

MANAGING THE NEXT FINANCIAL CRISIS

AN ASSESSMENT OF EMERGENCY ARRANGEMENTS IN THE MAJOR ECONOMIES



GROUP OF THIRTY

Disclaimer

This report is the product of the Steering Committee and Working Group on Emergency Mechanisms and Authorities and reflects broad agreement among its participants. This does not imply agreement with every specific observation or nuance. Members participated in their personal capacity, and their participation does not imply the support or agreement of their respective public or private institutions. The report does not represent the views of the membership of the Group of Thirty as a whole.

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FOREWORD

Ten years on from the start of the global financial crisis, the Group of Thirty (G30) constituted a working group to assess the emergency mechanisms and authorities available to deal with future financial crises. The study asks whether changes to the mechanisms and authorities after the global financial crisis have made the major economies safer and more able to address future crises.

This report continues the G30's long tradition of identifying issues of systemic importance, asking hard questions, and providing considered and actionable advice to the global financial and supervisory community.

This report has some good news, but also raises concerns that we hope will encourage policymakers, central bankers, supervisors, and all stakeholders in financial stability to consider ways to strengthen and improve the ability of existing mechanisms and authorities for dealing with a future crisis.

The good news is that the extensive post-crisis reforms, including substantially more conservative capital and liquidity regulations, will help create more stable and resilient financial systems in the major economies. The reforms also provide promising new tools for resolution and restructuring.

However, the study identifies serious challenges that remain. The new prudential safeguards have not been fully implemented. They are also not comprehensive in scope, focusing primarily on the traditional banking sector and less on the range of other financial institutions and sources of credit that are so important in many financial systems, and that were such critical points of weakness in the last crisis.

Further, some central banks have a diminished ability to respond swiftly and effectively to a financial

crisis of a systemic nature. The report raises important concerns regarding limitations on their emergency powers and on other emergency measures that were essential in the last crisis and will be important in averting and resolving future systemic crises.

Financial crises will come in many forms. In the extreme cases, they require swift and forceful actions by central banks, and by government and international institutions, with the ability to adapt and innovate. The weakening of powers to do so will accentuate and make more lasting the damage that such crises inflict on economies and societies.

We believe this is a good moment to examine ways to strengthen current emergency toolkits, before knowledge of the extreme damage of the last crisis fades further from memory. Policy should be improved when times are normal so that we are ready when crisis strikes.

We hope this G30 report will spur a necessary debate among policymakers and the broader community on what it takes for the authorities to be ready when the next crisis arises. The report suggests that while much has been done to help avert crises, important work remains to ensure authorities have the full complement of tools needed to fight the next crisis when it does occur.

We thank the leadership team of Timothy Geithner (Co-Chair), Guillermo Ortiz (Co-Chair), and Axel Weber (Vice-Chair), who took this report from conception in August 2016 to conclusion, and to Andrew Metrick, who served as Project Director. We also thank the 13 Working Group members who contributed their time and expertise.

The report reflects broad agreement among participants in the G30's Steering Committee and Working

Group on Emergency Mechanisms and Authorities. This does not imply agreement with every observation or nuance. Members participated in their personal capacity, and their participation does not imply the



Jacob A. Frenkel

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support or agreement of their respective public or private institutions. Nor does the report represent the views of the membership of the G30 as a whole.



Tharman Shanmugaratnam

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No project of this magnitude can be accomplished without the committed effort of a strong team. The

G30 extends its deep appreciation to the Project Director, Dr. Andrew Metrick, and to Christian McNamara and Claire Simon, who worked tirelessly toward our goal with diplomacy and tact. We thank them for their contributions to the analysis and formulation of the report.

The coordination of this project and many aspects of project management, Working Group logistics, and report production were centered at the G30 offices in Washington, D.C. This project could not have been completed without the efforts of our editor, Diane Stamm, and the work of Executive Director Stuart Mackintosh and his team, including Desiree Maruca and Peter Bruno of the G30. We are grateful to them all.



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ABBREVIATIONS

BCBS	Basel Committee on Banking Supervision
BRRD	bank recovery and resolution directive
CCPs	central counterparties
CRD	Capital Requirements Directive
CRR	Capital Requirements Regulation
DFA	Dodd-Frank Wall Street Reform and Consumer Protection Act
DIA	Deposit Insurance Act (Japan)
DICJ	Deposit Insurance Corporation of Japan
ECB	European Central Bank
EFSF	European Financial Stability Facility
ELA	emergency liquidity assistance
ESM	European Stability Mechanism
ESMA	European Securities Markets Authority
ESRB	European Systemic Risk Board
ETFs	exchange-traded funds
EU	European Union
FCA	Financial Conduct Authority
FDI Act	Federal Deposit Insurance Act
FDIC	Federal Deposit Insurance Corporation
FPC	Financial Policy Committee
FSA	Financial Services Authority
FSB	Financial Stability Board
FSOC	Financial Stability Oversight Council

GFC	global financial crisis
G30	Group of Thirty
IMF	International Monetary Fund
J-REITs	Japanese real estate investment trusts
MOU	memorandum of understanding
MPE	Multiple Point of Entry
MPS	Monte dei Paschi di Siena
MREL	minimum requirement for eligible liabilities and own funds
NAB	New Arrangements to Borrow
NCBs	National Central Banks
OLA	Orderly Liquidation Authority
OLF	Orderly Liquidation Fund
OMT	Outright Monetary Transaction
PRA	Prudential Regulation Authority
SIFI	systemically important financial institutions
SMF	Sterling Monetary Framework
SMP	Securities Markets Programme
SPE	Single Point of Entry
SPPE	Société de Prise de Participation de l'État
SRB	Single Resolution Board
SRF	Single Resolution Fund
SRM	Single Resolution Mechanism
SRR	Special Resolution Regime
TAF	Term Auction Facility
TEC	Treaty Establishing the European Community
TFEU	Treaty on the Functioning of the European Union
TLAC	total loss-absorbing capacity

I. INTRODUCTION

With the ten-year anniversary of the global financial crisis (GFC) upon us, now is an opportune moment to ask ourselves two important questions:

1. **Do authorities have the tools available to fight the next financial crisis when it strikes?**

and

2. **What can be done now to adapt or adjust these tools to make crisis fighting more effective?**

These questions matter because no amount of preventive measures (despite their importance) can eliminate all threats to financial stability. The history of financial crises demonstrates that the next crisis may emerge in unexpected ways from unexpected sources of systemic risk. An exclusive focus on preventive measures would leave authorities unprepared to respond to a crisis that occurs despite the best efforts at prevention. Given the need to consider crisis response in addition to prevention, and the fact that considerable good work is already being done on the latter,¹ this

report focuses primarily on the tools for fighting crises once they emerge—the actions, programs, mechanisms, and tools governments can introduce to bring a crisis under control.

We divide these tools into two related categories: resolution and restructuring regimes intended to allow troubled institutions to fail without triggering a broader crisis; and emergency interventions when institutions or markets are severely troubled and threaten to cause widespread instability, such as lender-of-last-resort functions, guarantees, and capital injections. As illustrated in table 1, the years following the GFC saw the implementation of major pieces of legislation and regulatory rulemaking that have significantly altered the mix of tools available in these two categories.

This report draws heavily on the experiences of developed economies: the report's discussion of the available tools and how the tools have changed largely revolves around the United States, the United Kingdom, Europe, and Japan. This focus is necessary because the GFC and the resulting post-crisis reforms to the crisis-fighting toolkit centered on the developed world. However, because the next crisis may well be truly global in nature, we consider the international cooperation that would be necessary in such a circumstance. For a discussion of the report's methodology, please see Appendix A.

1 For textbook treatments of the measures taken on crisis prevention following the GFC, see, for example, Armour et al. (2016) and Barr, Jackson, and Tahyar (2016).

TABLE 1

Major Legal Changes Following GFC*Details for each entry given in notes in Appendix B.*

JURISDICTION	REFORM	RELEVANT CHANGES
United States	Dodd-Frank Wall Street Reform and Consumer Protection Act (DFA)	Established Orderly Liquidation Authority (OLA); mandated stress tests for systemically important financial institutions (SIFIs); restricted emergency lending by the Fed under 13(3) to broad-based programs and limited FDIC authority; new central clearing requirement
European Union	Regulation (EU) No. 806/2014 establishing Single Resolution Mechanism (SRM) and Single Resolution Fund (SRF)	Established new SRM and SRF to centrally manage resolution in Eurozone
European Union	Treaty Establishing the European Stability Mechanism (ESM)	Established permanent stability mechanism for Eurozone
European Union	Bank Recovery and Resolution – Directive 2014/59/EU (BRRD)	Created standardized framework for resolution across EU; established new tools for managing bank failure, including bail-in
United Kingdom	Banking Act 2009	Established Special Resolution Regime (SRR)
United Kingdom	Financial Services Act 2012	Reformed regulatory structure and created new regulatory framework; extended types of institutions covered by SRR
Japan	Amendments to the Deposit Insurance Act of Japan	Allows Deposit Insurance Corporation of Japan to take over financial institutions at risk of disrupting the financial system

A NOTE ON CHINA

Despite its increasing importance to the global financial system, China has not been included in our review of the crisis-fighting tools available in major jurisdictions because its authority for action is based on general government authority and is not rooted in specific legal powers of regulatory bodies.

It is easy to conclude that China has the power to fight financial crises because of the broad scope of this general government authority. China has, for example, exercised considerable power in the recent case of Anbang Insurance Group, a major Chinese insurer. In February 2018, following a determination that Anbang had engaged in acts that threatened the solvency of the company, the China Insurance Regulatory Commission seized control of Anbang and announced that it would be overseen by a group of Chinese regulators for one to two years pending an equity restructuring.

Answering the questions of whether authorities have the tools to fight the next crisis and what policy-makers can do now to make them more effective requires defining what it means to effectively fight a financial crisis. What is society seeking to accomplish when it deploys these tools? Reducing the damage to the economy caused by the crisis? Limiting the fiscal cost of the crisis response? Avoiding moral hazard by punishing reckless financial behavior? Promoting

the political legitimacy of the crisis response and the institutions responsible for managing it? As discussed in more detail in the report, each of these objectives must guide efforts at crisis response.

This report is structured as follows. Section II summarizes the conclusions and recommendations that emerged from the work done to inform this report. Section III then sets forth a detailed discussion of these conclusions and recommendations. Section IV concludes.

II. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

As a result of the work outlined above, this report offers the following conclusions and recommendations, which will be discussed in greater detail in Section III.

Prevention

On prevention: The prudential safeguards put in place since the global financial crisis (GFC) represent substantial progress in creating more resilient and stable financial systems in the major economies, although they are incomplete and not yet tested over a full economic cycle.

Recommendation #1

Although there are areas where the reforms can be refined and improved, these efforts should not materially weaken the core reforms on capital and funding, particularly as memory of the crisis fades. It is important that the authorities continue progress in bringing national practice up to the new global standards and closely monitor developments in the shadow banking system.

Resolution and Restructuring

With respect to resolution and restructuring, new regimes have been developed post-crisis that are designed to provide a more effective strategy for managing the failures of large complex financial institutions, but they have not yet been tested by crisis.

Recommendation #2

Authorities should try to improve the prospects that the new resolution and restructuring regimes can work effectively, particularly in a major crisis. In designing and using the regimes, authorities must be careful to distinguish between idiosyncratic events and systemic events and be clear about the types of threats the new regimes are intended to address. Policymakers should better communicate about the regimes and how they may provide an alternative to emergency tools in some, but not all, situations. The overarching goal must be to establish a level of trust and institutionalized cooperation among the authorities that limits the need for unduly burdensome local capital and liquidity requirements that might lead to trapped pools of resources and thereby weaken the stability of global financial institutions.

Emergency Tools: Lending, Guarantees, and Capital

Of greatest concern, some of the tools available to fight extreme crises, when and if they recur, have been weakened, especially in the United States.

