The Regulatory Responses to the Global Financial Crisis: Some Uncomfortable Questions

By

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Abstract

We identify current challenges for creating stable, yet efficient financial systems. We do so in light of lessons from recent and past crises, using insights from analyses and empirical studies, and considering the current state of reforms. We identify areas where reform has been minimal and further steps can be undertaken: assuring more prudent banking; reducing the too big to fail problem; pursuing a system-wide view and using macro-prudential policies; reducing procyclicality; addressing the shadow banking system; addressing OTC derivatives markets; achieving better international financial integration; improving regulatory governance; and getting more data and better analyses. Undertaking reforms in these areas will require attention to three basic lessons. One, the incentives of all those involved in finance need to be better understood and incorporated into regulations so as to better align them with the goals. Two, policy makers need to resist fine-tuning regulations – conceptual limitations, constraints of data and lack information on effectiveness make a “do not harm” approach using basic principles and simple measures preferable. Three, as there always will be unknown unknowns—be they tipping points, fault lines, or spillovers – better crisis management plans need to be an integral part of the design, not improvisations after the fact.

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1. Introduction

This paper identifies some of the key current reform challenges for creating stable, yet efficient financial systems. It does so in light of lessons from the recent and past financial crises and using insights from analytical and empirical studies. The general objective of possible reforms is clear, but important to keep in mind: to reduce the chance and costs of future systemic financial crises in the most efficient manner, that is, at the lowest costs to economic growth and welfare more generally. The most important conceptual and practical challenge identified in the paper is that policy makers (and market participants) need to think more system wide in their risk monitoring efforts and reforms. The crisis has made clear that, in spite of what appeared to be individual sound and well supervised financial institutions, well functioning financial markets, risks that were well diversified, and institutional infrastructures that appeared to be robust, systemic risks could emerge, yet go undetected for some time and then create great havoc.

Here, despite some progress, the sad news is that the general approach to reforms is largely still been based on an outmoded and by now repudiated framework of thinking about regulations, one that does not see the “system-wide” characteristics of risks and misses many risks that are not well regulated or overseen. Systemic risk in modern financial system arises endogenously and cannot just be captured by individual institution, balance sheets, specific-market or asset price-based measures alone, especially when they are static or backward looking. A system approach is all the more necessary as the financial intermediation process adds newer elements that do not fit into the traditional ways of formulating (microprudential, bank-based) regulations and conducting institution-based supervision. Reform approaches will need to be more holistic—examining the interactions across institutions, markets, participants, and jurisdictions, and across types of risks (market, credit, and liquidity). Moreover, approaches need to actively anticipate the side effects of one regulation on others (both within and across jurisdictions).

Besides a lack of focus on systemic risks, the paper also argues that typically reforms have lagged for three reasons: a lack of a specific enough analytical framework, making reform steps consequently unclear; a lack of appropriate data on which to evaluate the possible costs and benefits of various regulations and their interactions; and a lack of practical methods of implementation or enforcement of conceivable reforms. The paper realizes that there will always remain such constraints on knowledge and data, but it argues that these constraints should be more explicitly acknowledged. The outcome should be that policy making takes a more “Bayesian” approach where reforms are implemented in areas where knowledge is greater, while in other areas both a more “experimental” approach is taken and more resources – data, analyses – are invested to clarify the best approach. With all these efforts, however, financial crises will recur and there is thus a need to enhance crisis management and resolution (including transparent burden sharing).

In terms of outline, the paper proceeds as follows. It first reviews the reasons typically mentioned in papers trying to explain the recent financial crisis. It shows that the literature mentions that both causes common to many other, past financial crises and some new ones that may have played a role. The exact weight to put on each of these various factors is not
clear, however. It also reviews the state of affairs on financial reforms, highlighting the areas where progress has been more. The next section starts by taking a step back and tries to frame the challenges for financial reform to prevent crises from recurring from three perspectives: improving incentives at all levels (direct market participants, other monitors, supervisory agencies), addressing market failures and externalities, and acknowledging the unknowns. It also stresses the need for more analyses, within all the constraints, to improve policy advice.

The next section then reviews areas where reform has been less than desired and suggests some specific further steps that can be undertaken. Specifically it assesses progress in the following nine areas: assuring more prudent banking; reducing the too big to fail problem; pursuing a system-wide view and macro-prudential policies; reducing procyclicality; addressing the shadow banking system; reducing risks in OTC derivatives markets; achieving better international financial integration; improving regulatory governance; getting more data and better analyses, and reducing the known unknowns and the unknown unknowns. It finds that the rigorous analysis of recent and historical experiences and evidence on impact of various regulations and requirements to help prevent financial crises is more limited than perhaps desired. The tenth area has therefore the (sober) message: given the likely inability to prevent all future financial crises, there is a need to enhance crisis management and resolution as part of the ongoing financial reform agenda. The last section concludes with general lessons.

2. What caused the global financial crisis? And what is the state of affairs of reform?

Analyzing the policy responses needed to prevent future financial crises has to start with an analysis of the causes of crises, most notably, but not solely the most recent one, the global financial crisis. While its exact causes will be continue to be debated, it is clear that this crisis, like others, had multiple and interlinked causes, some common to other financial crises and others unique. We can group them into four common causes and four unique causes (see further Reinhart and Rogoff (2008), Claessens and Kose (2013), and Eichengreen (2002; 2010) for reviews of the causes of financial crises in general and the most recent specifically). We next review briefly the main regulatory responses to date.

2.1. Common causes

First common cause is the occurrence of a credit boom or, more generally, rapid financial expansion. Credit booms are often associated with deterioration in lending standards – as was observed in the subprime lending in the United States. While booms do not always cause crises, they do make them more likely (Dell’Ariccia, et al, 2012) and most banking crises are in some way related to credit extension to borrowers that become non-performing. Moreover, credit booms are typically associated with high leverage, which is why they can be so dangerous.

A second, and often related, ‘common’ cause is rapid asset price appreciation, with housing the most common asset. House prices in the United States rose more than 30 percent from
2003 to the start of the crisis. In many other markets, such as Ireland and Spain, prices rose even more. Because houses are used as collateral underpinning mortgage credit, their rising value allows more credit to be extended, and hence are often associated with a rapid growth in household credit and increased leverage.

Third, the creation of new instruments whose returns rely on continued favorable economic conditions. The rapid growth of structured credit products – such as collateralized debt obligations (CDOs) and the like – that depended in complex ways on the payoffs to other assets, added to instability.

Fourth, regulation and supervision failed in restricting excessive risk-taking. Risks, notably in the 'shadow banking system' but also at large, international active banks – were permitted to grow without much oversight, leading eventually to both bank and nonbank financial instability.

2.2. New causes

Of the new causes, the first and most significant was the widespread and sharp rise of households’ leverage and subsequent defaults on (housing) loans. The collapse of the subprime market and the vicious cycle of falling house prices was a catalyst for the crisis in the United States. It triggered similar declines in real estate markets in many advanced countries (Ireland, Spain) as well as some emerging markets that had seen booms. By directly involving homeowners, this crisis became far more complicated. There are no established best practices for how to deal with large scale households’ defaults, moral hazard problems, and equity and distribution issues. What is clear is that restoring households’ balance sheets will take longer and hence the economy recovery period has been extended.

A second new cause was how increased leverage manifested itself across a wide range of agents—financial institutions, households—and markets. While a buildup in leverage was not new, the extent of borrowers’ dependence on finely priced, illiquid collateral limited the system’s ability to absorb even small shocks. This led to a rapid decline in collateral values (namely houses and the related structured credit products), which shook confidence. Fear of counterparty defaults in major financial institutions rose dramatically early on in the crisis, freezing market transactions and making valuations of underlying assets even more problematic. The systemic liquidity vulnerabilities that were building up eventually helped turn a liquidity crisis into a solvency crisis.

Third, increased opacity, notably but not solely related to the U.S. private label securitization of weak credits, explosive growth in derivatives, and the complex operations of the shadow banking system. While the originate-and-distribute model held the promise of better risk allocation, it turned out that risks were less widely distributed than envisaged and incentives to properly assess risks were undermined. The complexity of the securitized products made it much more difficult to know their true value and hence the solvency of financial institutions

1 A few countries, notably Korea and Iceland, have seen household leverage-induced financial difficulties, but advanced economies seldom witnessed such widespread household distress outside of the Great Depression.
that were thought to own them. The complex use of asset-backed commercial paper (ABCP) backed by the CDOs and other Mortgage Backed Securities (MBS) – with their differential maturities of liabilities and assets, added the risk of rollovers to a loss of confidence in the values of the underlying assets. The flow of U.S. and euro area money market funds into bank commercial paper and short-term debt, and the extensive use of repurchase agreements and rehypothecation\(^2\) to develop long chains of borrowings for the support of other trading book assets in large, interconnected securities dealers and banks, all contributed to excessive use of short-term wholesale funding in various forms that was not well understood. This lack of understanding quickly led to a confidence crisis.

