

# International Exposure to U.S.-Centered Credit Market Turmoil

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### *Abstract*

I review the need for reforms and greater cooperation and coordination across countries in an increasingly financial integrated world, focusing especially on the need for improved mechanisms to deal with cross-border banks. After discussing recent events and analyzing the conceptual issues involved in cross-border financial services provision, I present a number of options on how to deal with (large) cross-border banks and other financial conglomerates. A first best solution—a world financial regulator—is unlikely to be attainable in the short-run, nor necessarily desirable. Other options—such as increased convergence in rules and policies and enhanced coordination in actions—are obviously difficult to rank. I argue, however, that a new regime specifically for large international active banks—an *International Bank Charter*—with dedicated regulator, lender of last resort, and deposit insurance and recapitalization funds offers the best medium term approach.

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Email: [sclaessens@imf.org](mailto:sclaessens@imf.org). The views expressed in this paper are those of the author and do not necessarily represent those of the IMF or IMF policy. I would like to thank the conference participants, the session moderator, Gay Huey Evans, and especially my discussants, Vincent Reinhart and Alistair Milne for useful comments.

## 1. Introduction

In principle, financial globalization should help allocate capital more efficiently, enhance risk-sharing, reduce macroeconomic volatility, and foster economic growth. While many countries have opened up over the past few decades, the empirical evidence on these benefits of financial globalization has been less clear-cut, however. Evidence suggests that risk-sharing increased somewhat in advanced economies—consistent with their increasing level of financial openness—but not noticeably in emerging economies.<sup>1</sup> At the same time, in countries with less developed domestic financial systems and low institutional quality, macroeconomic volatility has risen as they opened up. And while foreign direct investment and other non-debt creating flows are positively associated with long-run growth, the impact of debt on growth appears to depend on the strength of a country’s policies and institutions.

These ambivalent findings have been reinforced by the current financial crisis. The global nature of the crisis makes clear again that international financial markets come with risks and at times with large adverse real economic consequences, even for advanced countries. It has laid bare the high cost of not identifying risks in general and of cross-border activities especially, early enough. It has shown some glaring gaps in national and global regulatory and supervisory frameworks and practices, especially in how to deal with cross-border banks. Continued reforms in the international financial architecture are needed, even as financial crises surely will remain with us.<sup>2</sup>

This paper analyzes these problems and identifies reform options, focusing on cross-border banking.<sup>3</sup> While many reforms are needed, the paper especially stresses reforms in two areas: better monitoring and crisis prevention arrangements; and improved cross-border crisis management and resolution tools. For increased financial integration and the presence of global financial institutions to lead to greater benefits, more effective monitoring of global systemic risk is needed. Improved monitoring is especially needed of large financial conglomerates, including their cross-border exposures and off-balance sheet activities. An enhanced role for “colleges of supervisors” with specific mandates and accountability will help achieve the goal of better monitoring. At the same time, it will face many implementation challenges and will not suffice to cover all sources of systemic risks, as risks can come from other sources, including from non-bank financial institutions.

In parallel, better cross-border crisis management and resolution arrangements are needed. As clearly demonstrated by the failures of Lehman Brothers, Icelandic and some other banks, countries cannot deal with large, complex, globally active financial institutions on their own, as these institutions affect many markets and countries. A more universal approach will be needed. Closer cooperation and greater coordination among regulators and supervisors can

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<sup>1</sup> See IMF (2008) and Kose, Prasad Rogoff, and Wei (2008).

<sup>2</sup> See Reinhart and Rogoff (2008) for the long history of financial crises.

<sup>3</sup> In general, the financial crisis has underscored the need for reforms to national financial systems, reforms which are the focus of many ongoing efforts and reviewed elsewhere (see for example, IMF (2009a and 2009b) for lessons from the recent financial crisis).

help to adequately address market disruptions as they arise and forestall policy measures that have adverse spillovers. Improved cross-border banking resolution will, however, require some fundamental changes. Most importantly, clear and binding rules on burden sharing for weak or failed cross-border financial institutions are needed; otherwise it will hard to develop a less fail-prone system.

Ultimately, what is needed is a shared framework for information and monitoring, consistent regulatory and supervisory practices, and a common set of resources to address large cross-border financial institutions, ex-ante and ex-post, when they run into problems. The first best would therefore be a global financial regulator, well-resourced in terms of staff, powers, and financial resources. Such a fully unified structure would match the current, financial closely integrated world. This unified structure is unlikely to materialize soon, however, for financial, economic and, most importantly, political economy reasons. And one may even question whether such a world regulator is desirable in the first place. The paper therefore reviews several other options, each of which could achieve to varying degrees greater global financial stability. These options are: a new charter for internationally active banks, greater harmonization of rules and practices, and enhanced coordination. Each of these second best reforms have their own benefits and costs, which are difficult to rank, especially as they depend on actual implementation and enforcement.