Recommendation #3

As governments and central banks examine ways to preserve and strengthen the power of the new prudential safeguards, they should explore ways to strengthen the tools necessary to protect economies from the damage caused by an extreme financial crisis. The policy community should invest more resources in and devote more attention to the challenges of designing effective strategies for confronting financial crises, drawing on the extensive experience during the GFC. Operational readiness should be a particular focus. Authorities need to ensure that all the elements necessary to support the effective use of the tools are in place prior to a crisis occurring.

Overall Evaluation

Overall, this shift in powers has improved the ability to deal with failures of individual institutions and modest shocks to the financial system, but has reduced the flexibility to deal with a systemic crisis. This weakness is particularly acute in the case of international contagion, and for systemic events that originate in the shadow banking system. Even when fully implemented and working as designed, the new preventive frameworks and resolution and restructuring regimes, by themselves, will not be enough to handle all crises. Thus, these new systems need to be supplemented by a workable set of discretionary tools available to the authorities (generally the central banks and resolution authorities) to deploy in extreme crises, with appropriate accountability for their use.

Recommendation #4

Since all crises are different, authorities should be equipped with the flexibility to quickly adapt in crisis, with appropriate checks and balances and consultation requirements with the legislature. International bodies and domestic coordinating groups must spend more time preparing for novel crisis vectors.

III. DISCUSSION OF CONCLUSIONS AND RECOMMENDATIONS

Prevention

On prevention: The prudential safeguards put in place since the global financial crisis (GFC) represent substantial progress in creating more resilient and stable financial systems in the major economies, although they are incomplete and not yet tested over a full economic cycle.

In the wake of the GFC, policymakers have devoted considerable effort to diagnosing the conditions that led to the crisis and developing measures intended to keep those conditions from recurring. The result has been the emergence of new preventive frameworks intended to reduce the probability of future crises. While these frameworks are not the focus of this report and thus will not be discussed in detail, they do provide context for the analysis of crisis-fighting tools, which is our purpose here.

Post-crisis, there have been several steps taken to strengthen and expand prudential safeguards. The reforms have not yet been fully implemented, and the distance between where things stand today and the new targets and thresholds is material in some countries.² In principle, however, the new safeguards provide a larger margin of safety in the event a future crisis threatens.

The conclusion that financial institutions had too little capital of sufficient quality leading up to the crisis resulted in the establishment of new capital requirements through the Basel III framework.³ Meanwhile, stress tests to determine whether institutions possess enough capital to weather periods of financial turmoil have been more widely adopted to monitor capital adequacy. Given the role played by insufficient liquidity in the most recent crisis, Basel III also introduced two new liquidity standards⁴ to ensure that banks have enough liquid assets to survive a short-term stressed funding environment and that the maturities of their funding sources better match the maturities of their assets. With the GFC having started and accelerated in the shadow banking system, major jurisdictions have established bodies such as the Financial Stability Oversight Council (FSOC) in the United States, the Financial Policy Committee (FPC) in the UK, and the European Systemic Risk Board (ESRB) in the EU to oversee risk in the financial system as a whole.⁵ The FSOC, in particular, has the ability to expand the regulatory perimeter by designating non-bank financial institutions as systemically important and subject to consolidated supervision by the Fed and enhanced

² For a discussion of the progress made and the work still to be done on adopting and implementing the preventive measures proposed by the Basel Committee, see the assessments produced by the Committee's Regulatory Consistency Assessment Programme and, specifically, its *Fourteenth progress report on adoption of the Basel regulatory framework* (BCBS 2018).

³ These include requirements for increased Tier 1 capital, the introduction of two new capital buffers (the capital conservation buffer and discretionary countercyclical buffer), the imposition of a capital surcharge for global systemically important banks, and the development of a non-risk-weighted leverage ratio (BCBS 2011).

⁴ The Liquidity Coverage Ratio and the Net Stable Funding Ratio.

⁵ Several interviewees pointed to the importance of monitoring levels of indebtedness in the system as an indicator of increasing risk of crisis and argued that this is something bodies such as the FSOC, FPC, and ESRB should be emphasizing.

prudential standards.⁶ Both the United States⁷ and European Union⁸ have established new rules governing over-the-counter derivatives and central counterparties as a result of the challenges presented by derivatives in such situations as Lehman Brothers' bankruptcy.

On balance, we believe that the benefits of these new preventive measures exceed their costs.⁹ Banks have more and better capital due to new requirements, and are carrying more liquidity and using less short-term wholesale funding rather than relying entirely on an emergency lending safety net. The new preventive frameworks provide for an overall reduction in moral hazard concerns. And, there is a much broader scope of oversight, with better coordination across a more appropriate set of regulators as a result of post-crisis steps such as the creation of new macroprudential authorities including the FSOC, FPC, and ESRB, the strengthening of international supervisory colleges, and the development of new memorandums of understanding (MOUs) among different agencies and jurisdictions. The net result is a decrease in the likelihood of a crisis in the traditional, regulated banking sector. There is a broad range of opinions, however, as to the extent of this decrease.

Our biggest concerns involve complacency and migration. We believe that the new preventive frameworks, when fully implemented, make a crisis in the traditional, regulated banking sector less likely, but that the likelihood is still not zero and never can

be. Moreover, the enhanced oversight of the traditional, regulated banking sector could have the effect of pushing more and more activity into the shadow banking sector where less oversight exists. Paradoxically, the preventive steps taken to bolster big banks, while welcome, could increase the likelihood that prevention by itself will not be enough given that a corresponding effort was not made with respect to systemically important non-bank financial institutions that could play a bigger role in the financial system as a result. This concern, and the reality that the financial system is so dynamic as to make it difficult to predict the origin of future threats to stability, suggest that it would be a grave mistake to become complacent in relying on prevention alone to protect economies from the effects of financial crises while ignoring the state of crisis-fighting tools.

A final consideration is that whatever protection is currently offered by the new preventive frameworks could be lost if such frameworks are weakened over time by regulation or legislation. Given the emphasis on prevention in the new regulatory regime, policy-makers have tethered themselves to strong prevention as the main regulatory strategy. As will be discussed below, the safety net of emergency powers is in part untested, and in part explicitly weaker. Any future weakening of preventive powers must be carefully considered in light of this realistic assessment of emergency capabilities.

RECOMMENDATION #1

Although there are areas where the reforms can be refined and improved, these efforts should not materially weaken the core reforms on capital and funding, particularly as memory of the crisis fades. It is important that the authorities continue progress in bringing national practice up to the new global standards and closely monitor developments in the shadow banking system.

6 Title I, Dodd-Frank Act.

7 Title VII, Dodd-Frank Act.

8 European Market Infrastructure Regulation.

9 It is difficult to even develop a definitive framework for conducting cost-benefit analyses of steps intended to prevent low-probability financial system events with unclear but potentially catastrophic consequences, but for a discussion of one approach to measuring the long-term economic impact of the Basel III regime, see BCBS (2010).

Resolution and Restructuring

With respect to resolution and restructuring, new regimes have been developed post-crisis that are designed to provide a more effective strategy for managing the failures of large complex financial institutions, but they have not yet been tested by crisis.

The establishment of new resolution and restructuring frameworks is one of the most significant developments in the wake of the GFC. During the crisis, the absence of such frameworks introduced considerable uncertainty about what would happen in the event of the failure of a systemically important institution. The perceived choice at the time of the GFC was often between “on the one hand, putting the firm into a regular bankruptcy proceeding and accepting massive systemic disorder and, on the other hand, going to the fiscal authority to seek a taxpayer bailout to avert systemic collapse” (Tucker 2018a, 4).

Since the crisis, policymakers have sought to provide an additional option—the ability to allow systemically important firms to fail without triggering massive systemic disorder. In 2011, the Financial Stability Board (FSB) promulgated the Key Attributes of Effective Resolution Regimes for Financial Institutions (the Key Attributes) in hopes of creating regimes that “resolve financial institutions in an orderly manner without taxpayer exposure to loss from solvency support, while maintaining continuity of their vital economic functions” (FSB 2014, 1). In Asia, where considerable work had already been done on prevention pre-crisis as a result of the experience of the Asian financial crisis in 1997, resolution powers have been expanded. While work remains to be done to fully and consistently implement the new regimes, as discussed below, conceptual and legislative frameworks are being put in

place.¹⁰ Table 2 presents the current state of resolution and restructuring regimes across major jurisdictions.

In the EU, the bank recovery and resolution directive (BRRD)¹¹ was adopted in spring 2014 to establish “common European rules for the recovery and restructuring of failing banks” with the aim of “avoid[ing] “bailouts” that involve the use of taxpayers’ money in future cases of bank failure” (Publications Office of the European Union 2014). The BRRD requires, among other things, that national authorities establish “a minimum harmonised set of resolution tools and powers” (Directive 2014/59/EU). Chief among these is the bail-in tool, a mechanism by which the losses of an institution are imposed on the institution’s shareholders and creditors (as opposed to the public, as in the case of a bailout) by writing down the institution’s liabilities or converting them into equity.¹² Under the BRRD, bail-in of at least 8 percent of an institution’s total liabilities is required before government stabilization tools¹³ or resolution financing¹⁴ can be made available.

Within the Eurozone, a Single Resolution Mechanism (SRM) was established in 2014 to centralize the resolution process mandated by the BRRD.¹⁵ The SSM serves, together with the SRM and a proposed European Deposit Insurance Scheme, as one of three pillars of the European Banking Union. Under the SRM, a Single Resolution Board (SRB) acts as the resolution authority for all participating states’ banks that are considered significant or in relation to which the European Central Bank has decided to exercise directly all of the relevant supervisory powers, as well as for other cross-border groups.¹⁶ National resolution authorities remain responsible for those banks not within the SRB’s remit, subject to the SRB’s ability to assume that responsibility if necessary to ensure the consistent application of the SRM.¹⁷

10 For a discussion of the status (as of July 2017) of implementation efforts for the Key Attributes, see the FSB’s most recent status report (FSB 2017b).

11 Directive 2014/59/EU.

12 The three other tools mandated by the BRRD are the sale of business tool, the bridge institution tool, and the asset separation tool (Art 37).

13 Art 37.

14 Art 44.

15 Regulation (EU) No. 806/2014.

16 Directive 2014/59/EU, Art 7. As of June 1, 2016, the SRB was responsible for 142 banks.

17 Art 7.

TABLE 2

Resolution and Restructuring*Details for each entry given in notes in Appendix C.*

	UNITED STATES	UNITED KINGDOM	EUROPEAN UNION	JAPAN
What institutions are eligible?	Systemically important financial institutions under DFA Insured depository institutions under FDI Act	Banks, investment banks, bank holding companies, central counterparties (CCPs), certain investment firms, and their group companies	Credit institutions, investment firms (with initial capital > €730,000), financial holding companies established in the EU, and subsidiaries supervised on a consolidated basis	Banks and non-bank financial institutions (including financial holding companies, insurance companies, and securities companies)
What triggers resolution?	Under FDI Act: a wide range of triggers Under DFA: Treasury Secretary must determine a systemic financial company is in default or in danger of default	Two conditions must be met: (a) the firm must be failing or likely to fail (determined by the Prudential Regulation Authority/Financial Conduct Authority), and (b) it must not be reasonably likely that an outside action will be taken that would prevent failure (determined by the Bank of England)	Three conditions must be met: (a) the institution must be failing or likely to fail, (b) there is no reasonable expectation that any alternative private sector measure or supervisory action could prevent failure in a reasonable time, and (c) resolution is necessary in the public interest	Measures against financial crisis (financial assistance or temporary nationalization): Prime Minister with Financial Crisis Response Council determines systemic risk Orderly resolution (Deposit Insurance Corporation of Japan takes over): bank must be insolvent or likely to become insolvent, bank must have suspended payments or is likely to do so, and Prime Minister with Financial Crisis Response Council determines there is a risk of severe disruption

EX-ANTE BAIL-IN VS. EX-POST BAIL-IN

When discussing bail-in, it is important to distinguish between the ex-ante version (where the contracts establishing bail-inable instruments clearly state upfront when and how bail-in will occur), and the ex-post version (where bail-in is conducted without the conditions having been specified in advance).