Fourth, international financial integration had increased dramatically over the decade before the crisis. Global finance no longer involves just a few players, but many from various markets and different countries. Many mortgage-backed securities and other U.S.-originated instruments were held in other advanced economies and by the official sector in several emerging markets—and funded by dollar-based liabilities in other non-dollar-based countries. Cross-border banking and other capital flows had increased sharply, notably for advanced European countries. While these developments undoubtedly have benefits during “normal” times, they quickly translated the turmoil in the United States into a global crisis. Subsequently, turmoil in one or a few countries in the euro area has led to multiple rounds of cross-border spillovers and crises. The various intense links mean that not only do financial disturbances quickly spread, but they also make co-ordinated solutions much more difficult.

The exact weights of each of these causes remain unclear, with especially (many) unknowns as to why this crisis has been so bad and so long. Other contributing factors include too loose monetary policy and weaknesses in fiscal policy, such as generous tax deduction of interest, but since these factors have been present in previous cycles it is difficult to conclude that they are much to blame. Nevertheless, it is generally agreed that the causes were many and the “solutions” to prevent future crises will equally have to be found in a combination of important changes to national and international regulatory frameworks, to the conduct of monetary policy and fiscal policies, and to legal and institutional environments (see IMF 2010, Vinals et al for an overview of the overall policy agenda). Below we focus on the regulatory agenda, acknowledging policy changes are also needed in these other areas.

### 2.3. Regulatory responses to date: Where are we now?

To attempt to rectify the damage done to financial systems and economies, a large set of financial reforms, both at the domestic and international levels, have been set into place. The informal group of regulators and central bank experts that had been meeting in Basel prior to the crisis became more formal in April 2009 through the establishment of the Financial Stability Board (FSB). The FSB now coordinates the work of national financial authorities and standard setting bodies at an international level. It brings together national authorities responsible for financial stability from mostly G20 countries. The key reforms that have been

\(^2\) Rehypothecation refers to the re-use of collateral in other repurchase or securities lending agreements.
finalized under FSB guidance and are being implemented can be summarized as follows (see the latest FSB progress report to the G-20, September 5, 2013).

- Adoption of Basel III capital requirements (including a countercyclical capital buffer and a surcharge for globally systemically important financial institutions (G-SIFIs) — the two elements that are systemically oriented).  
- Agreement on one of the two envisioned liquidity standards—the Liquidity Coverage Ratio (LCR).
- Some progress on ending too-big-to-fail, with the identification of G-SIFIs, D-SIBs, higher capital adequacy requirements and more intense supervision, and some reforms of national resolution schemes (including bail-in instruments) so that failing institutions can be resolved without wider disruptions.
- Enhancements of the “securitization model”.
- Adoption of principles for sound compensation practices.
- Agreement on similar treatment of some types of financial transactions under U.S. Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS).
- Some closure of data gaps, e.g., the beginning of harmonized collection of improved consolidated data on bilateral counterparty credit risk of major systemic banks (for the major 18 G-SIBs and 6 other non-G-SIBs from 10 jurisdictions).
- Some OTC derivatives reforms.

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3 The Basel III capital adequacy rules (see Basle Committee on Banking Supervision, BCBS, 2012) are: a 4.5% basic requirement and a 2.5% conservation buffer requirement for all banks; a 2.5% countercyclical buffer depending in the boom phase of the financial cycle; and for some banks (designed as systemic), an up to 2.5% systemic surcharge. Altogether, the highest minimum requirement in the form of common equity (Tier 1) would be 12%. In addition to this would be 1.5% alternative Tier 1 equity and 2% Tier 2 (hybrid) forms of capital. These ratios apply to the risk-weighted assets. Additionally, a simple leverage requirement, ratio of (common) equity to total assets, is contemplated. Besides raising the level of requirements, at least as important, Basel III requires better forms of capital, especially more core equity, rather than the hybrid forms of equity that were much used before the financial crisis.

4 On liquidity, the liquidity coverage ratio (LCR) was announced early this year by the BCBS. The LCR requires banks to have enough liquidity, defined as having on balance sheet certain assets (High Quality Liquid Assets) and access to some facilities (including some forms of central bank liquidity), to cover 30 days of outflows. The Net Stable Funding Ratio (NSFR), still under discussion, aims for better structural asset and liability maturity matches.

5 Credit rating agencies are asked to disclose more; formal rules requiring the retention of underlying assets have been instituted in various jurisdictions; accounting information on off-balance sheet vehicles, such as Special Investment Vehicles (SIVs) and conduits, must be consolidated if they are a subsidiary of another financial institutions.


7 Requirements of the reporting and centralized clearing of some types of OTC derivatives in some jurisdictions, as well as guidelines and minimum standards for centralized counterparties (CCPs) by the Committee on Payments and Settlement Systems and the International Organization of Securities Commissions (the “CPSS-IOSCO”)

3. Analytical framing of approaches and constraints to reform: Why haven’t we made further progress?

The reforms to date, in light of the diagnosis of the crisis, provide some insights into what more might be needed. To identify, evaluate, and prioritize further specific reforms is challenging, however, as the “right” tools can be hard to identify and conceptual and practical issues raise many difficult tradeoffs. It is nevertheless best done with a clear framework in mind. The general analytical approach this paper uses can be summarized under three themes: improve incentives; think system wide and address market failures and externalities; and, at the same time, acknowledge the many unknowns and hence proceed cautiously and plan (better) for future crises. At the same time, approaches for designing reforms have to be more explicit about the analytical, practical and data constraints. And, in the end, there needs to be adequate recognition that institutional, political economy, and other constraints will affect the final reform choices.

3.1. Improve incentives.

Improving incentives is obviously, to an economist at least, the best way to enhance financial sector performance and ensure greater financial stability. This “incentives view” applies to direct market participants, to auxiliary monitors, and to regulators and supervisors. Direct market participants include owners, managers as well as staff (e.g., the “traders”) of financial institutions; the many, often atomistic participants in financial markets; and the numerous final users of financial services–households, corporations, sovereigns, others. Because of the diversity alone, no single economic or financial “model” can capture the motivations and incentives of each of these agents. And clearly there are many behavioral and other non-economic aspects that drive the decision-making of these actors for which economic “models” do not apply (and knowledge is otherwise as of yet limited). Nevertheless, altering these incentives through the “right” regulations and policies is likely to bring about a better (that is, both more stable and efficient, and more fair) financial system. As such, considerable attention is devoted to reviewing existing knowledge on incentives of the direct participants.

Generally, less attention has been given to the incentives of, what can be called, “auxiliary monitors.” These agents include rating agencies, accounting and auditing firms, various elements of the institutional infrastructure for financial markets (e.g., clearing houses, CCPs) as well as the financial press and other “whistleblowers.” They can all play useful roles in creating a safer financial system by exercising market discipline, identifying problems and risks at both the micro and system level, and serving as mechanisms to absorb shocks. Whether these agents can identify important risks and will voluntarily reveal them will depend on incentives. An examination of the incentives facing rating agencies revealed their contributing role in perpetrating the financial crisis—and part of the reform agenda underway is aimed to remedy this. There are many others, though, which arguably also failed in their roles or had a conflicted set of incentives, for which reforms still have to start. Yet others have been surprisingly strong in their roles as monitors. Many cases of malfeasance have, for example, been discovered by employees and the press (see Dyck, Morse and Zingales, 2010).

Supervisory agencies should be the last, but important, defense. Weaknesses in supervision
and capture of regulatory and supervisory agencies, nationally and internationally, however, have adversely affected financial stability (and possibly as well as the efficiency of financial services provision and the access to financial services by many groups in society).

Regulators, supervisors, and many other officials that failed in their public policy roles, have suffered little ex post cost (in terms of loss of jobs, for example). Nor did others receive any reward for discovering risks or attempting to flag imminent problems. Capture of regulatory, supervisory, and other public oversight agencies occurs in many ways and can undermine financial stability and efficiency. As such, enhancing national and international regulatory governance and accountability is a crucial element of any incentive approach to reduce the chances of financial crises.

