frameworks, clear mandates and incentives focused on value recovery, operational and budgetary independence, and strong transparency and accountability rules.

The price at which assets are transferred to AMC's is critical. The financial objective of any AMC should be to recover the amount paid for the assets over its fixed-term life, that is, to break even. AMC's should not enable the transfer of losses from banks to taxpayers by acquiring assets at prices that are above market—this would be equivalent to a bail-out of shareholders and creditors. If public resources are necessary, their amount and beneficiaries should be clear, and the resources should be given only after the asset losses are recognized and accrued on the balance sheets of banks. To ensure effectiveness of the policy approach, the supervisor should engage with participating banks to ensure valuation practices are appropriate, including collateral valuations. An effective technique can be to introduce time-bound collateral haircuts that consider the type of collateral and the time an NPL has been past due.<sup>6</sup> The experience during the GFC was that "going concern" banks were less willing to sell to an AMC if the transaction crystallized substantial losses on their balance sheet. For this reason, many centralized AMC's during the GFC acquired assets from institutions that had already been intervened, recapitalized by the state, or resolved. While profit-and-loss sharing agreements, so-called claw-backs, can help minimize the ultimate impact on bank capital, they will not avoid the upfront loss. They also imply that financial risks (both up and downside) remain with the bank, which will prevent asset derecognition (that is, the removal of an asset from the balance sheet) or risk transfer for capital purposes and could undermine the gains to investor confidence from a clean sale.<sup>7</sup>

Granting special powers to AMC's to accelerate recoveries should be avoided. Centralized AMC's have on occasion been granted fast-track legal and administrative powers for loan recovery, restructuring, or foreclosure to compensate for shortcomings in the legal system. These special powers introduce an element of unfair competition (particularly if the AMC has some private equity) and can result in an unfair or unequal treatment of debtors. It is preferable therefore to focus on reforms to introduce a more efficient insolvency and foreclosure regime for all market participants.

---

<sup>6</sup>For example, in 2016 Spain compelled banks to lower collateral valuations, depending on the type of collateral and the length of time a loan is past due.

<sup>7</sup>AMC's established during the Asian crisis, such as in Malaysia, allowed banks to amortize the initial impact on capital over several years. This is no longer possible under the International Financial Reporting Standards.

### Box 9. Dealing with Excessive Related-Party Exposures

Excessive related-party exposures present a major risk to financial stability. Related-party loans that go unreported conceal credit and concentration risk and may be on preferred terms, reducing bank profitability and solvency. Persistently high related-party exposures also hold down economic growth by tying up capital that could otherwise be used to provide lending to legitimate, creditworthy businesses on an arms-length basis. Related-party exposures complicate bank resolution, as shareholders whose rights have been suspended have an incentive to default on their loans to the bank.

Opaque bank ownership greatly facilitates the hiding of related-party exposures and transactions. Opaque ownership is associated with poor governance, AML/CFT violations, and fraudulent activities. Banks without clear ultimate beneficial owners cannot count on shareholder support in times of crisis, and the quality of their capital cannot be verified. Moreover, unknown owners cannot be held accountable for criminal actions leading to a bank's failure.

Resolving these problems requires a three-pillar approach. Legal reforms are needed to lay the foundation for targeted bank diagnostics and effective enforcement actions:

- *Legal reforms* to introduce international standards for transparent disclosure and monitoring of bank owners and related parties—including prudent limits, strict conflict of interest rules on the processes and procedures for dealing with related parties, and escalating enforcement measures. Non-transparent ownership should be made a legal ground for license revocation or resolution, and the supervisor authorized to presume a related party under certain circumstances. This shifts from supervisors to banks the “burden of proof”—to demonstrate that a suspicious transaction is *not* with a related party.
- *Bank diagnostics* are targeted at identifying ultimate beneficial owners and related-party exposures and transactions and assessing compliance with prudential lending limits for related-party and large exposures. The criteria for identification include control, economic dependency, and acting in concert. Identification of related-party transactions should also consider their risk-related features, such as the existence of preferential terms, the quality of documentation, and internal controls over the transactions.
- *Enforcement actions* are taken to (1) remove unsuitable bank shareholders—that is, shareholders whose ultimate beneficial owner is not identified, or are otherwise found to be unsuitable; and (2) unwind excessive related-party exposures through repayment or disposal of the exposure, or resolution of the relationship (change in ownership of the bank or the borrower).