In this report, we use “bail-in” to refer to the former version which, as we discuss, can in principle provide important new options to policymakers faced with failing institutions. We do not address ex-post bail-in, which we believe lacks the promise of ex-ante bail-in because of the uncertainty and potential for panic it invariably entails.

In the United States, at the time of the GFC, the Federal Deposit Insurance Corporation (FDIC) was responsible for resolving failed commercial banks. Significantly, this power did not extend to investment banks or insurance companies, yet these were the very institutions faced with potential collapse as the crisis reached a crescendo. The fiscal authorities of the United States did not at that time have the power to inject capital into financial institutions (other than government-sponsored enterprises Fannie Mae and Freddie Mac) nor to guarantee the liabilities of non-bank financial institutions. This left the Federal Reserve and the U.S. government with limited tools to prevent the failure of a non-bank like Lehman. Lehman's default, after it filed for bankruptcy under Chapter 11 of the United States Bankruptcy Code, raised expectations of additional failures, and the disorderly liquidation of Lehman and the losses imposed on its counterparties and creditors exacerbated the ongoing crisis.¹⁸

Post-crisis, U.S. policymakers sought to expand the FDIC's resolution authority to systemically important non-bank financial institutions so that a third option beyond chaotic bankruptcy and government rescue would be available in the future. Title II of the Dodd-Frank Act established an Orderly Liquidation Authority (OLA) pursuant to which large, complex non-bank financial institutions such as bank holding companies and other non-banks supervised by the Federal Reserve can be placed into receivership with the FDIC.¹⁹ Once appointed as receiver, the FDIC can exercise broad powers, including the ability to sell assets and transfer assets to a bridge company

as needed to wind up the institution.²⁰ To fund these activities, Dodd-Frank created an Orderly Liquidation Fund (OLF) that provides a source of emergency liquidity in receivership.²¹ The OLF serves as lender-of-last resort without which the OLA may not be effective, particularly for institutions without discount window access.²²

Central to the new resolution and restructuring regimes is the desire to keep operating companies in business in order to minimize disruption to the provision of financial services. The FSB has recognized two stylized approaches for implementing its Key Attributes with this objective in mind – Single Point of Entry (SPE) and Multiple Point of Entry (MPE) (FSB 2012). Under SPE, operating companies exist as subsidiaries of a parent company that preferably function only to issue debt and equity.²³ Losses at the level of the operating subsidiaries would be transferred to the parent company. Then, only the parent company would be placed into resolution while the operating subsidiaries continue as ongoing concerns. MPE, by contrast, requires organizing an institution along regional and/or functional lines such that resolution can be applied to only the distressed subgroups.²⁴

Both of these approaches rely on the existence of total loss-absorbing capacity (TLAC) bonds that can be bailed-in (that is, converted into equity or written down) in the event of resolution, both internally (so that losses of subsidiaries can be transferred to the entity or entities that will go through resolution) and externally (so that losses can be imposed on subordinated creditors instead of taxpayers). To date, insufficient attention has been paid from a supervisory

18 For additional discussion of the effects of Lehman's bankruptcy filing, see Wiggins and Metrick (2015a and 2015b).

19 The process for putting an institution into receivership with the FDIC under the OLA is set forth in §203 of the Dodd-Frank Act and requires the affirmative vote of or consultation with several federal agencies.

20 Dodd-Frank §210.

21 Dodd-Frank §210(n).

22 The long-term status of the OLA and OLF remains somewhat uncertain. On February 21, 2018, the U.S. Treasury Department issued a report recommending that the OLA be retained "as an emergency tool for use under only extraordinary circumstances," with the United States Bankruptcy Code being amended to include a new "Chapter 14" specifically tailored for financial firms. The report also proposed a new set of requirements around the use of the OLF intended "to eliminate any risk of unrecovered OLF loans" (U.S. Treasury Department 2018).

23 But SPE does not always rely on holding companies as the parent entities to be put through resolution. The FSB's Guidance on Developing Effective Resolution Strategies notes that parent operating companies can also be the subject of SPE resolution, but that this "may entail additional challenges." In Europe, resolution strategy is often based on SPE at the level of a top operating bank, which is rapidly recapitalized through bail-in and other resolution measures.

24 Some worry, however, about the threat of contagion to other subgroups as a result of losses imposed on the parent during resolution of distressed subgroups.

standpoint to who may hold such bonds.²⁵ Even more fundamentally, the TLAC approach is premised on the theory that collectively the financial system has enough capital to absorb all losses faced in a potential crisis, with the losses of one institution absorbed by the capital of other financial system participants via the conversion or writing down of their holdings of the institution's TLAC bonds. The problem is that we can never be sure that collectively the financial system will have enough capital to absorb all conceivable losses. For this reason, even when working as designed, the new resolution and restructuring regimes will not be equipped to handle all scenarios. As proponents of the regimes themselves acknowledge,²⁶ the regimes do not reduce to zero the possibility that governments will need to intervene to rescue failing financial firms under some future circumstances. But if functioning as intended, their existence should “push out the frontiers” for such rescues, making the use of emergency tools necessary in fighting only the most extreme

crises and requiring policymakers to justify their use instead of bail-in.

While providing important new options for dealing with failing financial institutions not available during the GFC, the newly developed resolution and restructuring frameworks remain largely untested. Although institutions such as the FDIC have extensive experience resolving small banks, it is unclear whether resolution can work as smoothly in a systemic crisis where one or more global systemically important banks need to be resolved. Meanwhile, as discussed in the text box below on Italy's experience, the concern that the political costs associated with using resolution tools could be deemed too high, particularly where bail-in regimes might result in the imposition of losses on politically important groups, has already been realized.

There is also a concern that the current approach to resolution is designed to deal with creditor losses and may not be appropriate for handling institutions such as large custodian banks, for example, that play a

BAIL-IN IN ITALY

According to the International Monetary Fund (IMF), retail investors held almost half of subordinated bank debt in Italy as of 2015 (IMF 2016). These retail holdings are such that for the majority of Italy's 15 largest banks, the BRRD's 8 percent requirement would involve bail-in of retail investors in the event of resolution (IMF 2016). The prospect of imposing losses on these investors has been extremely controversial in Italy.

In November 2015, before the BRRD's bail-in rule went into effect in January 2016, Italy conducted a partial bail-in of four small institutions. Following a backlash stemming from losses imposed on retail investors and the suicide of a pensioner, the Italian government established a fund to compensate such investors. In the face of continued difficulties in the Italian banking sector, including at one of Italy's largest lenders, Monte dei Paschi di Siena (MPS), Italian officials have sought to avoid further bail-in of retail investors. In June 2017, the European Commission approved a “precautionary recapitalization” of MPS as an exception to the BRRD's bail-in requirements, with the Italian government once again compensating retail investors in MPS subordinated debt.

25 TLAC bonds in the hands of retail investors could render a resolution authority reluctant to trigger bail-in and impose losses on such investors, as in the case of Italy, discussed below. TLAC bonds in the hands of certain other financial market participants at certain levels could result in bail-in spreading contagion. For additional discussion of the importance of who holds TLAC bonds to resolvability and the failure of supervisors to adequately address this issue, see Tucker (2018a).

26 See, for example, Tucker (2018a).

different operational role in the financial system.²⁷ The development of resolution policies for central counterparties (CCPs) is also an area where more work is needed given their increasingly major role in centralizing risk and serving as a link between a wide range of financial market participants.²⁸ Finally, as discussed in greater detail below, cross-border resolution remains a major issue.

The existence of resolution frameworks also contributes to resiliency in the financial system due to the necessity of resolution planning. The ability to require banks to come up with plausible resolution plans has become a major driver of how banks are organized.

For example, major Swiss banks are becoming more modular, less financially interconnected internally, and better able to use service company structures for operational functions. More generally, still, the resolution planning process is not without critics. Some believe the process is too long and gets bogged down in detail. Others have suggested that a more effective way of managing the process would require banks to describe the conditions that would cause them to fail (as opposed to providing them with a specific scenario) and how they would conduct themselves so that the failure does not become a threat to financial stability.

RECOMMENDATION #2

Authorities should try to improve the prospects that the new resolution and restructuring regimes can work effectively, particularly in a major crisis. In designing and using the regimes, authorities must be careful to distinguish between idiosyncratic events and systemic events, and be clear about the types of threats the new regimes are intended to address. Policymakers should better communicate about the regimes and how they may provide an alternative to emergency tools in some, but not all, situations. The overarching goal must be to establish a level of trust and institutionalized cooperation among the authorities that limits the need for unduly burdensome local capital and liquidity requirements that might lead to trapped pools of resources and thereby weaken the stability of global financial institutions.

²⁷ Some argue, however, that SPE, with its intended ability to keep operating subsidiaries as going concerns, is a good fit for the resolution of large custodian banks.

²⁸ For additional discussion of CCP resolution policies, see the FSB's Guidance on Central Counterparty Resolution and Resolution Planning (FSB 2017c).

Emergency Tools: Lending, Guarantees, and Capital

Of greatest concern, some of the tools available to fight extreme crises, when and if they recur, have been weakened, especially in the United States.

In the wake of the most recent financial crisis, there has been both a backlash against anything seen as providing assistance to troubled firms and an increased focus by policymakers on extreme losses that leave a financial institution insolvent. The result has been a post-crisis emphasis on providing a mechanism for resolving/restructuring failed firms (as outlined in Conclusion #2, above) at the expense of other emergency powers. Tools such as lender of last resort, guarantees, and capital injections have often been either explicitly curtailed (particularly in the United States) or face a political environment hostile to their use (with one interviewee arguing that in Europe it would be “political suicide” to even suggest a crisis response similar to the one undertaken during the GFC).

Lending

Since the publication of Walter Bagehot’s *Lombard Street* in 1873, it has been widely accepted that in the face of potential panic central banks should, as Bagehot’s dictum has been summarized, “lend freely, at a high rate of interest, on good banking securities” (Goodhart 1999). The most recent financial crisis witnessed a use of this power that was unprecedented in terms of both magnitude and scope, with

lender-of-last-resort tools deployed to assist not only individual struggling banks but also non-bank financial firms and entire markets (Domanski and Sushko 2014). As a result, the lender-of-last-resort toolkit has come under greater scrutiny in recent years.

Despite this scrutiny, the provision of emergency liquidity to the banking system remains a core function of central banks in the wake of the most recent financial crisis. There is still broad agreement that such liquidity can help avert a panic by offering an essential backstop and providing more “runway” for addressing problems. Thus, while different jurisdictions’ frameworks for providing emergency liquidity can vary considerably (see, for example, Dobler et al. 2016), lender-of-last-resort toolkits remain largely intact post-crisis. In some cases, as with the UK’s Sterling Monetary Framework discussed in the text box below, the objectives and guidelines associated with these toolkits have been clarified or made explicit post-crisis. Furthermore, some interviewees have suggested that the experience gained from having used lender-of-last-resort tools during the most recent crisis leaves policymakers better positioned to use the tools again if called upon to do so in a future crisis. This preparedness is further enhanced in those jurisdictions that continue to check the functioning of their tools using small test transactions as with the small value exercises conducted by the Federal Reserve Bank of New York.

THE UK’S POST-CRISIS STERLING MONETARY FRAMEWORK (SMF)

The Bank of England has been criticized for its initial response to the onset of the GFC as manifested in the difficulties at Northern Rock in the summer of 2007. In response to this criticism, the Bank undertook an in-depth examination of its Sterling Monetary Framework (SMF) (the framework for its monetary policy and liquidity operations), resulting in a new version of the “Red Book” summarizing the SMF in 2010.