3.2. Think system-wide and address market failures and externalities.

The crisis has made clear that in spite of what appeared to be individually sound and well supervised financial institutions, risks that were thought to be well diversified, and institutional infrastructures that appeared to be robust, systemic risks emerged, went undetected for some time, and then created great havoc. A system wide perspective that acknowledges much more explicitly the interactions, market failures, and externalities is therefore needed. This system view should not just be limited to regular (public) financial stability reviews and other such analyses. Such reviews should be an integral part of a broader process by which all supervisory agencies consider their roles primarily to oversee (a segment) of the financial system in its entirety, and only secondary the individual financial institutions or agent within markets. Any micro-prudential supervisor, for example, should consider, and be equipped to address if necessary, the systemic consequences of the institution she is reviewing.

The system-wide view is also needed for the design of regulations. Conceptually, it is now well recognized that even fully effective regulation (and supervision) at the individual level (alone) does not assure a safe financial system (see Brunnermeier, Crockett, Goodhart, Persaud, and Shin (2009) for a general discussion of a macroprudential versus a microprudential perspective on financial stability and regulation; and De Nicolò et al (2012) for an analytical review). One obvious reason is the various fallacies of composition. Bank A can have liquidity insurance from bank B, and bank B from bank A, allowing both to satisfy a liquidity requirement, yet in aggregate, liquidity risk obviously still remains. More generally, the high degree of interconnectedness of financial systems and the large scope for market failures and externalities make a system-wide perspective necessary for financial stability, both at the national and international levels.

Currently, regulations and other requirements are, however, largely designed from a micro-

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8 Some forms of capture are subtle: insiders—both people within the financial industries and important users—set the rules, standards, and institutional designs, mostly to benefit themselves. As rents arise, the costs of financial services increase and access declines for some groups. In some cases, capture occurs in very blatant ways, such as corruption, which includes not only “stealing” (as when state-owned banks lend to cronies who subsequently default) but also the misallocation of resources. Capture often occurs ex post—through, for example, bailouts induced by the moral hazard of too big to fail financial institutions or more relaxed monetary policy and fiscal policies to deal with (the risks of) a systemic financial crisis.
prudential perspective. It can even be the case that such micro-prudential requirements, even when well designed, make the system as a whole more, instead of less, risky. Some regulations can lead to more procyclicality for example, as has been argued in case of Basel II. Reducing the risks of a crisis requires therefore a system perspective combined with a macroprudential toolkit, some of which has to be global (and involve capital flows management tools) given the close connections these days among financial systems and through international financial markets. And it requires a proper institutional framework to assure, besides system-wide risk monitoring, the necessary remedial actions.

3.3. Realize unknown risks will remain.

As in other industries (e.g., nuclear, health, food) and with other types of risks (e.g., weather, climate, diseases), there has to be the realization that, even with better incentives and a more system-wide view, many risks will remain and new types of risks can arise. More resources, analyses and data can help reduce to some degree the set of unknown risks. Some risks, including perhaps those (deliberately) hidden, can be discovered using a more eclectic way of doing “prudent” oversight, i.e., not (just) relying on formal risk indicators or rules, but using more “market intelligence.” For instance, usually asking “why”-type questions are helpful—why are some users willing to manufacture or “buy” some new product?

Some (perhaps many) risks though will remain undiscovered, not (just) because of a lack of attention by markets, supervisory agencies and others, but because they are not easily recognizable. Indeed, sometimes these (system) risks of a (new) product are not even known by the purveyor. Many events will not be anticipated in any way (“Black Swans”). Other risks will come from new sources or arise from existing sources anew, such as unforeseen interactions between markets and agents, or side effects of new regulations. Because many risks remain, contingency planning and the ability to respond to (the onset of) financial crises with flexibility will remain needed. And effectively and efficiently mitigating the impact of financial crises when they occur will have to remain an important policy area too.

3.4. Adapt approaches and avoid fallacies.

While useful starting points, we recognize that these general principles do not suffice to determine specific financial reforms. That still requires much more analysis and work. Here constraints are numerous, as a number of specific examples next shows. Further progress to identify general approaches is needed, to avoid at times mistaken approaches and fallacies.

- Overall consistency of across reforms. This, especially when reforms proceed on many fronts as they have recently, is often not assured. For instance, there is a tension

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9 One notable reason is that Basel II encourages the use of VaR models, which are often used with similar inputs, including a short time frame inducing more risk-taking as volatility of asset prices fall in an upswing and a common withdrawal from risks as volatility rises in a downturn. Some other (capital and liquidity) regulations can also, by inducing more common behavior, increase overall risks (e.g., by focusing on risk weights, rules can induce too much investment in some asset classes). More general, even when rules encourage diversification at the individual firm level, they may reduce diversity at the system level.
between liquidity regulations (the LCR) and components of the resolution regime (bail-in requirements). That is, they may lead to tradeoffs that are not being discussed or even recognized. Another problem is that regulators in one area are not necessarily talking to those in another area—e.g., resolution authorities and banking supervisors (even if they are in the same building) or accountants (requiring consolidated treatment of SIVs and conduits), banking supervisors (assigning risk-weights to securitized product), and securities regulators (insisting on more “skin in the game” for securitization).

Migration and global consistency. Despite, or because of, a “global” representation within the FSB (e.g., at least G20 or G25) for regulations to be “cleared,” there is (still) a tendency to negotiate specific one-off exceptions or to adopt the lowest common denominator. An example is that for some concentrated market activities (e.g., OTC derivatives) migration and fragmentation are constantly issues for the private sector, with pressures on their regulators to favor their own jurisdiction. How to protect the financial system can then be at odds with making markets (especially market infrastructure, such as CCPs) more competitive. Competition more generally can lead to lower standards and higher risks. Minimums (of capital, of risk-management standards, of leverage, and so on) are meant to help avoid a race to the bottom, but require all jurisdictions to actively enforce the minimums. Some countries are aiming to be “super safe” and hence are ignoring the agreed-upon standards. At what point do the benefits of global trading and risk diversification begin to be outweighed by financial protectionism?

Timing of reforms/implementation. Some “fixes” are hindering the current economic recovery (higher capital ratios are leading to deleveraging through asset sales or less credit creation). Others aimed to support a recovery, such as credit enhancing policies (such as lower risk weights on SME loans) may lead to excessive risk-taking, since they purposely underprice risk relative to its true price. More generally, if reforms are too slow, risks will build up again; if reforms are too fast, the real economy fails to recover: a “just right” approach will require a lot of judgment and flexibility.

Narrow view of the crisis “causes.” The notion of choosing “winners and losers” of the various activities depending on whether they were viewed as “causing” the financial crisis is a concern. For example, the new rules have made most private label securitization uneconomic and banks (and non-banks) are not participating due to the negative perception such activities engenders—even though restarting securitization could help the economic recovery.

Cost-benefit analysis. Regulators/supervisors are thinking about cost-benefit analysis, but usually in a very narrow way, and many are worried about raising the costs of intermediation while the recoveries in many crisis-hit countries are still weak. There is a need to think long-term—through the cycle—to the end point and adjust implementation time frames, but not the final goal.

Rigidity in rules hinders future crisis management. For instance, the Dodd-Frank Act disallows the Fed from providing liquidity to certain entities, even in an emergency,
without the Treasury Secretary’s “permission.” To “tie the hands” of some authorities in such a way to prevent moral hazard issues from arising may at the end of the day cause more panic than it prevents when financial stress arises. Restricting business activities (the Volcker rule in the United States, the Vickers Commission in the United Kingdom, and Liikanen report in the European Union) all similarly have the problem that they attempt to isolate the “risky” activities outside the banking system, but this only moves the risks (maybe, if effective) and doesn’t necessarily lessen them for the system as a whole.

4. The “Top Ten” list of specific reform areas

With this general framing and keeping in mind the many constraints and tradeoffs, we next discuss that despite progress in some areas, there has been much less forward movement in important other areas. The ten areas that still require much work (not necessarily in order of importance) include: assuring more prudent banking; reducing the too big to fail problem; pursuing a system-wide view and macro-prudential policies; reducing procyclicality; addressing shadow banking system; reducing risks in OTC derivatives markets; achieving better international financial integration; improving regulatory governance; getting more data and better analyses, and reducing the known unknowns and the unknown unknowns; and the need to enhance crisis management and resolution.