Importantly, the ordering of and the choices among these options will in the final analysis be a function of many factors, including political economic. Among some (regionally) closely integrated financial systems, the scope for achieving solutions closer to first best may be greater (but so will be the need given their more intensive financial integration). Furthermore, any of these options will have to part of a broader set of reforms. Reforms will need to make financial systems less pro-cyclical and crisis-prone; to more carefully draw regulatory and supervisory responsibilities; to improve regulatory practices; and to improve data and information on financial market activities. And, to prevent liquidity spillovers becoming solvency problems in a world of very large capital flows, better international liquidity mechanisms are needed as well.

This paper first briefly reviews the causes of the financial crisis and the sources of cross-border spillovers, government responses to date, and the resulting policy issues. This narrative helps identify the lessons of the financial crisis and implications for future regulatory reform. The next section sets the stage for possible cross-border banking reforms by reviewing the general current thinking on financial reforms options. It also provides a short conceptual framework for thinking about global financial stability. After quickly reviewing a first best solution—a world financial regulator, the paper goes on to present several other options for addressing the problems of large, complex, globally active financial institutions. It discusses the advantages and disadvantages of each, stressing though that these options are difficult to rank. The last section concludes.

## **2. Causes of the crisis, international dimensions, and state of affairs**

### *Causes of the financial crisis*

Causes of the financial crisis are multiple and include a mixture of national and global macroeconomic conditions and failures in financial markets' regulation and supervision (Calomiris, 2008 provides an overview). While their relative importance will be debated for some time, it is striking that the crisis has many similarities to earlier crises, in that it was preceded by a period of high credit growth, rapid asset price appreciation, notably house prices, and accompanied by large capital flows to some countries. These patterns were not limited to just the United States where the crisis started, but also occurred in many other markets now also in crisis (UK, Iceland, Eastern Europe, Korea, Spain; etc.). The buildup of risks around the world occurred in a context of relatively benign macro economic conditions, including low real interest rates.

There were differences though in this crisis. These included greater opaqueness and complexity of new financial instruments, and less easily digestible information. A much greater interconnection among asset classes and the presence of multiple, but obscure links between the core and a shadow banking system. International financial integration had sharply increased and there was a heightened importance of global financial players. A pattern of increased leverage existed among many financial institutions combined with greater use of short-term/wholesale funding sources, making liquidity more pertinent to the evolution of the crisis. And, varying by market and country, specific weaknesses in regulation (e.g., SIVs), supervision (e.g., the mortgage markets at the US state level), conflict of interests (e.g., at rating agencies), and perverse incentives (e.g., in the originate and distribute model) existed. What is quite different in this financial crisis, yet common across many markets, is the centrality of household sector debt and leverage, notably but not exclusively in housing finance, which makes the fallout from the crisis harder to manage.

The question arises why, in spite of the clear lessons from past financial crises, systemic risk was allowed to build up over time in many countries? The answer is complex, but nevertheless needs to be explored as it holds lessons for the future and might dampen expectations regarding the scope for improvements. Shortcomings in regulation and supervision and limited enforcement of existing regulations, together with a general underestimation of the dangers associated with new products and business models, allowed risks to increase. For institutions inside the regulatory perimeter, complex interconnections and insufficient information made risks go largely unnoticed and their full implications not fully understood by individual institutions, markets, and regulators.

In addition, regulatory and prudential oversight frameworks failed to keep up with financial innovations and market evolutions. The framework, especially in the U.S., did not fully recognize that new players had acquired systemic importance and allowed them to take on excessive risks. Some of these limitations are likely to remain and need to be considered in future reforms, including regarding cross-border activities. Important to keep in mind in this respect is that because of regulatory arbitrage, tax avoidance, too-big-to-fail protection and other aspects, the presence, form and importance of large, complex financial institutions

crossing many borders are themselves in large part determined by differences in countries' institutional frameworks.

### *International dimensions of the financial crisis*

As in any financial crisis, there are underlying causes, triggers, and amplification mechanisms. As is well noted, the catalyst of the crisis was an overextended US housing and mortgage markets. Trigger was the turnaround in US house prices, in part related to a cycle of monetary policy tightening, with the subprime sector as the main initiator of subsequent turmoil. While the crisis emerged in the US subprime, it quickly broadened to the larger housing markets in the U.S., and spilled over into other US financial markets (e.g., other asset backed). Surprising was the degree and speed of global spillovers, which happened in several phases.

The first phase was largely limited to banks with direct exposures to the US market and affected a few selected financial markets, sometimes through related liquidity runs (mainly related to excessive funding in wholesale markets). Through direct exposures to subprime related assets, problems quickly surfaced among European banks, including in Germany (IKB, July 2007) and France (BNP Paribas August 2007). The US housing market stress also made housing vulnerabilities in several countries apparent, notably in Western Europe, and triggered funding problems in some markets. In the U.K., with a similar housing boom as in the U.S., mortgage lenders came under intense pressure—beginning in the fall of 2007 with a bank run on Northern Rock, which had been relatively more reliant on interbank markets rather than deposits for funds.