The 2010 Red Book adopted the provision of liquidity insurance as an explicit objective of the SMF and set out the full range of new and amended facilities that the Bank had introduced as part of the SMF since 2007. According to one review of the new SMF, the changes “have had the effect of substantially increasing the availability of Bank liquidity to the banking system and reducing ambiguity around the Bank’s approach to providing liquidity insurance” (Winters 2012, 6).

TABLE 3

Central Bank Lending and Asset Purchase*Details for each entry given in notes in Appendix D.*

		UNITED STATES	UNITED KINGDOM	EUROPEAN UNION	JAPAN
Who can they lend to?	Ordinary	Depository institutions only	Banks, building societies, broker-dealers, and CCPs	“Credit institutions and other market participants”	Bank of Japan accountholders, including non-bank financial institutions
	Emergency	Can lend to non-bank financial institutions in “unusual and exigent circumstances” and subject to many conditions	Solvent “firms that are at risk” with Treasury approval and insolvent firms at Treasury direction	“Financial institution or group of institutions”	Can lend to non-account holders
Can lend against what range of collateral?	Ordinary	Wide range	Wide range	Wide range	Wide range
	Emergency	Assets “sufficient to protect taxpayers from losses”		Wide range, within discretion of national authorities and generally seen as more expansive than under ordinary circumstances	Can also provide uncollateralized loans
Can purchase what range of assets?	Ordinary	Only gold, treasury, and agency debt, certain limited types of short-term state and local debt, foreign government and agency debt, and foreign currencies	No restrictions	“Marketable instruments,” including corporate bonds	“Commercial bills and other negotiable instruments, national government securities and other bonds, or electronically recorded claims”
	Emergency	No additional		No additional	Can also purchase other assets with authorization from the Minister of Finance and Prime Minister

Table 3 summarizes the range of lender-of-last resort powers possessed by central banks across different major jurisdictions. The most striking pattern of this summary is the relative weakness of the United States, which entered the GFC with less standing power to act during ordinary times, (for example, the Federal Reserve can only lend to non-banks in an emergency, while central banks in the UK, Eurozone, and Japan have standing power to lend to non-bank financial institutions), and saw its power to lend more broadly during emergencies as set forth in Section 13(3) of the Federal Reserve Act curtailed post-crisis.

The Dodd-Frank Act revised Section 13(3) to require that the Federal Reserve use its emergency powers to lend only via facilities that have “broad-based eligibility,” a term defined through rulemaking to refer to programs aimed at assisting one or more firms to avoid resolution and for which at least five firms are eligible.²⁹ The Dodd-Frank Act also prohibits the use of Section 13(3) for lending intended to remove assets from the balance sheet of a specific institution and requires the prior approval of the U.S. Treasury Secretary before Section 13(3) can be invoked.³⁰

Under this “broad-based” framework, interventions such as the Federal Reserve’s credit facility for AIG would no longer be possible, but industry-wide efforts such as the Primary Dealer Credit Facility would remain permissible. Some have speculated that interventions such as the AIG credit facility could still be accomplished under Section 13(3) as revised by designing a broad-based facility with terms so onerous that only specific firms in crisis would apply. However, a concern is that such an attempt could provoke Congress into even more drastically limiting the Federal Reserve’s emergency lending powers in future, significantly undermining its ability to respond to crises.

A further concern is that key gaps in the lender-of-last-resort framework that existed before the most recent crisis continue to the present day. As noted, in the United States, standing liquidity facilities are available only to banks, despite the fact that a significant amount of intermediation takes place outside the

banking system. During the crisis, liquidity was often provided to non-banks via special facilities like the Primary Dealer Credit Facility in the United States, but the standing ability to lend to such institutions, as exists in other major jurisdictions, could be beneficial. As discussed below, although major authorities frequently discuss the issue, there is also no formal system for international lender of last resort. The respective responsibilities of home and host countries to lend to a struggling global firm remain an open question.

The existence of lender-of-last-resort tools does not ensure that they will be used in the face of a crisis, moreover. Many central banks with very broad powers were reluctant to use those powers at the beginning of the crisis.³¹ Coming out of the most recent crisis, some regulators have expressed a fear that the failure to communicate more effectively about the difference between liquidity-focused interventions and solvency-focused interventions has made all liquidity support publicly suspect. This could limit the willingness of policymakers to deploy available tools. In the United States, for example, Title VIII of the Dodd-Frank Act gives the Federal Reserve the power to provide liquidity to financial market utilities, but there is still conceptual resistance to doing so. There is also a potential concern that if liquidity tools were deployed, it might make policymakers reluctant to use additional tools, as well.

The intended beneficiaries of certain lender-of-last-resort tools may themselves be reluctant to use them because of concerns over stigma. In the United States, for example, banks paid a premium of nearly 50 basis points to borrow from the Term Auction Facility rather than receiving the same funds via the discount window (Armantier et al. 2015). There is also evidence that the Bank of England’s standing facility was stigmatized during the crisis, with the negative market reaction to Barclays’ use of the facility causing the Bank to recast the facility as the Operational Standing Lending Facility (Winters 2012). The problem of stigma, then, must be addressed to ensure that the lender-of-last-resort toolkit can be used effectively.

29 Dodd-Frank Act §1101; 12 CFR 20.

30 Dodd-Frank Act, §110.

31 This criticism was voiced by several interviewees and echoes the conclusion made by the House of Commons Treasury Committee in its report on the UK’s response to the distress at Northern Rock (House of Commons Treasury Committee 2008).

Guarantees

Since the advent of deposit insurance, guarantees have been used as a tool for responding to panic where the existence of lender-of-last-resort support alone has been insufficient to restore confidence. The most recent crisis again saw the widespread deployment of guarantees, at the individual firm level (for example, Northern Rock), the level of specific markets (for example, the Temporary Guarantee Program for Money Market Funds), and the level of entire nations (for example, Ireland). Indeed, guarantees were the largest components of support provided by many G-20 governments during the crisis, often by a wide margin (Levy and Schich 2010).³² A particularly important type of guarantee widely used during the crisis involved government backing of short- and medium-term debt issued by banks that otherwise would have found it difficult to access necessary wholesale funding. From October 2008 (when governments first started to introduce such programs) to May 2010 (by which time guaranteed issuances had slowed and many programs were no longer active), nearly 1,400 guaranteed

bonds representing more than €1 trillion were issued by approximately 200 banks in 17 countries (Levy and Schich 2010). Programs existed in the United States (the Debt Guarantee Program of the Temporary Liquidity Guarantee Program), the UK (the Credit Guarantee Scheme), and a number of Eurozone countries (such as the SFFE in France, SoFFin in Germany, and the Spanish Guarantee Scheme).

The use of guarantees during the crisis was not without controversy. Even for guarantees that succeeded in restoring funding and ending runs, critics raised concerns about the potential for moral hazard and risk to the taxpayer. On the opposite end of the spectrum, the Irish banking guarantee (at twice the size of the Irish economy) was not seen as fully credible, limiting its effectiveness. Furthermore, Ireland's obligation to make good on its banks' liabilities ultimately cost the country an enormous amount of money and sparked a sovereign debt crisis.

The post-crisis period has seen explicit curbs on the power to issue guarantees and a political environment hostile to their use. Table 4 presents the current

THE CREDIBILITY OF GUARANTEES

One of the major lessons about the effectiveness of crisis-fighting tools illustrated by the GFC is the importance of a guarantor's credibility in determining the success or failure of a government guarantee. Panetta et al. (2009) evaluated the spreads paid by banks issuing debt pursuant to government guarantee programs during the GFC. They find that the spreads closely reflected the nationality of the issuing banks (and therefore the government responsible for the guarantees), with banks in Germany and the United States paying the lowest spreads (25 basis points and 32 basis points, respectively), and banks in Portugal, Ireland, and Spain paying the highest spreads (96 basis points, 86 basis points, and 81 basis points, respectively).

Indeed, higher-rated banks in countries such as Portugal found themselves paying higher spreads than lower-rated banks in countries such as Germany. One result that Panetta et al. (2009) identify is that banks from "weaker" countries sometimes declined to participate in their government's guarantee programs. The more modest reduction in spreads associated with a guarantee from a "weak" country would have been less than the fees the banks would have to pay to participate in the program.

32 As Levy and Schich (2010) note, comparisons of guarantees and other support measures are not without conceptual difficulties given the contingent nature of any amounts actually paid out by governments pursuant to guarantees versus the upfront nature of amounts disbursed pursuant to other support measures.

guarantee powers existing in the major jurisdictions. Post-crisis, the United States has become an outlier in curtailing the standing power to establish widely available debt guarantee programs such as the Debt Guarantee Program of the Temporary Liquidity Guarantee Program. The Dodd-Frank Act eliminated the ability of the FDIC to establish such guarantee programs without Congressional approval.³³ And whereas some view the restrictions on Section 13(3) emergency lending imposed by Dodd-Frank as capable of being circumvented, as discussed above, the guarantee restrictions are widely regarded as, to quote one interviewee, “less surgical” and therefore more binding. In addition, in October 2008, as part of the Emergency Economic Stabilization Act, Congress prohibited the future use of Treasury’s Exchange Stabilization Fund to guarantee money market mutual funds, as had been done via the Temporary Guarantee Program for Money Market Funds announced in September 2008.³⁴

In Europe, no significant statutory restrictions on guarantee programs have been put into place post-crisis, but the Irish experience is seen as having sapped the political will to undertake guarantee programs. The interplay between guarantee programs

and lender-of-last-resort activities and the new constraints on the latter make guarantee restrictions that much more problematic. Where guarantee programs are not an option, earlier and more aggressive use of lender-of-last-resort tools may be necessary (but potentially not possible given restrictions on the lender-of-last-resort tools themselves).

Capital

The undercapitalization of banks in connection with financial crises is of particular concern given the link between low levels of capital and effects on the real economy in the form of slower loan growth and the misallocation of credit due to zombie lending.³⁵ Research suggests that purchasing or insuring troubled assets alone is unlikely to sufficiently address the problem of weak bank capitalization (Acharya et al., n.d.). Thus, capital injections can be an important tool for fighting financial crises and reducing their effects on the real economy.

The most recent crisis saw extensive use of capital injection programs, both targeted at specific firms (for example, Citigroup in the United States, Commerzbank in Germany, and RBS in the UK) and

TABLE 4
Emergency Powers for Guarantees and Capital Injections

Details for each entry given in notes in Appendix E.

	UNITED STATES	UNITED KINGDOM	EUROPEAN UNION	JAPAN
Can establish a widely available debt guarantee program?	Requires Congressional approval	Yes, subject to state aid rules	Yes, subject to state aid rules	Yes
Is there a standing facility for capital injections?	No standing facility	No standing facility	Yes, but must first apply resolution tools except in the case of “precautionary recapitalization”	Yes, to preserve financial stability or to enhance financial functions of financial institutions

³³ Dodd-Frank Act, §1105.

³⁴ EESA §131.

³⁵ “Zombie lending” refers to the practice of undercapitalized banks continuing to lend to existing, troubled borrowers to avoid having to recognize the initial loans as nonperforming. It is most commonly associated with the Japanese financial crisis of the 1990s (see, for example, Caballero, Hoshi, and Kashyap [2008]).

the banking sector broadly (for example, the Capital Purchase Program in the United States, the Bank Recapitalisation Fund in the UK, and the Société de Prise de Participation de l'État [State Holding Company, SPPE] in France). In the wake of the crisis, governments generally allowed such programs to expire, relinquishing the power to inject capital. Table 4 identified those major jurisdictions that maintain a standing facility for purposes of injecting capital into troubled financial institutions. The Europeans and Japanese are alone in maintaining such facilities, each with a set of requirements attendant to their use.