4.1. Assuring more prudent banking.

Albeit with some important differences across countries, banks generally still undertake the largest share of financial intermediation. To assure safer and more efficient banking systems, higher capital and stricter liquidity requirements are very much at the center of current regulatory efforts, with Basel III at its core. Furthermore, a minimum leverage ratio is generally agreed upon, but the details are yet vague. The analytical and empirical support for formal requirements from an incentive point of view are, however, less clear than perhaps often thought. For example, as is, the analytical literature has offered relatively limited guidance on the exact incentive effects of capital requirements. Some analyses have even found that higher requirements can have perverse effects. Furthermore, risk taking incentives are affected by both a bank’s current capital adequacy and its franchise value of future profit and growth opportunities, with possibly opposing effects.¹⁰

While the incentive effects, in terms of reduced risk-taking, are perhaps less clear, most research does acknowledge the obviously beneficial effects of higher capital in terms of buffers as well as easing the need for public intervention in weak banks. By having more capital, it is easier for a bank to absorb losses when hit by an adverse shock, thereby avoiding (the risk of) default and better permitting it to “go on.” This can be privately beneficial for all

¹⁰ One other indication of the difficulty with capital adequacy requirements is that the risk models banks use show vary large differences, i.e., banks apply very different risk weights for the same asset. The BCBS (2013) study asked 15 large banks in nine countries to calculate the total capital required to support the same hypothetical trading portfolio. The results ranged from €13m to €35m and the variation within individual asset classes – such as credit risk or interest rate portfolios – was in several cases more than eight times.)
stakeholders combined, as it preserves specialized knowledge and franchise value and avoids the direct and indirect costs of a potential bankruptcy. Yet, owners and managers may not fully internalize these deadweight costs, in part due to the presence of a public safety net, and hence choose to hold too little capital. This can thus justify government-mandated and enforced capital adequacy requirements. Capital also facilitates and eases interventions when a bank is a “gone concern.” It helps to protect debtholders, including (small) depositors and their “agent,” the deposit insurance scheme, from the consequences of distress. And it can help regulators define measured shortfalls, indicating when to intervene from a legal perspective and discipline the regulators to intervene in a timely fashion. For these reasons, most research supports some capital requirements, as private costs seem low and social benefits considerable.

While the case for good liquidity management at the micro-prudential, individual bank level is obvious, the analytical case for liquidity requirements from a system point of view is less clear. This is not surprising as the concept of liquidity at a system level is very complex and not well defined, making liquidity requirements not easy to design from an incentive or a buffer point of view. And current academic thinking on liquidity seems both less well advanced and less reflected in regulations being adopted or underway. Overall, research suggests no clear form for liquidity requirements. It does acknowledge that current design of liquidity rules, given the interactions across financial institutions and with retail customers, may be (even) less likely effective than capital regulation. A liquidity problem develops into a systemic problem must faster than a solvency problem. A rethinking of how best to “tax” an institution or market for contributing to a lack of liquidity, given the contingent nature of the problem, may end up looking like an insurance-type charge or levy than a consistent “buffer”-type surcharge.

Almost regardless of the exact design, banks and others in the financial services industries object to the new capital and liquidity requirements. Their arguments mostly rest on the increased costs of financial intermediation and the resulting adverse impact on the real economy. The arguments are not particularly strong. For one, it is worth recognizing that many banks already hold ample capital and liquidity buffers and would not need to change their operations. And even for those banks affected, most analyses finds small costs of reasonably higher requirements (see Santos and Elliott, 2012; and BCBS 2010). And, even then, banks could adjust along several margins, some of which may improve stability, say if they curtail activities “underpriced” before the new regulations (e.g., lending to marginally productive sectors).\textsuperscript{12}

Regulations are largely for example aimed at banks, i.e., they tend to try to address funding liquidity, but are less able to affect market liquidity, which is likely a big deficiency given the increasing importance of capital markets. There are also many cross-border issues in liquidity, important as well during the recent financial crisis—such as the shortage of dollar funding, but these are even less well understood. The behavioral components leading to the start of a run—a tipping point—is seldom discussed and in the past it was assumed ‘savers’ are depositors in banks, whereas in today’s markets the risks is more of large, wholesale providers of “liquidity” that may run. Measures of systemic risk are still relatively untested and their ability to signal difficulties much in advance of a period of liquidity distress is limited.

\textsuperscript{11} Regulations are largely for example aimed at banks, i.e., they tend to try to address funding liquidity, but are less able to affect market liquidity, which is likely a big deficiency given the increasing importance of capital markets. There are also many cross-border issues in liquidity, important as well during the recent financial crisis—such as the shortage of dollar funding, but these are even less well understood. The behavioral components leading to the start of a run—a tipping point—is seldom discussed and in the past it was assumed ‘savers’ are depositors in banks, whereas in today’s markets the risks is more of large, wholesale providers of “liquidity” that may run. Measures of systemic risk are still relatively untested and their ability to signal difficulties much in advance of a period of liquidity distress is limited.

\textsuperscript{12} BCBS analyzes the costs to the real economy of higher requirements. A 1 percentage point increase in the capital ratio is estimated to translate into a median 0.09% decline in the level of output at the end of an eight
A bigger long-term issue may be the “dis-intermediation” triggered by higher requirements, where activities migrate to less regulated parts of the industry. Only to the extent this raises new sources of systemic risk, however, should this be a source of concern. A more important worry is that in the transition to moving to higher requirements, adverse effects may be larger, undermining the economic recovery. This is hard to judge, in part because how banks will adjust is not clear – raising capital or deleveraging – and because the costs of raising capital or liquidity quickly are not well known. MAG (2010) nevertheless estimates that a 1 percentage point increase in the target ratio of tangible common equity (TCE) to risk-weighted assets leads to a reduction in the annual GDP growth rate of 0.04 percentage points over a four and a half years period. These transition costs seem reasonably low.

4.2. Dealing with “too-big-to-fail” institutions.

Many large financial institutions (G-SIFIs) benefitted in the past from government support – indeed, the majority of recapitalization and guarantees support in the financial crisis went to them. And today many still benefit from an implicit safety net subsidy. This subsidy has been estimated to amount to be up to 100 basis points, or up to $10 billion per banking group (as the average balance sheets for a SIFI is about $1 trillion) (Ueda and Weber, 2012). The large size of this “subsidy” indicates how distorted the provision of financial services is and how much taxpayers continue to be at risk. Hence for the system to be safer, reducing the too-big-to-fail (TBTF) problem and bailout subsidy is needed. Clearly, this involves a broad agenda and the solution has to be multi-prong. Some elements have been set in motion, but many other important reforms are still needed.

As a start, the new capital and liquidity regulations are more likely to be binding on those institutions that have implicitly (or explicitly) benefitted from their size. Furthermore, the global systemically important banks (G-SIBs) on which extra capital will be imposed have been defined. Also guidance about how to identify domestic systemically important banks (D-SIBs) has been promulgated. Most jurisdictions, though, have yet to implement final rules and higher capital requirements for D-SIBs. And rules for defining systemically important non-banks have only just started. Systemically important insurance companies for example are only just now being identified (the difficulty has been to define and identify “non-traditional insurance business,” the root cause of AIG’s problems prior to its bailout). Also, there is still no agreement on how to deal with CCPs which can be systemically important financial market infrastructures (FMIs).

While preventative tools, such as higher capital and liquidity buffers and more intrusive supervision, could help ex ante, reducing the too-big-to-fail problem will also need to include the assurance that an individual institution’s failure can occur without damaging the rest of the financial system. Today, it is far from clear how effective the existing regulations will be and whether supervisors will be willing to stand aside and use their resolution powers as

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year period relative to the baseline. The impact of meeting the liquidity requirement is estimated to be of a similar order of magnitude, at 0.08%. As a stronger banking system should be expected to reduce the occurrence and severity of crises, albeit these gains are hard to quantify, there are net likely positive gains.
prescribed. A smooth process of unwinding *ex post* requires enhanced resolution frameworks and enough loss-absorption capacity, including a minimum amount of bail-in debt to encourage better risk-taking, and a loss-sharing arrangement so unsecured creditors bear the risks that they legally agreed to assume. Requiring *ex ante* contractual new capital raising arrangements, such as those embedded in contingent capital (CoCo) type instruments, and improving the design of the public safety net to make transparent which depositor holders receive preferential treatment (as done in some areas of the Dodd-Frank Act) would also be helpful. Other tools, such as living wills, may help *ex ante* to encourage simpler, more resolvable, institutions.