The three-pillar approach is best implemented in the context of a comprehensive financial sector strategy. There may not be enough time to implement legal reforms during early intervention or the resolution of systemic banks. In such situations, suspected related-party exposures and liabilities must be swiftly identified and ringfenced. Once the system is stabilized, however, the three-pillar approach should be implemented for all banks (including those in liquidation).

---

Source: Karlsdóttir and others (forthcoming).

**Box 10. Design Features of Successful Public Asset Management Companies**

- **Mandate:** The stated objective of the asset management company (AMC) should be to maximize the recovery value of transferred assets and reduce public contingent liabilities over a fixed lifespan, with a clear commercial focus.
- **Governance:** AMCs may be subject to strong political or market pressures from borrowers or investors seeking preferential treatment. For that reason, the Board and senior management of an AMC should be composed of individuals independent of government or active market players, with relevant expertise and market credibility.
- **Independence:** AMCs should be established as autonomous entities, with flexibility over pay and staffing (that is, to set incentives for staff on market terms, not constrained by public sector employment norms), the ability to hire advisory firms and to set and execute operational and valuation policies, and with adequate protection from litigation for staff to facilitate resolution, foreclosure and liquidation of assets.
- **“Sunset” clauses:** Centralized AMCs should have limited lifespans to avoid the risk of creating a permanent bureaucracy and to establish the right incentives to realize assets values expeditiously.
- **Valuation of assets:** To avoid distorting incentives and for fair accountability, the AMC’s performance in maximizing value should be measured against a realistic benchmark. A review of asset values should be undertaken once the AMC has established its valuation models and current values should be compared to the starting balance sheet to measure performance. The starting balance sheet should show values below the transfer price if assets were transferred at above market prices.
- **Transparency and accountability:** AMCs should publish operational and financial plans and prepare audited financial statements based on current market valuations of assets, with oversight by appropriate governance bodies (for example, a parliamentary committee).
- **Funding:** The AMC’s operating budget should be separated from the funding allocated for asset purchases and be sufficient to cover start-up costs. Government bonds used to fund asset purchases should be remunerated at market rates and accepted as collateral for central bank liquidity. Tenors should be long enough to allow for realization of the value of the assets through sale, restructuring, or foreclosure and sale of collateral. Seeking some market funding (with no guarantees) can help minimize competitive distortions and maintain clear incentives for the AMC by giving a market-based cost of funding to facilitate operational financial decisions.

## Progress and Remaining Challenges

Although much has been achieved since the GFC, strengthening countries' capacities to prepare for and manage systemic banking crises remains a work in progress. IMF staff will continue to promote the adoption of financial sector standards and good international practices on the design and operation of the financial safety net in its engagement with IMF members through bilateral and multilateral surveillance, capacity development, and the FSAP. Staff will also continue to participate in various work streams of international standard-setting bodies, including the FSB and IADI, to foster implementation of agreed reforms.

Enhancing resolvability of systemic banks—at the global, regional, and domestic level—is a key priority. Although most home and key host jurisdictions to G-SIBs have introduced regimes broadly in line with the Key Attributes, many other countries have outdated or lack adequate legal powers. In addition, new resolution frameworks are yet to be fully tested in practice, particularly in a cross-border failure, and significant challenges remain in making systemic banks resolvable, including to (FSB 2018a):

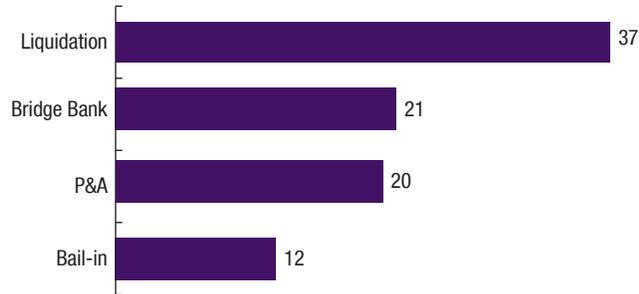
- Give cross-border effect to foreign resolution powers and removing impediments to cross-border cooperation (for example, national depositor preference)
- Adequately resource independent resolution authorities including to develop recovery and resolution planning with powers to remove impediments to resolvability including requiring changes to group structures and business operations (for example, for banks to develop information systems able to provide sufficiently granular data in real-time necessary to effect resolution)
- Ensuring sufficient (quality and quantity if) LAC is issued from the appropriate group entities to make resolution plans feasible, including across bor-

ders, requiring close coordination between home and host jurisdictions on “internal LAC” committed to material subsidiaries in other jurisdictions.