In the Eurozone, two facilities were established following the GFC that can be used for capital injections. First, the Single Resolution Mechanism, with funding from the Single Resolution Fund, can be used to recapitalize institutions under certain circumstances. Second, the European Stability Mechanism (ESM) possesses tools to recapitalize financial institutions both indirectly (via loans to sovereigns that the sovereigns in turn use for recapitalization, as was the case with the ESM's assistance to Spain in 2012–2013), and directly (via the purchase of common shares in affected institutions, a measure that the ESM has not yet deployed). In each case, however, the BRRD's requirement that bail-in occur prior to the provision of state aid applies, meaning that banks would be subject to resolution as a condition of receiving such capital injections. The narrow exception to this requirement is the existence of "precautionary recapitalizations," a measure available only to banks deemed solvent by the European Central Bank and only in amounts necessary to address capital shortfalls under the adverse scenario of a stress test.³⁶

In Japan, Chapter VII of Japan's Deposit Insurance Act provides that the Deposit Insurance Corporation of Japan (DICJ) may inject capital into a solvent bank following a determination by the Prime Minister (after deliberation by the Financial Crisis Response Council) that such injections are necessary to maintain orderly credit systems. In addition to this standing power, the Act on Special Measures for Strengthening Financial Functions (Financial Functions Strengthening Act) gives the DICJ the power to inject capital in order

to enhance the financial functions of financial institutions. The Financial Functions Strengthening Act has been cited as the relevant legal authority for Japan's most recent capital injections, including those conducted during the financial crisis. The power to inject capital granted by the Financial Functions Strengthening Act has been extended multiple times and currently expires in March 2022.

Political Legitimacy

As indicated by the discussion above, the United States is unique among major jurisdictions in the extent to which it curtailed its emergency powers post-crisis. Outside of the United States, the legal powers for emergency measures remained largely intact or were enhanced. We are, however, concerned that the political backlash to GFC interventions has reduced the willingness of policymakers to act to contain systemic financial crises, particularly in cases where expectations about the effectiveness of resolution are high.³⁷

The emergency actions taken during the GFC were not politically popular. In this regard, the GFC is not different from many past systemic crises. Rightly or wrongly, financial crises are often blamed on bankers, and efforts to fight financial crises are perceived as government aid to the guilty. This is particularly problematic because government and the regulators are often seen as having been co-opted by the bankers and too responsive to their interests. As a result of this relationship, government is perceived by many, on both the political right and the political left, as being overly willing to protect banks, their shareholders, and their creditors from losses. We also recognize that legal distinctions about whether specific crimes were committed are ultimately unsatisfying to many citizens. The GFC led to significant suffering, and it is natural for those who suffered to seek justice.

In Europe, the legal regime provided the basis for the imposition of more severe sanctions on the leaders of financial institutions for their roles in the most recent crisis than in the United States. Senior officials at major banks in Europe have faced criminal charges for activities leading up to and during the

³⁶ Article 32, BRRD.

³⁷ One of our interviewees has argued that the opposite is also true – that in certain circumstances governments may be too quick to use emergency powers and that post-crisis they have increased ability to do so. In the UK, for example, the Treasury now has statutory powers to order the Bank of England to lend.

THE POLITICAL AFTERMATH OF FINANCIAL CRISES

As noted, the lack of political popularity faced by the emergency actions taken during the GFC mirrors experiences from past systemic crises. Funke, Schularick, and Trebesch (2015, 227) examined more than 800 elections in 20 advanced economies from 1870 to 2014. They find that “policy uncertainty rises strongly after financial crises as government majorities shrink and polarization rises,” a phenomenon that does not occur following other types of economic crises. Among the potential explanations they offer for this disparity is the highly unpopular nature of government rescues following financial crises.

GFC.³⁸ Prosecutors in the United States, in contrast, did not find sufficient basis in the U.S. legal regime to prosecute any CEO of the major financial institutions, and two hedge fund managers at Bear Stearns charged with fraud for their activities leading up to the crisis were ultimately acquitted. In general, criminal law proved too blunt an instrument for imposing accountability for all of what went wrong in the lead-up to the crisis, and there was a lack of other alternatives. As a result, in most countries there was a substantial “justice gap,” which was one of the main reasons behind the reform of the emergency powers and the greater restrictions on the use of taxpayer resources. And the political backlash to the crisis interventions may make policymakers reluctant to use the powers that remain. Thus, a major challenge for governments is to close that justice gap, both through strong ex-ante rules and clear crisis communications and actions.

We believe that many positive steps have been taken to establish strong ex-ante rules, including the reform of compensation regimes,³⁹ increased clarity around accountability for executives and Board members,⁴⁰ and additional options in resolution and restructuring for imposing losses on equity holders, removing executives and Board members, and clawing back compensation.⁴¹ We recognize that there is more work to be done to gain the public trust needed to support necessary actions during the next financial crisis. There will not be just one silver bullet for this work: it will require clear communication about the need for emergency tools, education about the costs and benefits of past actions and how such actions were in the public interest, and an openness by policymakers to engage with the public before and during a crisis. These efforts will take time. This increased focus on accountability must also extend to policymakers and regulators.⁴²

38 For example, in Iceland, the CEOs of the three largest banks were jailed for misconduct during the crisis. Similarly, an Irish court sentenced three senior officials from Anglo Irish Bank to prison terms of between two and three-and-a-half years for crisis-related fraud. The UK’s Serious Fraud Office charged Barclays’ former CEO with fraud related to efforts to raise funds during the crisis.

39 The Financial Stability Board (FSB) introduced its Principles for Sound Compensation Practices and related Implementation Standards (the FSB P&S) in 2009 to “align compensation with prudent risk-taking, particularly at significant financial institutions.” Among the principles adopted by the FSB is that “[c]ompensation outcomes must be symmetric with risk outcomes,” such that “diminish or disappear in the event of poor firm, divisional or business unit performance,” including via clawbacks. As of July 2017, all FSB member jurisdictions reported having fully or almost fully implemented the FSB P&S for their banking sectors. Still, a debate remains about whether compensation deferral periods are long enough and whether clawback regimes are robust enough.

40 For example, the Senior Managers Regime, introduced in the UK in 2016, imposes a statutory duty of responsibility on senior managers, with specific responsibilities mapped to identified individuals within the firm. Under the Regime, a senior manager can be held liable for failure to take reasonable steps within his or her area of designated responsibility that results in the institution being in breach of a relevant regulatory requirement.

41 The FSB’s Key Attributes of Effective Resolution Regimes for Financial Institutions lists as the first general power resolution authorities should have is the power to “[r]emove and replace the senior management and directors and recover monies from responsible persons, including claw-back of variable remuneration.” Key Attribute 5.1 also calls for equity to absorb losses first and for no losses to be imposed on senior debt holders until subordinated debt has been fully written off.

42 For a detailed treatment of these issues of political legitimacy, see Tucker (2018b).

RECOMMENDATION #3

As governments and central banks examine ways to preserve and strengthen the power of the new prudential safeguards, they should explore ways to strengthen the tools necessary to protect economies from the damage caused by an extreme financial crisis. The policy community should invest more resources in and devote more attention to the challenges of designing effective strategies for confronting financial crises, drawing on the extensive experience during the GFC. Operational readiness should be a particular focus. Authorities need to ensure that all the elements necessary to support the effective use of the tools are in place prior to a crisis occurring.

Overall Evaluation

Overall, this shift in powers has improved the ability to deal with failures of individual institutions and modest shocks to the financial system, but has reduced the flexibility to deal with a systemic crisis. This weakness is particularly acute in the case of international contagion, and for systemic events that originate in the shadow banking system. Even when fully implemented and working as designed, the new preventive frameworks and resolution and restructuring regimes, by themselves, will not be enough to handle all crises. Thus, these new systems need to be supplemented by a workable set of discretionary tools available to the authorities (generally the central banks and resolution authorities) to deploy in extreme crises, with appropriate accountability for their use.

As a result of the changes to resolution and restructuring regimes and emergency powers highlighted in this report, post-crisis, a very different set of tools to respond to financial crises exists than did at the time of the GFC. Authorities have important new options for dealing with failing firms, albeit ones that have not been fully or consistently implemented thus far and that have not yet been put to the test with the failure of a systemic institution. Meanwhile, emergency powers have been weakened, both through legislative curbs and an erosion of the political capital to make use of these powers. We understand the economic reasoning and political constraints that have resulted in this new mix of tools given the events of the GFC. Now, however, is the time to take stock of what this mix means for the ability to fight crises in ways that reduce the damage to the economy, limit the fiscal cost of the crisis response, avoid moral hazard, and promote the political legitimacy of the response and the institutions responsible for managing it.

For purposes of evaluating where the new mix of powers leaves us, we consider two important cases of a “modest shock” and a “systemic shock.” For this discussion, we define a “modest shock” to be a shock that does not raise doubt about the solvency of the entire financial sector. A modest shock can manifest in a variety of ways. Past examples include:

- the idiosyncratic failure of a single large institution (such as Barings in 1995);
- a temporary disruption of market infrastructure as seen following the 9/11 attacks;⁴³
- a regional or subsector shock, such as the savings and loan crisis of the 1980s and 1990s in the United States.

For idiosyncratic failures, the new preventive rules alluded to in this report should reduce their probability (although to what degree remains unclear) while allowing regulators to see them coming sooner and to have better visibility into the likely impacts on other institutions. Meanwhile, the possibility of bail-in may provide a credible alternative to rescue. Here, even reduced emergency lending powers should be sufficient to handle temporary liquidity shortages from such failures, and more clarity on resolution procedures should make it easier to unwind counterparties in the aftermath of that failure. The same reasoning holds for larger-scale regional or subsectoral shocks, such as those seen in the savings and loan crisis.

Systemic shocks are different. For this discussion, we define a systemic shock to be a shock that raises doubt about the solvency of the entire financial sector. Examples would be any of the large failures and near failures in September 2008, or the hypothetical default of a large sovereign with bonds held widely by financial institutions. Such shocks could arise from markets, infrastructure, and/or participating institutions. In a systemic shock, we would expect runs on short-term debt markets, both retail and wholesale. Responding to such shocks requires that central banks and fiscal authorities restore confidence in the solvency of the overall financial system. Without such confidence, runs would continue.

We have several concerns about the collective ability to respond to a systemic shock in the post-GFC world. The constraints on emergency lending in the United States introduced post-crisis could cause both a real-time problem in dealing with broad-based runs or dollar shortages, and a credibility problem for restoring confidence that authorities have sufficient

43 As discussed below, however, a more substantial disruption to key market infrastructure such as could arise from something like a cyberattack might well produce a systemic shock.

firepower to handle the liquidity pressures of the runs. Furthermore, without the ability or political capital to make emergency guarantees, there can be no “pause” while large institutions and markets are restructured. As noted, the legal framework that requires bail-in of debtholders is untested in a systemic shock. We expect that there will be political pressure and uncertainty around the functioning of such bail-in, and the possibility of additional contagion from its imposition (although potentially less contagion than resulted from bankruptcy resolutions during the GFC).

Overall, many of the changes that reduce moral hazard in normal times can exacerbate contagion and constrain actions after a systemic shock. There is a tradeoff here, and recent policy changes have moved us clearly away from the emergency powers needed to fight a systemic shock. As a society, we might want this tradeoff. But we should not deny that we have made it and we should seek to understand its consequences before another crisis occurs.

One of the most significant challenges in responding to systemic shock may occur in the face of cross-border failures. We believe there is a significant weakness in the collective ability to manage the cross-border failure of a large multinational institution (let alone several large multinational institutions). Some of the most complex challenges of the GFC involved the distress or failure of multinational systemically important financial institutions (SIFIs). Since the GFC, there has been a significant improvement in cross-border cooperation at the supervisory stage, with higher-level and more frequent meetings of international supervisory colleges.⁴⁴ Furthermore, some countries have signed MOUs for handling distress of these institutions. Proponents view new SPE and MPE resolution frameworks as specifically tailored for handling cross-border failures given their emphasis on limiting the entities placed in resolution, but these frameworks remain untested.