A very complex area is the resolution of institutions operating across borders. While an agreement on a comprehensive framework has been reached, in the form of the “Key Attributes of Effective Resolution Regimes,” there is no agreement yet about the details. For instance, questions on which agreement has yet to be reached include: how to deal with bail-in debt (should there be a minimum amount and how big should it be?); asset encumbrance (should there be a constraint and if so how much?), or depositor preference (who should be covered and what will be its effect on unsecured debt holders?). Importantly, cross-border burden sharing issues have yet to be addressed—even in the Europe, which is otherwise moving ahead with a banking union, including a single supervisory mechanism.

### 4.3. Adopting a system-wide view and related macro-prudential policies.

Consistent with the greater appreciation of externalities and market failures, a new area of policy making has become macroprudential policies (IMF, 2013 reviews; see also Claessens et al. 2011 for a collection of papers). There are many dimensions to having a macroprudential approach, varying from better identifying risks, to building more robust institutional infrastructures (like more use of CCPs), to adopting new, system-oriented policies and designing the institutional framework for operating them. The most complex issue, as already noted, is to better understand the dimensions of systemic risks and have associated warning signals.  

Despite much discussion, as yet approaches remain largely micro-prudential. For the most part Basel III is microprudentially oriented. It, appropriately, targets the quality and quantity of bank capital as these institutions’ lack of capital was a significant weakness during the crisis. However, more capital only helps cushion an individual institution’s losses and hence the systemic nature of multiple and simultaneous bank distress is only partially addressed. As for liquidity risk, the determinants of the Net Stable Funding Ratio (the other of the two liquidity risk components of Basel III) are not yet finalized and various parts look watered down already. Again neither element – the Liquidity Coverage Ratio nor the Net Stable Funding Ratio – firmly counters banks’ potential to generate systemic liquidity risk *ex ante*.

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13 See further IMF (2012) and Blancher and others (2013) for various types of systemic risk monitoring tools and Arsov and other (2013) for comparisons across a set of indicators regarding their effective prediction of financial distress.
As regard to the possible macroprudential policies, a broad distinction can be made between those that aim to reduce risks arising from procyclicality (the time-series dimension) and those arising from interconnections (the cross-sectional dimension). So far, only a few such tools have been adopted and mostly only for banks. Notably, Basel III contains the countercyclical capital buffer to account for the procyclicality of credit extension and the systemically important bank capital surcharge that deals with the over-weight importance of too-big-to-fail institutions. Their calibration and effectiveness is, however, yet to be fully determined (see further IMF 2013b). Where countercyclical buffers have been used—notably Spain—the evidence suggests only limited effectiveness.

Many other tools, ranging from adjustments in loan-to-value ratios (to limit real estate lending during booms to avoid busts) to levies or taxes (to reduce the incentives for wholesale funding or to offset the TBTF subsidy), have been mentioned as potential macroprudential tools. Some of these have been studied (see for example, Lim et al 2012 for the effectiveness of various macroprudential tools in a cross-country context; Crowe et al. 2011 on the use of macroprudential policies for mitigating real estate booms and busts; and Claessens, Ghosh and Mihet, 2013 for cross-country work on how macroprudential policies affect banks’ riskiness). Much still remains to be determined for these tools, however, including their calibration to country characteristics and circumstances (see IMF 2013b).

Other important elements of a macroprudential framework include issues of the regulatory governance (who is in charge), and their relationships and interactions with other polices (notably microprudential, monetary, and fiscal policies). So, while the greater emphasis on macroprudential policies is promising, and some emerging market countries seem to have used such policies effectively, it is still too early to rely on them heavily in advanced economies. Their more sophisticated financial systems make arbitrage and avoidance more serious problems. It will remain important to complement macroprudential policies with tools such as banking system stress tests (which can also be viewed as a macroprudential tool).

4.4. Reducing procyclicality in financial markets.

A reduction in procyclicality of financial markets could lessen the frequency and depth of crises. Some forms of procyclicality are embedded in market practices—including compensation practices, risk management tools such Value-at-Risk modeling and credit risk modeling; and margining and collateral practices applied in a number of markets. Other forms are induced by regulations such as accounting and valuation practices, capital and liquidity requirements, risk-weights, provisioning requirements, and deposit insurance schemes. And still other forms seem more behavioral in nature—the tendency for investors to buy as prices are rising.

Compensation: Typically (or at least in the precrisis era) compensation packages had a bonus component solely based on “returns” without considering risks. A bonus pool was built up during the year, based on the trading or other profits that a business unit accumulated and then it was dispersed at the end of the year or the beginning of the next. Little attention was paid to the risks involved in gaining those profits or whether the risks would later materialize from transactions taken during a given time period. Since profits normally expand during an
economic upswing, the procyclicality of compensation schemes is built into the system.

A first step to remove this procyclical element is to allocate compensation on a risk-adjusted profits basis. A second and even better step is to do so “through the cycle” and pay only a portion of the profits in any given year of the cycle with the remaining amounts used to absorb losses occurring later. Some of these notions have been instituted—some institutions now pay only a portion of the bonus pool out in a given year (usually with a 3-year horizon), some tie it to options on their stock price, and some have a “high water” mark that hold some of the bonus pool back in case losses later materialize.

Still, while total pay packages have become less bonus-oriented, payouts from bonus pools are still short-term and large relative to base pay. Most firms are reluctant to risk-adjust returns because they are unsure whether their risk models are accurate enough for compensation purposes. They are also concerned that other firms will continue to pay on a return-only basis and hence they might lose their best talent to better-paying firms. There may be a need for a mandatory, coordinated compensation scheme with risk-adjusted bonus payments to overcome this incentive. Even then, limited liability, for the institution and clearly for the employee, makes risk-based packages in general less than perfectly incentive compatible.

Risk management. Risk management systems themselves can be procyclical. For instance, low volatility of and low correlations across asset prices during economic upswings means that risks are underestimated in Value-at-Risk models that use only a limited historical period to calibrate potential losses. Regulations that strongly encourage firms to use only 1-year of historical data for regulatory capital purposes also encourage procyclical trading behavior. Credit models also typically measure the probability of default at a point in time rather than “through the cycle.” Even credit rating agencies that claim to rate through the cycle are not, in fact, doing so [see GFSR 2009 and Kiff and Kisser 2010]. Such problems can be ameliorated by encouraging longer-term horizons for risk modeling, but for newer products it is harder without historical price data.

Accounting standards. Accounting standards and fair-value accounting (FVA) also contribute to procyclicality. With asset values increasing in upswings and decreasing in recessions, there is a natural procyclical tendency built into the asset side of balance sheets when assets are mark-to-market. Although this could be offset in part if liabilities were also mark-to-market, the types of liabilities that are currently marked-to-market are only a few. Balance sheets therefore tend to expand in upswings and contract in downturns (Adrian and Shin, 2008). Book equity values (the residual of assets less liabilities) tend also to be procyclical. [cite GFSR chapter on FV accounting]

A corollary to FVA is that many other practices, such as margins and haircuts on collateral are dependent on mark-to-market values. So when collateral looks highly valuable, the margin or haircut required for a borrower to post declines (Geanakopulos, 2011). This occurs in repo transactions, securities lending, collateral posted at central banks, centralized counterparties (CCPs), and stock and derivatives exchanges. Hence a number of practices reinforce procyclicality.
Capital adequacy requirements. On the regulatory side, earlier regulation was known for its procyclicality. Basel II capital requirements were highly criticized, even at their inception, for being procyclical—the amount of capital needed during an upswing became less and less as the value of risk-weighted assets rises. The notion that buffers should be built up during the good times for use in the bad times was viewed as a preferred outcome, but the regulation was not constructed in a way to codify this notion. Similarly, loan loss provisioning practices have this characteristic—as loans look safer during an upswing, less specific (and general) loan-loss provisions are made since the borrower is viewed as more likely to be able to pay interest and principle on the loan. Only when bad times hit, does it become clear that not enough had been put aside for the larger share of non-performing loans. In both cases a more “through-the-cycle” notion needs to be instilled. And in many countries, the accounting and tax systems do not allow or discourage through-the-cycle loan-loss provisioning.

Basel III has gone some way to ameliorate this problem with a countercyclical capital buffer added onto the usual minimum regulatory capital standard. The ability to provision against future loans is encouraged, but some accounting practices have not made commensurate progress. The IASB is only now discussing the use of an “expected loss” concept that would allow financial institutions to align the supervisory definition of “all possible default events for the life of the financial instrument” with the accounting definitions.