Fostering reforms across the broader IMF membership and, in particular, among low-income developing countries, will also be important. In the absence of a strong financial safety net, these countries are highly vulnerable to financial instability, resulting in significant economic and fiscal costs. Recent experience with bank failures in low-income countries reveals continuing weaknesses in the financial safety net, including (1) the absence of options to resolve banks without resorting to public bail-outs, (2) weak protections to small depositors, and (3) inadequate arrangements on the provision of central bank liquidity to banks at times of stress (Figure 7). Reforms are underway in some countries, which is encouraging. It will require considerable political will and effort to make further progress, as well as capacity building, which the IMF continues to support.

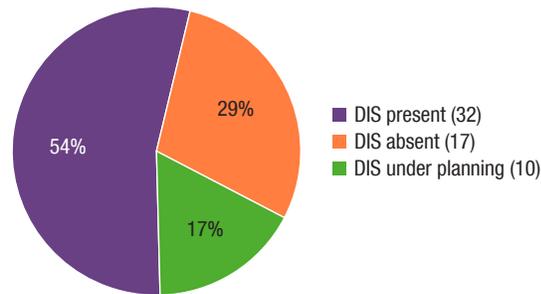
**Figure 7. Financial Safety Net in Low-Income Developing Countries**

**1. Bank Resolution Tools**



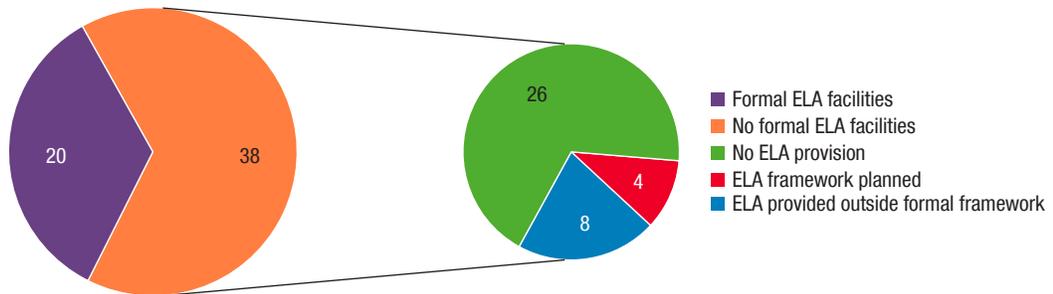
Sources: IADI Annual Survey 2018; and IMF staff analysis.  
 Note: The sample consists of 39 countries out of a total of 59 LIDCs. P&A = purchase and assumption.

**2. Deposit Insurance Systems (DIS)**



Sources: IADI Annual Survey 2018; and IMF staff analysis.  
 Note: The total number of LIDCs in the sample is 59, of which 32 have a DIS.

**3. Emergency Liquidity Assistance**



Sources: IMF Monetary Operations and Instruments database; and IMF staff analysis.  
 Note: The sample includes 58 of the 59 LIDCs (low-income developing countries).



## References

- Adrian, Tobias, and Aditya Narain. 2019. "Let Bank Supervisors Do Their Jobs." *IMFBlog*, February 13.
- Aiyar, Shekhar, Wolfgang Bergthaler, Jose M. Garrido, Anna Ilyina, Andreas Jobst, Kenneth Kang, Dmitriy Kovtun, Yan Liu, Dermot Monaghan, and Marina Moretti. 2015. "A Strategy for Resolving Europe's Problem Loans." IMF Staff Discussion Note 15/19, International Monetary Fund, Washington, DC.
- Andrews, Michael. 2003. "Issuing Government Bonds to Finance Bank Recapitalization and Restructuring: Design Factors That Affect Banks' Financial Performance." IMF Policy Discussion Paper 03/4, International Monetary Fund, Washington, DC.
- Basel Committee on Banking Supervision (BCBS). 2012. *Core Principles for Effective Banking Supervision*. Basel: Bank for International Settlements.
- . 2018. *Stress Testing Principles*. Basel: Bank for International Settlements.
- Bergthaler, Wolfgang, Kenneth Kang, Yan Liu, and Dermot Monaghan. 2015. "Tackling Small and Medium Sized Enterprise Problem Loans in Europe." IMF Staff Discussion Note 15/04, International Monetary Fund, Washington, DC.
- Claessens, Stijn, Giovanni Dell'Ariccia, Deniz Igan, and Luc Laeven. 2010. "Cross-Country Experiences and Policy Implications from the Global Financial Crisis." *Economic Policy* 25(62): 267–93.
- Claessens, Stijn, Ceyla Pazarbasioglu, Luc Laeven, Marc Dobler, Fabian Valencia, Oana Nedelescu, and Katharine Seal. 2011. "Crisis Management and Resolution: Early Lessons from the Financial Crisis." IMF Staff Discussion Note 11/05, International Monetary Fund, Washington, DC.