However, other developments have led in the opposite direction. Fear about the cross-border failure of even larger SIFIs has led to new regulations to seal off domestic operating units and impose capital requirements separately for each jurisdiction. In the United States, the Federal Reserve has already issued regulations, adopted in 2014, that require large foreign banking organizations with a significant U.S. presence to organize their U.S. subsidiaries under an intermediate holding company.⁴⁵ In the EU, legislation was proposed in 2016 to amend the Capital Requirements Directive (CRD)⁴⁶ and Capital Requirements Regulation (CRR)⁴⁷ to require foreign banks to establish intermediate holding companies for subsidiaries in the EU. We are concerned that this form of ring-fencing could make problems worse in the event of the failure of an international SIFI, particularly if that failure occurs during a systemic event. It could also weaken institutions and leave them more vulnerable to crisis by depriving them of the ability to optimize their structures across regions.⁴⁸

More generally, the crisis-fighting framework is not robust to international contagion, and lacks clear lines of authority, decision making, and accountability for an international lender of last resort. As table 3 showed, lender-of-last-resort powers remain robust in most major jurisdictions, with the notable exception of the United States. One reason to be alarmed by this exception is that dollar funding was a major concern during the GFC, and global dollar credit has increased since the crisis.⁴⁹

Furthermore, the challenge of dollar liquidity was met through other emergency programs that have now been discontinued. The Term Auction Facility (TAF), created in December 2007, made the vast majority of its loans to U.S. affiliates of international banks. Borrowing by foreign banks accounted for around 60 percent of total TAF lending, and European banks were some of the largest borrowers in the program

44 For a discussion of the progress made on the supervisory college front and the challenges that remain, see the Basel Committee on Banking Supervision’s (BCBS) latest “Progress report on the implementation of principles for effective supervisory colleges” (BCBS 2017).

45 12 CFR Part 252. Also known as Regulation YY.

46 Directive 2013/36/EU.

47 Regulation (EU) 575/2013.

48 For local subgroups, the FSB’s guidance calls for internal TLAC of 75 percent to 90 percent of the external TLAC requirement that would apply were such subgroups themselves resolution groups, with the exact figure to be determined by relevant host authorities in consultation with home authorities (FSB 2017a). In the United States, the Federal Reserve has set the internal TLAC requirement at 89 percent. As this report goes to press, authorities in Europe are soon expected to announce where specifically in this range the requirement will be set.

49 For more on the growth of global dollar credit and its implications, see McCauley, McGuire, and Sushko (2015).

(Benmelech 2012). The same emphasis on foreign banks holds for the Commercial Paper Funding Facility, another major crisis-era program (van Deventer 2011).

In general, we believe it is less than ideal to have the Federal Reserve, or any central bank, as the de facto international lender of last resort. Domestic central banks have legal mandates that can interfere with the international lender of last resort role, and domestic politics can further complicate even the best of intentions.

Finally, gaps remain in the ability to handle events beyond threats to the traditional banking sector. During the GFC, vulnerabilities built up and spread in the shadow banking system, which played at least as large a role in the crisis as did traditional banks.⁵⁰ Yet most of the post-GFC reforms have been focused on traditional banks, and most of the discussion in this report has been on the tools used to prevent and fight crises in the traditional banking sector. Many parts of the shadow banking system remain vulnerable, including components that caused major problems during the GFC such as securitization, bilateral repo, and commercial paper. Furthermore, although steps have been taken to better regulate the exposure of traditional banks to the shadow banking sector,⁵¹ continued borrowing from traditional banks by shadow banks means that vulnerabilities in shadow banking could also threaten the traditional banking system. We applaud the efforts of the FSB to address these less regulated markets but acknowledge that there remains significant work to be done.⁵²

But it is not enough to fight the last crisis. In our internal conversations and external interviews for this report, the vast majority of experts expressed the belief that the next financial crisis will likely come from a new vector, and that the regulatory structure is not prepared for many of the most likely possibilities. Cyber risks are the most cited new risk. Such risks are particularly troubling because one or more of the tools common to most crises to stop runs and preserve the stability of the financial system could be rendered ineffective in the face of a cyberattack. This provides a particularly stark illustration of the need for a robust crisis response toolkit so that if a given tool becomes unavailable, other tools will still be ready for use.

The more general concern, however, is that the regulatory structure does not place enough emphasis on preparing for emergent risks of new types, even though we can never be sure what they will be. Innovations such as the FSB in the global community, the ESRB in the EU, the FPC in the UK, and the FSOC in the United States are steps in the right direction. We recommend that even more attention be paid—in these new institutions and in domestic central banks—to creatively exploring and preparing for various possible scenarios as a way of increasing system resiliency and guarding against complacency. The next crisis might well come from a different source, and even if we cannot precisely predict it, this type of scenario planning can identify weaknesses that, if fixed, will serve us well.

50 See, for example, Gorton and Metrick (2012) for an analysis of the crisis as a system-wide run that took place in the securitized banking system rather than the traditional banking system.

51 See, for example, the European Banking Authority's Limits on exposures to shadow banking entities that conduct banking activities outside a regulated framework under Article 395(2) of Regulation (EU) No. 575/2013.

52 For the FSB's assessment of the global trends and risks from the shadow banking sector, see its most recent "Global Shadow Banking Monitoring Report 2017" (FSB 2018).

RECOMMENDATION #4

Since all crises are different, authorities should be equipped with the flexibility to quickly adapt in crisis, with appropriate checks and balances and consultation requirements with the legislature. International bodies and domestic coordinating groups must spend more time preparing for novel crisis vectors.

A CAVEAT ABOUT EUROPE

While one might conclude from this report that Europe is in a better position than, for example, the United States, given that the former has not seen the same post-crisis reduction in legal powers experienced in the latter, several interviewees (including some from Europe) cautioned against this view. A particular concern is the divergence of views among European countries and the fear that Europe is insufficiently united to address a future pan-European crisis.

IV. CONCLUSION

The time to evaluate whether authorities have the tools to fight the next financial crisis and what can be done to make those tools more effective is now, before that crisis hits. Our evaluation shows that while significant strides have been made following the GFC, there is more work to be done. The prudential safeguards introduced post-crisis have made financial systems more resilient and stable, but they are incomplete and untested. New resolution regimes are designed to provide additional options for dealing with failing firms but may not work as designed in all circumstances. Emergency powers have been weakened, both through legislative curbs and the erosion of political capital to use the powers. The net result is an enhanced ability to deal with certain kinds of problems (the failure of individual institutions, modest shocks) and a degraded ability to deal with other kinds of problems (systemic shocks, international contagion, threats from new vectors such as cyberattacks).

At the heart of this report is a recognition that no level of financial buffers or resolution regimes for individual institutions can be assured to handle extreme events. And such events have the greatest potential to cause widespread economic and societal harm. It is best to have in place beforehand the workable architecture of a discretionary ability for extreme cases, and mechanisms to buy time in a crisis, and not try to develop that part of the toolkit from scratch in the heat of the crisis. Having the architecture in place beforehand can increase the confidence of market participants and thus reduce the likelihood of difficulties getting out of hand.

Perhaps even more important, prior to the next crisis, policymakers should foster and continue to promote a broad understanding of what the then-current mix of crisis-fighting powers is and what the consequences of that mix are so that society can make informed decisions about how best to protect itself from the effects of the next financial crisis.

APPENDIX A.

REPORT METHODOLOGY

The work undertaken to produce this report includes the following:

- 1. Empirical evidence from the global financial crisis (GFC).** The causes and consequences of the GFC have been (and continue to be) thoroughly analyzed, and this report is *not* attempting to add to this literature. Instead, we have evaluated the experience of the GFC with a particular focus on the tools that proved important in fighting the crisis and whether there have been any changes in the availability of those tools post-crisis. While a complete analysis of what worked, what did not work, and why is beyond the scope of this report, the report's conclusions and recommendations are informed by an understanding of the policy responses to the GFC and evidence of these policies' efficacy.
- 2. Interviews with experts.** The project staff for this report conducted approximately 30 interviews with prominent experts on the tools available to policymakers in the event of a financial crisis. This group of interviewees included both current and former senior officials at central banks and regulatory agencies in the United States, the United

Kingdom, Europe, and Asia, as well as leaders from the legal communities in certain of these jurisdictions. Project directors typically asked the interviewees for their general sense of whether authorities are prepared to fight the next financial crisis before drilling down to discuss the status of specific types of tools. To encourage candor, these interviews were conducted off-the-record.

- 3. The opinion of the Steering Committee and the G30 as informed by the evidence gathered in #1 and #2.** In developing this report, project staff worked under the supervision of a G30 Steering Committee consisting of Timothy Geithner, Guillermo Ortiz, and Axel Weber to formulate a plan for the project, discuss findings, and share preliminary outlines. These preliminary outlines were then circulated to a broader G30 Working Group, with their feedback incorporated into the final version of the report outline. A preliminary draft of the report likewise underwent a similar process of review and revision directed by the Steering Committee and based on the feedback of the Working Group.

APPENDIX B.

MAJOR LEGAL CHANGES FOLLOWING GFC

TABLE 1
Major Legal Changes Following GFC

JURISDICTION	REFORM	RELEVANT CHANGES
United States	Dodd-Frank Wall Street Reform and Consumer Protection Act (DFA) ¹	Established Orderly Liquidation Authority (OLA); mandated stress tests for systemically important financial institutions (SIFIs); restricted emergency lending by the Fed under 13(3) to broad-based programs and limited FDIC authority; new central clearing requirement
European Union	Regulation (EU) No. 806/2014 establishing Single Resolution Mechanism (SRM) and Single Resolution Fund (SRF) ²	Established new SRM and SRF to centrally manage resolution in Eurozone
European Union	Treaty Establishing the European Stability Mechanism (ESM) ³	Established permanent stability mechanism for Eurozone
European Union	Bank Recovery and Resolution – Directive 2014/59/EU (BRRD) ⁴	Created standardized framework for resolution across EU; established new tools for managing bank failure, including bail-in
United Kingdom	Banking Act 2009 ⁵	Established Special Resolution Regime (SRR)
United Kingdom	Financial Services Act 2012 ⁶	Reformed regulatory structure and created new regulatory framework; extended types of institutions covered by SRR
Japan	Amendments to the Deposit Insurance Act of Japan ⁷	Allows Deposit Insurance Corporation of Japan to take over financial institutions at risk of disrupting the financial system

1. The Dodd-Frank Wall Street Reform and Consumer Protection Act (DFA) was signed into law in July 2010. The DFA established the Orderly Liquidation Authority, a new insolvency regime for systemically important financial institutions (SIFIs). In addition, it requires that the Fed conduct annual stress tests for SIFIs. Importantly, DFA

altered the Fed and FDIC emergency powers in several ways. Under the new rules, the Fed can only lend under Section 13(3) of the Federal Reserve Act to a program or facility with broad-based eligibility. The Fed is no longer able to provide lending assistance to any single and specific individual, partnership, or corporation, and cannot

lend to insolvent borrowers or to a company for the purpose of avoiding bankruptcy. Similarly, the FDIC can create widely available guarantee programs for solvent depository institutions with Congressional approval, but can only provide assistance to insolvent institutions once they have been placed in receivership, and solely for the purpose of winding up the institution. Finally, Title VII of the DFA created a new central clearing requirement for over-the-counter (OTC) derivatives.