4.5. Comprehensively monitoring and potential regulating shadow banking.

The crisis revealed many systemic problems arising from so called shadow banking activities, notably in the United States. While many of the risks are lower today, this is due mostly to cyclical conditions with fewer transactions. As such, going forward, shadow banking can again become a source of systemic risk. Furthermore, some countries (like China) are experiencing increases in forms of financial intermediation labeled as shadow banking, which could prove to be a systemic concern. How to monitor and regulate these new forms is thus a policy issue of much debate, in part because shadow banking is poorly defined.

The FSB (2012) defined shadow banking as “credit intermediation involving entities and activities (fully or partially) outside the regular banking system.” This definition is meant to include any nonbanks that are active in one or more of the following activities: maturity or liquidity transformation, leverage, and credit risk transfer (see also Claessens and Ratnovski, 2013). As such it is a broad definition that captures many forms of financial intermediation that are important for economic growth, but not necessarily of systemic size. So which shadow banking activities that are systemic enough to be regulated needs to be determined separately. And strictly speaking the definition ignores shadow banking activities that occur within banks and that rely on the (implicit) safety net provided to banks.

In generally, what specific aspects of shadow banking lead to systemic risks is not clear. Neither has it been established whether shadow banking is best regulated indirectly, that is, by putting limits on the banking system which most often supports it, or whether the “system” should be regulated directly, by for example, limiting certain activities. Without addressing these issues, but on the basis of the crisis evidence, the FSB has identified five
work streams that would require the initial attention of policymakers, with reforms started in some of the more obvious activities and progress in some others since.

*Regulated bank and shadow bank connections.* So far, alongside the Basel Committee, the FSB has proposed restrictions on regulated banks’ large exposures and equity investments to shadow banks (two of the main connections identified), with work underway on defining exposure limits to funds and securitized vehicles. This indirect method is meant to reduce risk to the banks from shadow banking activities, but may push systemic risks elsewhere.

*Money market mutual funds (MMMFs).* FSB has tasked the International Organization of Securities Commissions (IOSCO) to develop guidelines for MMMF. The United States (the largest market for MMMFs) has shortened allowable asset maturities, thereby limiting maturity transformation, but has made no decision about constant Net Asset Values (NAVs) nor whether, if a constant NAV remains, liquidity buffers or other capital-type regulations should be put into place. As such, this remains a critical point of weakness to address—as noted, the run on MMMFs in fall of 2008 aggravated the financial turmoil.

*Other financial institutions.* The identification of other nonbank financial institutions that act like shadow banks and potentially pose systemic risks is far from finalized. Monitoring exercises by the FSB are more detailed each year, but still only examining assets under management (AUM) from national flow-of-funds data, hence it presents a very limited view of the risks they may pose. Agreement on a framework for other financial institutions, with more emphasis on functions rather than legal form, has been reached in principle, but it has proven hard to put to work without the appropriate data.

*Securitization.* While some of the more obvious risks have been addressed in some jurisdictions, there is now a patchwork of retention rules that either provide avenues for regulatory arbitrage or make securitization uneconomical. The rules are not related, necessarily, to the risks that the originator faces, and thus only partially create incentives to originate or monitor loans that are placed into securitization products. Increased disclosure and capital-based risk-weights applied to the products has made them more costly to issue—so much so that some previous originators find it uneconomic to do so.

*Repo and securities lending.* Some risks in tri-party repo markets have been subdued given less intra-day counterparty risk taken by the tri-party repo agents in the United States, but no agreement on whether minimum haircuts should (or could) be established.\textsuperscript{14} There has been no substantive discussion of countercyclical margin requirements even though this was identified as a contributing cause of the crisis. In this area, a quantitative impact study will be conducted to evaluate the effects on minimum haircut standards, including numerical haircut floors. The New York Federal Reserve has collected information about the types of collateral

\textsuperscript{14} The tri-party repo market is one in which a custodian bank or international clearing organization (the tri-party agent) acts as an intermediary between the two parties to a repo transaction. The tri-party agent is responsible for the administration of the transaction, including collateral allocation, marking to market, and substitution of collateral.
underpinning repos, but it is still too coarse to identify the risks. Hence, the FSB’s latest set of recommendations include three focused on (1) more granular exposure data from the largest international financial institutions, (2) trade-level (flow) data of outstanding balances in repo markets, and (3) an initiative to aggregate and compare trends in securities financing markets at the global level by the FSB. Other recommendations focus on disclosure to end-investors and others, as well as implementation of regulatory regimes that meet minimum standards for cash collateral reinvestment. Repo activity (and its associated risks) is on the upswing again.

4.6. **Addressing the risks in OTC derivatives markets.**

While jurisdictions are making progress in OTC derivatives reform, progress is very uneven across jurisdictions and not all G-20 have implemented earlier commitments. Without a coordinated response, there is increasing concern about the inconsistency of rules and the migration of trading to less regulated jurisdictions as costs are rising in important centers. A recent study examining how the costs and benefits to the currently formulated reforms are likely to affect economic output concluded that the impact will be positive, but relatively small—about 0.12 percentage points more GDP growth per year over the long run when the reforms have been fully implemented and their full economic effects realized. That said, many end-users claim that they will stop using derivatives altogether due to higher costs of trading (a factor not accounted for in the study), which presumably would lead to a reduced ability from them to lay off risks.

Of particular difficulty has proven to be the process to calibrate regulations for bilateral collateral requirements, capital charges for non-collateralized trades, and collateral to be held in CCPs so as to engineer incentives to move standardized OTC derivatives to CCPs. Progress on getting trades into trade repositories (reporting venues) is much better, but getting the information out of trade repositories to those responsible for examining risks is not any better. Restrictions on data usage mean only a few regulators get information and only about their own institutions, so third-party interconnectivity is not visible to anyone.

4.7. **Achieving better international financial integration.**

Coordination improved during the early days of the crisis, but has largely lapsed since. Financial regulation and supervision remain largely national. Still there has been some progress. Supervisory colleges have been set up for the G-SIBs; there is some (but not enough) sharing of information on bank exposures across jurisdictions. The issue to be tackled convincingly is cross-border burden sharing—both governmental costs of supporting cross-border banks and in allocating remaining assets in the situation of a resolution or liquidation. The banking union in the euro area is a step in the right direction, but much of its details still need to be worked out. More generally, supervision of parent and cross-border

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15 See the “Macroeconomic Impact Assessment of OTC Derivatives Regulatory Reforms,” August 2013, from the Macroeconomic Assessment Group on Derivatives commissioned by the OTC Derivatives Coordination Group and the G20. [http://www.bis.org/publ/othp20.htm](http://www.bis.org/publ/othp20.htm)
subsidiaries relationships for financial institutions is still murky (e.g., which entity should or can hold capital, pay dividends, or fund assets under various circumstances is not clear in many jurisdictions) and the thinking about these issues is often domestically oriented—again resulting from the lack of a governmental burden sharing arrangements.

International coordination of the activities of global markets, including debt issuance, trading, OTC derivatives reforms, and a host of reporting and disclosure issues is even less well-developed. Some guidelines have been issued by IOSCO and the Committee on Payments and Settlement Systems (CPSS), but they are not focused on systemic risk regulation, but on level-playing field considerations and establishing minimum requirements of various types (often devolving to the lowest common set to which all can agree). The thinking needs to be more about how interconnections across jurisdictions may alter how crucial institutional infrastructures might be affected under stress.

4.8. Improving regulatory governance.

Improving regulatory governance is clearly necessary, given many supervisory failures before and during the recent crisis. While this is a complex and multi-faceted problem (with many political economy aspects), some steps seem feasible to reduce the risk of crises. For one, more attention to the formal governance of regulators and supervisors would be useful. In many countries, agencies lack sufficient legal, financial, and operational independence from the financial services industry and legislative bodies, and operate under political economy pressures more generally. At the same time, formal public oversight of regulators and supervisors as to their performance is often too little and consequences of poor performance too timid (few supervisors have gotten “fired”). Through objective assessments and regular checks, weaknesses in their independence, accountability, integrity, and transparency of operations could be brought out and corrected. Some of this is already done in the IMF’s and World Bank’s Review of Standards and Codes (ROSCs) and in some peer reviews, but put more emphasis could be put on assessing the “governance” of regulators and the transparency of “processes” (and the link to outcomes).