- Cole, Rebel A., and Lawrence J. White. 2017. "When Time is not on Our Side: The Costs of Regulatory Forbearance in the Closure of Insolvent Banks." *Journal of Banking and Finance* 80: 235–49.
- Committee on the Global Financial System (CGFS). 2017. "Designing Frameworks for Central Bank Liquidity Assistance: Addressing New Challenges." CGFS Papers 58, Basel.
- Croitoru, Oana, Marc Dobler, and Johan Molin. 2018. "Resolution Funding: Who Pays when Financial Institutions Fail?" IMF Technical Notes and Manuals 18/01, International Monetary Fund, Washington, DC.
- Danmarks National Bank. 2019. "Nordic-Baltic Financial Crisis Simulation." <http://www.nationalbanken.dk/en/financialstability/cooperation/Pages/Nordic-Baltic-financial-crisis-simulation.aspx>
- Davies, Geoffrey, and Marc Dobler. 2011. "Bank Resolution and Safeguarding the Creditors Left Behind." Quarterly Bulletin 2011 Q3, Bank of England, London.
- Dell'Ariccia, Giovanni, Maria Soledad Martinez Peria, Deniz Igan, Elsie Addo Awadzi, Marc Dobler, and Damiano Sandri. 2018a. "Trade-offs in Bank Resolution." IMF Staff Discussion Note 18/02, International Monetary Fund, Washington, DC.
- Dell'Ariccia, Giovanni, Caio Ferreira, Nigel Jenkinson, Luc Laeven, Alberto Martin, Camelia Minoiu, and Alex Popov. 2018b. "Managing the Sovereign-Bank Nexus." IMF Staff Discussion Note 18/06, International Monetary Fund, Washington, DC.
- Dobler, Marc, Simon Gray, Diarmuid Murphy, and Bozena Radzewicz-Bak. 2016. "The Lender of Last Resort Functions after the Global Financial Crisis." IMF Working Paper 16/10, International Monetary Fund, Washington, DC.
- Dobler, Marc, Ender Emre, Deeksha Kale, and Maike Luedersen. Forthcoming. "Giving Depositors Preference." IMF Technical Notes and Manuals, International Monetary Fund, Washington, DC.
- Financial Stability Board (FSB). 2010. "Intensity and Effectiveness of SIFI Supervision: Recommendations for Enhanced Supervision." Basel.
- . 2012. "Thematic Review of Deposit Insurance." Peer Review Report. Basel.
- . 2014. "Key Attributes of Effective Resolution regimes for Financial Institutions." Basel.
- . 2015. "Total Loss-Absorbing Capacity (TLAC) Principles and Term Sheet." Basel.
- . 2016. "Key Attributes Assessment Methodology for the Banking Sector." Basel.