2. As part of the EU Banking Union's single rulebook for supervision, Regulation (EU) No. 806/2014 established the Single Resolution Mechanism (SRM) and Single Resolution Fund. This regulation was passed in December 2012, when the European Council determined a need to streamline bank resolution. The regulation established the Single Resolution Board (SRB) to manage bank resolution in conjunction with national resolution authorities, and a Single Resolution Fund (SRF) to fund resolution from bank contributions, which are made at the national level and pooled at the EU level into the SRF. Under the SRM framework, the SRF can be used to inject capital into banks and financial institutions that participate in the SSM and are supervised by the ECB.
3. The Treaty Establishing the European Stability Mechanism (ESM) was signed in February 2012 and established a permanent stability mechanism to replace the European Financial Stability Facility (EFSF), a temporary facility established to address the sovereign debt crisis in 2010. ESM provides instant access to financial assistance (maximum of €500 billion) for Eurozone member states, subject to strict conditions.
4. The Bank Recovery and Resolution Directive (BRRD) was adopted in 2014 to provide authorities with new tools for managing resolution and to promote cross-border cooperation. The BRRD

strengthened supervisory authorities' early intervention powers and mandated banks' preparation of recovery plans. In addition, it stipulates that in the event of a bank's failure, shareholders and creditors must pay first through "bail-in" before using resolution funds. As a result, EU banks and investment firms are now required to meet a specific minimum requirement for eligible liabilities and own funds (MREL) as calculated by the resolution authorities.

5. The Banking Act 2009 established a permanent Special Resolution Regime for banks consisting of three stabilization options: private sector transfer, bridge bank transfer, and temporary public ownership. It also authorized a new bank insolvency procedure and a new bank administration procedure.
6. The Financial Services Act 2012 amended the Financial Service and Markets Act 2000 and established a new regulatory framework for the banking and financial services industry. The Financial Services Authority (FSA) was replaced by the Financial Conduct Authority (FCA) and Prudential Regulation Authority (PRA). The Act also created a new Financial Policy Committee (FPC) within the Bank of England and gave the Bank responsibility for financial stability. Part 8 of the Financial Services Act also extended the Special Resolution Regime established by the Banking Act to cover bank holding companies, central counterparties, and certain investment firms.
7. The Amendments to the Deposit Insurance Act of Japan, enacted in June 2013, established an additional resolution regime to deal with financial crises caused by severe market disruptions. Under the new regime, the Deposit Insurance Corporation of Japan can take over financial institutions at risk of disrupting the financial system following a determination by the Prime Minister.

APPENDIX C.

RESOLUTION AND RESTRUCTURING

In the United States, resolution for insured depository institutions is governed by the Federal Deposit Insurance (FDI) Act. The Orderly Liquidation Authority (OLA) provisions of Title II of the Dodd Frank Wall Street Reform Act (DFA) established a new resolution regime for systemically important non-bank financial institutions. In the UK, a Special Resolution Regime was established by the Banking Act 2009, and its scope was widened by the Financial

Services Act 2012. In the EU, resolution is governed by the EU Bank Recovery and Resolution Directive (BRRD). Japan has two resolution processes; “Measures against financial crisis” was established by the Deposit Insurance Act (Act No. 34 of 1971), and “Orderly resolution” was added when the Deposit Insurance Act was revised in June 2013 to align Japan’s resolution framework with international guidelines established by the FSB.

TABLE 2
Resolution and Restructuring

	UNITED STATES	UNITED KINGDOM	EUROPEAN UNION	JAPAN
What institutions are eligible?	Systemically important financial institutions under DFA ¹ Insured depository institutions under FDI Act ²	Banks, investment banks, bank holding companies, central counterparties (CCPs), certain investment firms, and their group companies ³	Credit institutions, investment firms (with initial capital > €730,000), financial holding companies established in the EU, and subsidiaries supervised on a consolidated basis ⁴	Banks and non-bank financial institutions (including financial holding companies, insurance companies, and securities companies) ⁵
What triggers resolution?	Under FDI Act: a wide range of triggers ⁶ Under DFA: Treasury Secretary must determine a systemic financial company is in default or in danger of default ⁷	Two conditions must be met: (a) the firm must be failing or likely to fail (determined by the Prudential Regulation Authority/Financial Conduct Authority), and (b) it must not be reasonably likely that an outside action will be taken that would prevent failure (determined by the Bank of England) ⁸	Three conditions must be met: (a) the institution must be failing or likely to fail, (b) there is no reasonable expectation that any alternative private sector measure or supervisory action could prevent failure in a reasonable time, and (c) resolution is necessary in the public interest ⁹	Measures against financial crisis (financial assistance or temporary nationalization): Prime Minister with Financial Crisis Response Council determines systemic risk ¹⁰ Orderly resolution (Deposit Insurance Corporation of Japan takes over): bank must be insolvent or likely to become insolvent, bank must have suspended payments or is likely to do so, and Prime Minister with Financial Crisis Response Council determines there is a risk of severe disruption ¹¹

1. Title II of the DFA applies to systemically important financial institutions, which includes bank holding companies, non-bank financial companies, subsidiaries of both (other than subsidiaries that are insured depository institutions or insurance companies), and covered brokers and dealers.
2. The FDIC may be appointed as conservator or receiver for “any insured depository institution,” according to the FDI Act.
3. The Banking Act 2009 established the Special Resolution Regime (SRR), which applied to banks. The Financial Services Act 2012 extended the SRR to cover bank holding companies, central counterparties, and certain investment firms and their group companies
4. To comport with the Capital Requirements Directive IV Package, the EU’s implementation of Basel III, BRRD covers credit institutions, investment firms with initial capital greater than €730,000, and financial holding companies established in the EU. The BRRD also applies to subsidiaries supervised on a consolidated basis. BRRD explicitly does not cover central counterparties or central securities depositories.
5. The existing resolution framework under Japan’s Deposit Insurance Act (DIA), Chapter VII Responses to Financial Crisis, covers banks. The DIA as amended in 2013 adds a new framework, Chapter VII-2 Measures for Orderly Resolution of Assets and Liabilities of Financial Institutions for the Purpose of Ensuring Financial System Stability. The new resolution regime covers banks and other financial institutions, including holding companies, subsidiaries, insurance companies, and securities companies.
6. The insolvency regime established by Sections 11 and 13 of the FDI Act dictates the conditions that must be met for the FDIC to be appointed as a conservator or receiver for an insured depository institution.
7. To place a financial company into receivership under Title II of the DFA, the Secretary of the Treasury, upon written recommendation from federal agencies and in consultation with the President of the United States, must determine that “(1) the financial company is in default or in danger of default; (2) the failure of the financial company and its resolution under otherwise applicable Federal or State law would have serious adverse effects on financial stability in the United States; (3) no viable private sector alternative is available to prevent the default of the financial company; (4) any effect on the claims or interests of creditors, counterparties, and shareholders of the financial company and other market participants as a result of actions to be taken under this title is appropriate, given the impact that any action taken under this title would have on financial stability in the United States; (5) any action under section 204 would avoid or mitigate such adverse effects; (6) a Federal regulatory agency has ordered the financial company to convert all of its convertible debt instruments that are subject to the regulatory order; and (7) the company satisfies the definition of a financial company under section 201.”
8. According to Section 7 of the Banking Act 2009, in order for a stabilization power to be exercised, the Financial Services Authority (FSA) must be satisfied that the following conditions are met: “Condition 1 is that the bank is failing, or is likely to fail, to satisfy the threshold conditions (within the meaning of section 41(1) of the Financial Services and Markets Act 2000 (permission to carry on regulated activities)); Condition 2 is that having regard to timing and other relevant circumstances it is not reasonably likely that (ignoring the stabilisation powers) action will be taken by or in respect of the bank that will enable the bank to satisfy the threshold conditions.” In evaluating the second condition, the FSA must consult the Bank of England and the Treasury. The FSA was abolished with the passage of the Financial Services Act 2012. As a result, per the “Banking Act 2009: special resolution regime code of practice,” Condition 1 is evaluated by the Prudential Regulation Authority (PRA), or by the Financial Conduct Authority (FCA) in the case of investment firms supervised only by the FCA, in consultation with the Bank of England. Condition 2 is determined by the Bank of England, in consultation with the PRA, FCA, and the Treasury.
9. Article 32 of the BRRD states that resolution action is triggered when an EU Member State’s resolution authority determines that all of the following conditions are met: “(a) the determination that the

institution is failing or is likely to fail has been made by the competent authority, after consulting the resolution authority or, subject to the conditions laid down in paragraph 2, by the resolution authority after consulting the competent authority; (b) having regard to timing and other relevant circumstances, there is no reasonable prospect that any alternative private sector measures, including measures by an IPS, or supervisory action, including early intervention measures or the write down or conversion of relevant capital instruments in accordance with Article 59(2) taken in respect of the institution, would prevent the failure of the institution within a reasonable timeframe; (c) a resolution action is necessary in the public interest pursuant to paragraph 5.” The Article clarifies that an institution can be deemed failing or likely to fail in one or more of the following circumstances: “(a) the institution infringes or there are objective elements to support a determination that the institution will, in the near future, infringe the requirements for continuing authorisation in a way that would justify the withdrawal of the authorisation by the competent authority including but not limited to because the institution has incurred or is likely to incur losses that will deplete all or a significant amount of its own funds; (b) the assets of the institution are or there are objective elements to support a determination that the assets of the institution will, in the near future, be less than its liabilities; (c) the institution is or there are objective elements to support a determination that the institution will, in the near future, be unable

to pay its debts or other liabilities as they fall due; (d) extraordinary public financial support is required except when, in order to remedy a serious disturbance in the economy of a Member State and preserve financial stability, the extraordinary public financial support takes any of the following forms: (i) a State guarantee to back liquidity facilities provided by central banks according to the central banks’ conditions; 12.6.2014 Official Journal of the European Union L 173/249 EN; (ii) a State guarantee of newly issued liabilities; or (iii) an injection of own funds or purchase of capital instruments at prices and on terms that do not confer an advantage upon the institution, where neither the circumstances referred to in point (a), (b) or (c) of this paragraph nor the circumstances referred to in Article 59(3) are present at the time the public support is granted.”

10. According to Article 102 of the Deposit Insurance Act, in order to apply resolution tools under Chapter VII Responses to Financial Crises, the Prime Minister, in consultation with the Financial Crisis Response Council, must determine that not taking such measures would “seriously hinder the maintenance of an orderly credit system in Japan or in a certain region where said Financial Institution conducts its business.”
11. Under the new resolution framework, the Prime Minister must determine, in consultation with the Financial Crisis Response Council, that not applying resolution tools to a failing or likely to fail institution would “cause severe disruption in Japan’s financial market and any other financial systems.”

APPENDIX D.

CENTRAL BANK LENDING AND ASSET PURCHASE

In the United States, the distinction between ordinary and emergency power is drawn by the Dodd-Frank Act, which dictates the powers available to the Federal Reserve under “unusual and exigent circumstances.” In the UK, emergency lending is categorized as lending requiring Treasury approval or at Treasury direction, as stipulated in the *Memorandum of Understanding on resolution planning and financial crisis management*. In the EU, standard lending under

Article 18 of *On the Statute of the European System of Central Banks and of the European Central Bank* differs from emergency lending, which is conducted by the national central banks with authorization from the European Central Bank. In Japan, ordinary lending and asset purchase are governed by Article 33 of the Bank of Japan Act, while emergency operations are governed by Articles 37, 38, and 43.