With better regulatory governance in place, one could have less emphasis on formal rules and give more discretion to supervisory agencies. This could perhaps avoid the proliferation of rules that may add more costs than they provide benefits (see Haldane and Madouros, 2012). Of course, such greater discretion may have to come with limits in other ways (for example, it could be balanced with some formal triggers, as has been done in the United States through the FDICIA which codified prompt corrective action, or PCA). It could also be combined with greater use of market signals, such as declines in stock prices or increases in interest rates on repriced subordinated (or other classes) of junior debt. Either way, such thresholds can be useful disciplining devices for supervisors, even (or especially) in cases where large, systemic banks run into some difficulties.

Better governance should also involve more transparency in the design of rules with more views (allowed) to be expressed, and greater participation by the public. Better and maybe new institutions are likely needed. Despite the inefficiencies, distortions and costs, the general public is little involved in financial sector matters, both because it is poorly informed about some of the problems—financial systems and regulations are complex—and because it
is not easily mobilized—as financial services are hard to analyze. At the heart of the issue is that the incentives (benefits) for correcting problems are too diffuse to that any single individual has very little to gain by themselves. The new Consumer Financial Protection Bureau in the United States can be seen as an attempt to create a counterforce to insiders designing and applying the rules. Although few other such bureaus exist so far, and the one in the United States remains very incipient, it could be a sensible model, as it replicates what often exists for other products (for example, consumer product safety bureaus).

There could also be additional forms of formal oversights, both before and after financial crises or events. For example, some academics have proposed a “sentinel”—an informed, expertly staffed and independent institution evaluating financial regulations and regulatory actions from the public’s point of view (Barth, Caprio, and Levine, 2012). Although hard to design, as the problem is often group-thinking, it is worth considering. Perhaps requiring formal, ex ante “Food and Drug Administration”–style approvals of new financial instruments could be a more modest, yet still useful concept to ensure that financial services are not only “safe” for the general public, but also socially valuable. Or—and maybe more realistically, as each new financial service would be hard to approve ex ante—an agency could be set up to systemically investigate and report on financial “failures.” Such a “National Transportation Safety Board” like agency would be better than financial crises commissions, which are too ad hoc and often have too little standing (see Fielding, Lo and Yang, 2011).

Regulatory governance issues also arise, albeit with even more complexity, in an international context. Overseers often fail in their (macroeconomic and financial stability) surveillance roles. More attention has been placed on international governance and legitimacy in recent years, and some progress is being made to broaden the set of stakeholders (as reflected in the greater role of the G-20). Peer reviews on countries’ reform progress are underway in some areas, but their effectiveness is not yet clear. Still, formal governance has proven hard to change (witness, for example, the tediousness of the ongoing governance and quota debate for the IMF).

There is perhaps more scope for improving processes for decision-making internationally. One step could be to open up further the standards-setting processes, including by broadening membership of some groups and soliciting public inputs, notably from users, more explicitly (although many small users will need support given the technical nature of the discussions). And although transparency has improved, more is still needed at the international level on how decisions are reached and the information on which they are based. The countries requesting deviations or exceptions from the established guidelines should be required to identify themselves and provide their rationales.

4.9. Getting more data, doing better analyses, reducing the known unknowns and the unknown unknowns.

It is clear that, to not only prevent financial crises, but also to assess the efficiency of

16 The Commodity Futures Trading Commission used to require futures exchanges to justify new futures contracts by demonstrating a public benefit.
financial services provision, much better data are needed in multiple dimensions. Data are needed for both the private sector and supervisory agencies to be able to make better decisions. Data needs at the individual financial institution level include better financial statements, since some aspects of financial services provision remain obscure (“buried in footnotes”). At the system level, more and better disaggregated information on the costs of financial services, data on (aggregate and bilateral) exposures, including on shadow banking systems and in OTC derivatives, and the extent of use of new instruments are needed. Also data needs are large regarding international capital flows in their various forms (see Cerutti, Claessens and McGuire, 2013 and data availability of cross-border exposures). For further work is needed on data for financial stability analysis (Kodres, 2013) and progress with the G-20 Data Gaps Initiative (Heath, 2013).

Areas where more and better analyses would be useful to reduce the chances of systemic financial crises are many as well. Besides trying to predict individual defaults and systemic risks using balance sheets related measures, including bilateral exposures, there have been a host of new systemic risk measures, such as the CoVar, MES, and SLR, which appear promising. There remains, nevertheless, a large need for the development of better indicators and tools that can signal risks in a more timely fashion and evaluate their usefulness in various circumstances. Much of this work will likely remain confidential (to supervisory agencies), but some of it can be usefully be made public to enhance market discipline. Analyses can for example be included in (global) financial stability reviews, which should also be conducted more frequently and in general be better resourced.

Besides the further development of techniques and data for financial system stress tests, it will be important that such tests are to be conducted more regularly. And finally, while the development and use of these and many other, formal analyses will be useful, it will remain important to combine them with “market intelligence” to gain a deeper understanding of why risks are undertaken as well as to spot newly emerging risks.

Generally, modesty will remain important. As noted, we do not (yet) know many of the reasons why systemic risks build up and how to mitigate crises from happening. This lack of knowledge applies to many of the effects of what we think are the right incentives (e.g., does higher capital really lower incentives for risk taking overall)? And it applies to how to exactly design, calibrate, and use tools such as macroprudential policies without inducing unintended consequences including, for example, the migration of risks to less regulated areas or to institutions or individuals unable to manage them. The lack of knowledge also extends to where one needs to look for drivers and buildup of risks. How do buildups of risks in insurance and pension systems exactly come about? What makes for endogenous tail risks, say through shadow banking?

While more analyses of these and other issues need to be done, formal knowledge will

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17 These are market-based risk measures, using among others asset prices (including credit spreads), to develop systemic risk rankings of banks. The Marginal Expected Shortfall (MES) measure is developed by Acharya et al (2010), the Conditional Value at Risk (CoVaR) is developed by Adrian and Brunnermeier (2011), and the Systemic Liquidity Risk (SLR) measure by Severo (2012).
always remain limited. This does not mean one needs to resign to financial crises. There may be scope to better use existing (collective) information and analyses that is already out there. Market participants, for example, have tried to develop “model-free” indicators to warn of the next “Black Swan” that will adversely affect markets (e.g., the number of Google hits of the words “crisis” and the like, etc.). Needless to say, not all of these efforts have been successful—many have analytical shortfalls, and most suffer from “in-sample” biases, making them less useful for predictions. Nevertheless, there are perhaps more ways to extract information from public sources than what has been used to date.

It may also be feasible to better use other sources of information or develop some markets that can reveal unknown or show unexpected risks. For example, the Iowa Electronic Markets allow traders to buy and sell, among other things, political elections results or economic indicators.\(^\text{18}\) These aggregators can usefully provide additional information to that from financial markets or other sources. It may also be possible to develop new markets that can both serve to indicate the presence of systemic risks as well as to lay off some risks (e.g., see Stein (2011?) for ideas on a systemic liquidity risk market). Such indicators and markets could indirectly help to reduce the risk of financial crises.

4.10. Yet expect another crisis and thus improve crisis management.

Unfortunately, even with improvement in all these areas, crises will likely recur. How one responds to crises will thus remain important. Here the record is also relatively poor. Interventions are often too late, too timid, and not well coordinated. This leads to higher economic costs—in the form of lost output—and a larger final taxpayer bill. There is thus a need to do better.

There are relatively well-known lessons here at both national and international level that could be applied (better). The main one is the need to absorb any losses resulting from the crisis—whether in the financial, corporate, or household sector or at the level of the sovereign debt—as quickly as possible. In practice this means quickly recapitalizing banks when needed; having strong, efficient, less creditor-biased financial resolution and restructuring mechanisms to resolve overindebted corporations and households; and to quickly restructure sovereign debt if necessary, including through the use of concerted mechanisms (such as collective action clauses and the like). Another general lesson is the need for the capacity to efficiently and flexibly respond to a crisis. The large, but unplanned role of central banks during the (ongoing) crisis in advanced countries demonstrates the need to have this spare capacity. While there are tradeoffs here—too much spare capacity may introduce moral hazard—some ability of the central bank to manage unanticipated contingencies is nevertheless important to have.

\(^{18}\) See www.tippie.uiowa.edu/iem
5. Conclusions: What do we have to do in order to do better?