- . 2018a. “FSB 2018 Resolution Report: Keeping the Pressure Up” Seventh Report on the Implementation of the Resolution Reforms.” Basel.
- . 2018b. “Principles on Bail-in Execution.” Basel.
- Financial Stability Forum (FSF). 2008. “Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience.” Basel.
- Gaston, Ellen, and In Won Song. 2014. “Supervisory Roles in Loan Loss Provisioning in Countries Implementing IFRS.” IMF Working Paper 14/170, International Monetary Fund, Washington, DC.
- Gutierrez, Joaquín, Dermot Monaghan, and Alvaro Piris. 2019. “Bank Diagnostics in IMF Programs.” IMF Technical Notes and Manuals 19/04, International Monetary Fund, Washington, DC.
- Hoelscher, David H., and Marc Quintyn. 2003. “Managing Systemic Banking Crises.” IMF Occasional Paper 224, International Monetary Fund, Washington, DC.
- International Association of Deposit Insurers (IADI). 2014. “Core Principles of Effective Deposit Insurance Systems.” Basel.
- . 2018. “Deposit Insurance Fund Target Ratio” Research Paper. Basel.
- International Association of Deposit Insurers and International Monetary Fund (IADI and IMF). 2010. “Update on Unwinding Temporary Deposit Insurance Arrangements.” Report to the Financial Stability Board. Basel.
- International Monetary Fund (IMF). 1999. “Orderly and Effective Insolvency Procedures. Key Issues.” IMF Legal Department, Washington, DC.
- . 2012. “The Liberalization and Management of Capital Flows: An Institutional View.” IMF Policy Paper, Washington, DC.
- . 2013. “Key Aspects of Macroprudential Policy.” IMF Policy Paper, Washington, DC.
- . 2014. “Cross Border Bank Resolution: Recent Developments.” IMF Policy Paper, Washington, DC.
- . 2018. “Regulatory Reform 10 Years after the Global Financial Crisis: Looking Back, Looking Forward.” *Global Financial Stability Report—A Decade after the Global Financial Crisis: Are We Safer?* Washington, DC, October.
- . 2019. “Macroeconomic Developments and Prospects in Low-Income Developing Countries—2019.” *Regional Economic Outlook: Sub-Saharan Africa*. Washington, DC, October.
- Karlsdóttir, Edda Rós, Rachid Aead, Ender Emre, Alessandro Gullo, Aldona Jociene, Jean Portier, and Oleksandr Pysaruk. Forthcoming. “Dealing with Opaque Bank Owners and Related-Party Exposures.” IMF Technical Notes and Manuals, International Monetary Fund, Washington, DC.

- King, Darryl, Luis Brandao-Marques, Kelly Eckhold, Peter Lindner, and Diarmuid Murphy. 2017. “Central Bank Emergency Support to Securities Markets.” IMF Working Paper 17/152, International Monetary Fund, Washington, DC.
- Laeven, Luc, and Thomas Laryea. 2009. “Principles of Household Debt Restructuring.” IMF Staff Position Note 09/15, International Monetary Fund, Washington, DC.
- Laeven, Luc, and Fabian Valencia. 2008. “The Use of Blanket Guarantees in Banking Crises.” IMF Working Paper 08/250, International Monetary Fund, Washington, DC.
- . 2018. “Systemic Banking Crises Revisited.” IMF Working Paper 18/206, International Monetary Fund, Washington, DC.
- Laryea, Thomas. 2010. “Approaches to Corporate Debt Restructuring in the Wake of Financial Crises.” IMF Staff Position Note 10/02, International Monetary Fund, Washington, DC.
- Ong, Li Lian. 2014. *A Guide to IMF Stress Testing: Methods and Models*. Washington, DC: International Monetary Fund.
- Ong, Li Lian, and Ceyla Pazarbasioglu. 2013. “Credibility and Crisis Stress Testing.” IMF Working Paper 13/178, International Monetary Fund, Washington, DC.
- Oura, Hiroko, and Liliana Schumacher. 2012. “Macrofinancial Stress Testing—Principles and Practices.” IMF Policy Paper, International Monetary Fund, Washington, DC.
- Parker, David C. 2010. *Closing a Failed Bank. Resolution Practices and Procedures*. Washington, DC: International Monetary Fund.
- Pomerlano, Michael, and William Shaw (eds.). 2005. *Corporate Restructuring. Lessons from Experience*. Washington, DC: World Bank.
- United Nations Commission on International Trade Law (UNCITRAL). 2004. “Legislative Guide on Insolvency Law.” New York.
- Viñals, José, and Jonathan Fiechter. 2010. “The Making of Good Supervision: Learning to Say ‘No’.” IMF Staff Position Note 10/08, International Monetary Fund, Washington, DC.
- World Bank. 2016. “Principles for Effective Insolvency and Creditor/Debtor Regimes.” Washington, DC.
- Zhou, Jianping, Virginia Rutledge, Wouter Bossu, Marc Dobler, Nadege Jassaud, and Michael Moore. 2012. “From Bail-out to Bail-in: Mandatory Debt Restructuring of Systemic Financial Institutions.” IMF Staff Discussion Note 12/03, International Monetary Fund, Washington, DC.