TABLE 3

Central Bank Lending and Asset Purchase

		UNITED STATES	UNITED KINGDOM	EUROPEAN UNION	JAPAN
Who can they lend to?	Ordinary	Depository institutions only ¹	Banks, building societies, broker-dealers, and CCPs ²	“Credit institutions and other market participants” ³	Bank of Japan accountholders, including non-bank financial institutions ⁴
	Emergency	Can lend to non-bank financial institutions in “unusual and exigent circumstances” and subject to many conditions ⁵	Solvent “firms that are at risk” with Treasury approval and insolvent firms at Treasury direction ⁶	“Financial institution or group of institutions” ⁷	Can lend to non-account holders ⁸
Can lend against what range of collateral?	Ordinary	Wide range ⁹	Wide range ¹⁰	Wide range ¹¹	Wide range ¹²
	Emergency	Assets “sufficient to protect taxpayers from losses” ¹³		Wide range, within discretion of national authorities and generally seen as more expansive than under ordinary circumstances ¹⁴	Can also provide uncollateralized loans ¹⁵
Can purchase what range of assets?	Ordinary	Only gold, treasury, and agency debt, certain limited types of short-term state and local debt, foreign government and agency debt, and foreign currencies ¹⁶	No restrictions ¹⁷	“Marketable instruments,” including corporate bonds ¹⁸	“Commercial bills and other negotiable instruments, national government securities and other bonds, or electronically recorded claims” ¹⁹
	Emergency	No additional		No additional ²⁰	Can also purchase other assets with authorization from the Minister of Finance and Prime Minister ²¹

1. Section 10B of the Federal Reserve Act established the framework for lending to depository institutions through the discount window. Discount window lending is governed by policies set forth in the Federal Reserve's Regulation A, which gives the Federal Reserve the ability to lend to depository institutions, defined as "an institution that maintains reservable transaction accounts or non-personal time deposits."
2. *The Bank of England's Sterling Monetary Framework* includes the explicit objective of providing liquidity insurance to the banking system and sets forth the facilities pursuant to which the Bank of England does so. Pursuant to a June 2014 amendment to the Sterling Monetary Framework (SMF), both "broker-dealers deemed critical to the stability of the UK financial system" and "CCPs operating in UK markets, either authorised under EMIR or recognised by ESMA [European Securities Markets Authority]" are eligible to apply for participation in the SMF.
3. Article 18 of *On the Statute of the European System of Central Banks and of the European Central Bank* provides that the European Central Bank (ECB) and National Central Banks (NCBs) "may conduct credit operations with credit institutions and other market participants."
4. Article 33 of the Bank of Japan Act gives the Bank of Japan the ability to "[make] loans against collateral in the form of negotiable instruments, national government securities and other securities, or electronically recorded claims." The recipients of these loans must hold current accounts with the Bank of Japan. Entities eligible to hold current accounts include those playing a key role in payments, securities settlement, and/or interbank money markets.
5. Section 13(3) of the Federal Reserve Act gives the Federal Reserve the ability to lend to non-banks in "unusual and exigent circumstances." As a result of amendments made to Section 13(3) in the Dodd-Frank Act following the global financial crisis, such lending must occur in connection with a program or facility with "broad-based eligibility," which has been defined through rulemaking to require five or more eligible participants. The amendments also provide that lending (a) must be for the purpose of providing liquidity to the financial system and not aiding failing firms, (b) cannot be provided to insolvent borrowers, (c) cannot be used to remove assets from the balance sheet of a single and specific company or assist a single and specific company avoid bankruptcy, and (d) must be approved by the Secretary of the Treasury.
6. Under a *Memorandum of Understanding on resolution planning and financial crisis management* between the Bank of England and HM Treasury required by Section 65(7) of the Financial Services Act 2012, the Bank of England, when authorized by HM Treasury, has the power to provide emergency liquidity assistance beyond the SMF to "firms that are at risk but are judged to be solvent" with no stated restrictions on who such firms may be. The *Memorandum of Understanding on resolution planning and financial crisis management* also explicitly states that the Chancellor of the Exchequer has the power to direct the Bank to extend emergency liquidity assistance to insolvent firms pursuant to Section 61 of the Financial Services Act 2012.
7. The *Agreement on emergency liquidity assistance* (ELA) governing the provision of ELA in the Eurosystem establishes that ELA can be provided to "a financial institution or a group of financial institutions facing liquidity problems." The NCBs of Eurosystem members have the primary responsibility for the provision of ELA.
8. Under Articles 37 and 38 of the Bank of Japan Act (see note #15 below), the Bank of Japan is able to lend to non-holders with authorization from the Prime Minister and Minister of Finance.
9. Under the *Federal Reserve Collateral Guidelines*, discount window borrowers can pledge a wide range of collateral including treasuries, agencies, corporate bonds, asset-backed securities, and loans.
10. *The Bank of England's Sterling Monetary Framework* provides that "[t]he Bank's collateral list is broad and extends in principle to any asset that it judges can be effectively and efficiently risk managed." The SMF currently accepts collateral in three different sets: Level A (high-quality, highly liquid sovereign debt), Level B (high-quality liquid collateral including private securities), and Level C (less liquid securities and portfolios of loans).

11. Article 18 of *On the Statute of the European System of Central Banks and of the European Central Bank* provides the ECB and NCBs with the ability to conduct credit operations “based on adequate collateral.”
12. Under Article 33 of the Bank of Japan Act, the Bank of Japan can engage in lending against “collateral in the form of negotiable instruments, national government securities and other securities, or electronically recorded claims” as part of its normal lender of last resort operations.
13. Section 13(3) lending must be “secured to the satisfaction” of the Federal Reserve with “security... sufficient to protect taxpayers from losses.”
14. National Central Banks assume the risk when providing Emergency Liquidity Assistance, and are generally permitted to accept lower-quality collateral than what is permitted through standard monetary policy operations, though the ECB provides no clear definition of this.
15. Article 37 of the Bank of Japan Act also gives the Bank of Japan the ability to provide uncollateralized loans to financial institutions that “unexpectedly experience a temporary shortage of funds necessary for payment due to accidental causes” for a period of time established by Cabinet order. In addition, Article 38 of the Bank of Japan Act gives the Prime Minister and the Minister of Finance “when they find it especially necessary for the maintenance of stability of the financial system” the power to “request the Bank of Japan to conduct the business necessary to maintain stability of the financial system,” including providing lending beyond the typical lender of last resort function outlined in Article 33.
16. Section 14 of the Federal Reserve Act sets forth the assets that the Federal Reserve has the power to buy. These include gold, treasury and agency debt, certain limited types of short-term state and local debt, foreign government and agency debt, and foreign currencies.
17. The Bank of England’s asset purchases are conducted in conjunction with its responsibility for monetary policy, which was laid out in The Bank of England Act 1998, and is reaffirmed annually in the Treasury’s Remit for the Monetary Policy Committee.
18. Article 18 of *On the Statute of the European System of Central Banks and of the European Central Bank* provides that the ECB and the NCBs may “operate in the financial markets by buying and selling outright (spot and forward) or under repurchase agreement and by lending or borrowing claims and marketable instruments.”
19. Article 33 of the Bank of Japan Act gives the Bank the ability to buy “commercial bills and other negotiable instruments, national government securities and other bonds, or electronically recorded claims.”
20. The ECB’s purchase of debt securities through the Securities Markets Programme (SMP) and of government bonds of euro area Member States on the secondary market through the Outright Monetary Transaction (OMT) program are still governed by Article 18 of *On the Statute of the European System of Central Banks and of the European Central Bank* (see note 18). In the case of the OMT program, this authority was upheld by a 2015 decision of the Court of Justice of the European Union.
21. Article 43 of the Bank of Japan Act gives the Bank the ability to conduct any business “where such business is necessary to achieve the Bank’s purpose specified by [the Act]” if it obtains the authorization of the Minister of Finance and the Prime Minister. The Bank of Japan has used this provision to purchase assets including exchange-traded funds (ETFs) and Japanese real estate investment trusts (J-REITs).

APPENDIX E.

EMERGENCY POWERS FOR GUARANTEES AND CAPITAL INJECTIONS

TABLE 4
Emergency Powers for Guarantees and Capital Injections

	UNITED STATES	UNITED KINGDOM	EUROPEAN UNION	JAPAN
Can establish a widely available debt guarantee program?	Requires Congressional approval ¹	Yes, subject to state aid rules ²	Yes, subject to state aid rules ³	Yes ⁴
Is there a standing facility for capital injections?	No standing facility ⁵	No standing facility ⁶	Yes, but must first apply resolution tools except in the case of “precautionary recapitalization” ⁷	Yes, to preserve financial stability or to enhance financial functions of financial institutions ⁸

1. Section 1105 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 requires that the FDIC obtain Congressional approval to create a “widely available program to guarantee obligations of solvent insured depository institutions or solvent depository institution holding companies (including any affiliates thereof) during times of severe economic distress.”
2. The Chancellor of the Exchequer has the power to authorize debt guarantees. As a current member of the EU, any guarantee programs established in the UK would be subject to state aid rules. See note 3 for more information.
3. During the financial crisis, the EU Commission allowed guarantees under Article 87(3)(b) of the Treaty Establishing the European Community (TEC), which allows state aid “to remedy a serious disturbance in the economy of a member state.” This was announced by the Communication from

the Commission—The application of State aid rules to measures taken in relation to financial institutions in the context of the current global financial crisis (2008/C 270/02), which stated that the Commission would permit aid “that is granted by way of a general scheme available to several or all financial institutions in a Member State,” including guarantee programs, and published guidelines for such programs. In 2007, the TEC was renamed the Treaty on the Functioning of the European Union (TFEU) and the article governing State Aid was renumbered to Article 107.

4. Article 38 of the Bank of Japan Act gives the Prime Minister and the Minister of Finance “when they find it especially necessary for the maintenance of stability of the financial system” the power to “request the Bank of Japan to conduct the business necessary to maintain stability of the financial

system,” which could presumably include establishing a debt guarantee program.

5. The capital injections that occurred during the most recent financial crisis required Congressional approval that has since expired.
6. The UK has no standing facility for capital injections. Any new capital injection would be subject to the EU’s Bank Recovery and Resolution- Directive (BRRD), which requires that resolution tools be used before injecting capital into failing or likely to fail institutions, except in the case of precautionary capitalization. See note 7 for more information.
7. The EU has established two mechanisms that could be used for injecting capital, the Single Resolution Mechanism (SRM), funded by the Single Resolution Fund (SRF), and the European Stability Mechanism (ESM). Through the SRM, capital injections can be made to banks and financial institutions that participate in the Single Supervisory Mechanism (SSM) and are supervised by the ECB. Capital injections through the SRM are financed by the SRF, which is in turn funded by contributions from the banking sector. The ESM was established as a standing bailout mechanism for Eurozone Member States. The ESM has the power to indirectly recapitalize banks through loans made to ESM Members, and to directly inject capital into banks as a last resort. Use of both mechanisms is governed by the bank recovery and resolution directive (BRRD). The BRRD mandates that “save as expressly specified in this Directive, the resolution tools should be applied before any public sector injection of capital or equivalent extraordinary public financial support to an institution.” The exception to this

rule is in the case of precautionary capital injections provided to solvent institutions, which are authorized by Article 32.4 of the BRRD and are subject to state aid rules established by Article 107 of the TFEU.

8. Chapter VII of Japan’s Deposit Insurance Act provides that the Deposit Insurance Corporation of Japan (DICJ) may inject capital into a solvent bank following a determination by the Prime Minister (after deliberation by the Financial Crisis Response Council) that failing to make such an injection “may extremely seriously hinder the maintenance of an orderly credit system in Japan or in a certain region where said [bank] conducts its business.” Chapter VII-2 of the Act empowers the DICJ to also inject capital into certain non-bank financial institutions that agree to submit to oversight by the DICJ following a determination by the Prime Minister (after deliberation by the Financial Crisis Response Council) that failing to make such injections “may cause severe disruption in Japan’s financial market and any other financial systems.” In addition to this standing power, the Act on Special Measures for Strengthening Financial Functions (“Financial Functions Strengthening Act”) gives DICJ the power to inject capital in order to enhance financial functions of financial institutions. The Financial Functions Strengthening Act has been cited as the relevant legal authority for Japan’s most recent capital injections, including those conducted during the financial crisis. The power to inject capital granted by the Financial Functions Strengthening Act has been extended multiple times and currently expires in March 2022.

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