Given the many similarities in their run-ups, one would hope it should be possible to prevent crises. Yet, to date, that seems to have been an impossible task (of course there is a counterfactual – that many crises have been avoided – but it is hard to proof). This is indeed one of the main conclusions of any review of the abundant literature on financial crises (e.g., Claessens and Kose, 2013, Reinhart and Rogoff (2009), Allen and Gale (2007), Kindleberger (1978)) is that it has been hard to beat the “this-time-is-different” syndrome. This, as aptly described by Reinhart and Rogoff (2009), is the belief that “financial crises are things that happen to other people in other countries at other times; crises do not happen to us, here and now. We are doing things better, we are smarter, we have learned from past mistakes.”19 Although often preceded by similar patterns, policymakers tend to ignore the warnings and argue that: “the current boom, unlike the many booms that preceded catastrophic collapses in the past (even in our country) is built on sound fundamentals…” Leading up to a crisis, it is often claimed that the reasons for apparent vulnerabilities are different from those of the earlier episodes. Before the latest episode, for example, the notion that risks were well diversified across agents and advances in risk management techniques and institutional frameworks were used to justify the belief that “this time is different.”

This suggests that one should also be quite modest about the impact of many financial reforms in beating the “this-time-is-different” syndrome. One reason for the lack of success is that many of the incentives for risk buildup are still present – despite regulatory reforms. Hence, to be more successful, the starting point must be a better understanding of people’s mindset and behavior. Moreover it requires a deeper understanding about why the previous set of rules has been unsuccessful in preventing crises. And it is important to look carefully for all signs of risks and allow different views to be heard. It appears that prior to many crises, a small minority of onlookers do observe that a crisis is coming but they either do not have the incentive to try to prevent it (perhaps because they benefit from the buildup of risks or the crisis itself) or do not have the means of convincing others of their certitude.

Changing the financial sector paradigm to mitigate the frequency and severity of financial crises and make the financial sector benefit society at large more means one needs to change the way in which the benefits are allocated and risks occur. Inherently this is linked to changing governance and incentives through reforms. Changing governance will be complex and require changing both the set of stakeholders involved as well as the processes that set the rules of the game. Although many stakeholders are involved in financial services, not all are well represented.20 Improving governance and processes thus requires greater representation of some groups.

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19 See also Reinhart and Rogoff (2013) which has the apt title “Banking crises: an equal opportunity menace.”

20 In most countries, while providers of financial services are well represented, users, notably households, but also many institutional investors, are much less so. Much regulation is also determined through groups, such as the Basle Committee on Banking Supervision, where advanced countries dominate, with emerging markets much less represented than their current economic sizes warrants, and low-income countries hardly represented. With the ongoing shifts in income and financial assets toward emerging markets and developing countries, these discrepancies are likely to increase.
Representation and governance is largely an (international) political economy question, on which economists traditionally have had little to say, but they can nevertheless raise questions. How can relevant parties, including the general public, be better mobilized to demand a bigger say in discussions? How can one better harness the power of nongovernmental organizations, say 99%--type movements and other such groups, so that they advocate for a better balance of benefits and risks in finance? Of course, it is also relevant to better understand existing stakeholders’ objectives and views. How uniform or diverse are they actually? Does the lack of an effective voice from emerging markets for example derive from their diversity, as groups like the BRICs are not necessarily unified in their views? Would it be helpful if their views coalesced better?

Aside from the greater understanding of incentives of agents and the political economy of reform, how can we make progress on designs of reform from analytical and empirical points of view? The financial reform agenda is clearly still half baked. Some reforms are in the right direction, but don’t go far enough. Others are either in conflict with one another or appear to have unintended consequences. The constraints are, besides governance and political economy, both knowledge and implementation. One way of visualizing the efforts so far and what to do next is to consider two dimensions of regulatory reform. One dimension could be the degree of knowledge about what needs to be done—going from “knowns” to “unknowns.” A second dimension would be the practical ability to formulate the regulation—going from “actionable” to “unactionable.” See figure 1 below.

So far the upper left box of “knowns” and “actionable” has been the focal point, as it was relatively easy. Regulation on bank capital is a good case in point. Larger capital buffers are known to help mitigate losses and there was already a large set of regulations dealing with bank capital. So tweaks to this area of regulation are relatively easy to define, explain to the relevant agents, including lawmakers, and accomplish. Moving down the diagonal of this “matrix” might be shadow banking. We know something about how banks operated in this area in this crisis and how bank like-products emerged, but not everything is known, in part because of limited models and due to insufficient data. The basis on which regulation can be formulated may thus be only partially actionable, as the slower progress on shadow banking reforms shows.21

There are many areas that need attention, unfortunately, in the lower quadrant of the matrix—areas where a deep understanding of the problem is still nascent and actionable policies are lacking. For instance, many may feel uncomfortable about the speed and degree of automation of transactions in stock markets or in the ETF markets with its broad retail participation. We do not know, though, if it would be useful to put “sand in the gears” of the trade execution system (e.g., put so called latency limits on High-Frequency Trading) or

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21 For instance, the repo market in the United States is known to have procyclical haircut (margin) practices and there has been discussion about how to ensure that these do not become too low in the upswing of the credit cycle. But, as yet, no one is quite sure whether such a rule will not distort the market in a way that is more perverse. Neither is it clear how to impose a minimum floor because a repo is not necessarily initiated from one side (borrower) or other side (lender) of the market. Moreover, since these transactions are not on any organized exchange or location, enforcement is problematic.
whether that would cause more harm than good (e.g., not just higher spreads or lower liquidity, but even more volatility). Also, we have a vague unease that there may be a “tipping point” in these fast-moving markets but do not know how to identify it or what would happen if the market suddenly passes such a point.

The real issue, then, is how to gain enough understanding and practical knowledge to move further down the diagonal of this matrix. One way forward is to design ways of connecting the growing measures of systemic risk directly to mitigation tools. So far this is done in a relatively simplistic way (e.g., size, interconnectedness, and substitutability are the sole criteria for G-SIBs) without really linking the “systemicness” to the tool (except for a limited way in the Basel III systemic surcharge). If overseers could directly see the marginal contribution of each individual institution or agent to system risk, then one can devise a ‘cost’ (“levy”) that will provide an incentive to lessen that contribution, and thereby internalize the externality.

Even though it is obvious, it bears repeating, that all this requires the right information and an ability to analyze it—without these basic building blocks further progress is inhibited. Here again incentives will play a role. Confidentiality agreements and the incentive to keep embarrassing information about the (missed) risks of individual institutions are prime examples of why data are not available. Independent and accountable institutions, whether national, regional or global, legally and administratively equipped to gather data and examine risks may serve important roles to overcome this deficiency.

In closing, to move forward to reduce systemic risks requires attention to three basic lessons.

- One, incentives matter, yet they are not nearly well-enough incorporated into current regulations. Many problems will not be solved until we better understand the incentives of all those involved and regulations better align incentives with goals.

- Two, the ability to fine-tune regulations is likely to be low – given information constraints, the lack of appropriate data and information (including “soft,” qualitative information). Hence regulators would do well to take a “do not harm” oath in setting policies—using basic principles and simple measures when information on effectiveness is lacking.

- Three, there will always be unknown unknowns—be they tipping points, fault lines, or spillovers—and so it will pay (probably literally) to have a “plan B” – better crisis management plans for when preventive measures fail. These plans need to be integral part of the design of the financial system as a whole, not improvisations after the fact.

With these basic components, we believe faster forward progress could be made than is currently the case.
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References (incomplete)


Barth, Caprio, and Ross Levine (2012), Guardians of Finance. MIT Press, Cambridge, MA


Claessens, Stijn and Lev Ratnovski, 2013, What is Shadow Banking? At VOXEU.org

Dell’Ariccia, Dell’Ariccia, Deniz Igan, Luc Laeven, Hui Tong (with Bas Bakker and Jerome Vandenbussche), 2012 Policies for Macrofinancial Stability: How to Deal with Credit Booms, IMF Staff Discussion Note 12/05. (Washington: International Monetary Fund).


FSB-IMF, September 2013, Progress report on Data Gap Initiative, Washington, D.C.


International Monetary Fund, 2013a, “Key Aspects of Macroprudential Policy,” (Washington: International Monetary Fund). Board paper.

International Monetary Fund, 2013b, “Key Aspects of Macroprudential Policy – Background paper,” (Washington: International Monetary Fund).


Reinhart and Rogoff (2009), This Time is Different: Eight Centuries of Financial Folly (Princeton, New Jersey: Princeton University Press).