In the meantime in the U.S., prospects of a deeper housing downturn and rising defaults quickly instigated broader financial turmoil. Worse-than-anticipated credit deterioration in US subprime mortgages prompted surprising multiple-notch downgrades by major rating agencies—unable to accurately assess risks of complex mortgage-related securities and often criticized for being too closely aligned with the issuer. Downgrades led to sharply widening spreads on assets backed securities and liquidity disruptions in interbank and commercial paper markets. Disruptions were amplified by fundamental uncertainty and opacity regarding counterparty risks. As commercial banks decided to absorb (legally separate) vehicles, their balance sheets were strained. Interbank rates spiked and issuances of asset-backed commercial paper (ABCP) contracted sharply.

This led to a second phase of international spillovers, this time transmitted through liquidity shortages, freezing of credit markets, and stock markets declines, affected many more markets (UK Sterling, Euro, and Swiss Franc). Initial policy responses aimed at addressing liquidity disruptions were large and unprecedented. Major central banks quickly made liquidity available to local commercial banks. While increasingly larger and more flexible—in maturity and especially in scope of collateral accepted, liquidity injections' effectiveness in calming interbank markets proved short-lived. Furthermore, approaches varied among countries, requiring modifications and rounds of international coordination. Currency swaps between major central banks were also needed to mobilize US dollar funding overseas.

These unprecedented and numerous efforts were unable to remedy the underlying problems that led to a breakdown in market trust and confidence. Unknown viability of institutions, especially affecting international active banks, could not be supplanted by central bank liquidity, which increasingly replaced private transactions. The reliability of credit insurance and the integrity of counterparties, particularly in the massive but unregulated market for credit default swaps also came into question, notably through the weakening positions of ultimate insurers.

The third phase of international spillovers occurred in October 2008 through large solvency concerns affecting systemically important global financial institutions, leading to massive sell-offs, risking a financial meltdown. In this phase, liquidity concerns gave way to solvency worries, against the backdrop of highly-leveraged financial systems. The build-up of leverage, especially for US investment and European commercial banks, made the system vulnerable to a rapid unwinding cycle of forced deleveraging and rising solvency pressures. As financial institutions incurred large losses and wrote-down illiquid securities, solvency concerns across markets fueled a process of rapid deleveraging and forced asset sales. While initial recapitalizations of banks were relatively large and rapid (including through participation of Sovereign Wealth Funds), they were limited to only a few banks and increasingly fell short of losses. Hedge funds—facing financing constraints and redemption pressures—further fuelled a rapid unwinding process. This led to further asset price declines, prompting distressed sales, rising recapitalization needs, and further loss of confidence.

Compounding the problem, recognition of insolvency problems was delayed and resolution frameworks proved haphazard in practice. Deficiencies in resolution frameworks in advanced economies, including lack of scope (e.g., investment banks and insurance corporations not covered), limited coordination (e.g., between deposit insurance and lender of last resort facilities), and slow speed (e.g., due to lack of specific frameworks for bank resolution), allowed problems to intensify. Disappearing market confidence and eroded trust required authorities to intervene in a number of cases, with unprecedented means.

In this phase, global transmission channels were multiple, including through banks and non-bank financial institutions rapidly deleveraging. Despite a coordinated cut in policy rates by major central banks and the extension of guarantees in some countries, market confidence continued to deteriorate, leading to major failures or near-failures. The collapse of Lehman Brothers, with its major interconnections and exposures, shocked market confidence globally. Uncertainties led to deepening turmoil and runs—including on US money market funds, requiring new interventions. Through its substantial exposures in the CDS market, insurance giant AIG nearly collapsed, before receiving substantial public rescue funds.

As asset prices plunged across markets, the risks of cascading institutional failures and financial meltdown prompted actions by authorities across a wide range of advanced countries in mid-October, marking an overdue transition from concerns about liquidity to solvency (not unlike previous crisis episodes) and the need for more rapid and substantial recapitalization. The principal forms of intervention were: (i) liquidity provision through collateralized lending and other schemes; (ii) support for short-term wholesale funding markets; (iii) (more extensive) guarantees of retail deposits and other liabilities; (iv)

purchases or exchanges of non-performing or illiquid assets; and (v) capital injections to banks. Also, monetary and fiscal policy responses became even more accommodative.

The fourth phase of global spillover was through real sector consequences and continued financial linkages. Starting in late 2008 and intensifying in early 2009, the drop in demand in major advanced countries affected many emerging markets, with sharp drops in exports in many emerging markets. With recessions and economic slowdown affecting almost all countries, the scope for export-led growth sharply diminished, depriving especially those countries with large foreign exchange exposures from a potential recover channel. These recessions in turn had adverse effects on financial sectors around the world, raising non-performing loans and further weakening capital adequacy positions. Again, cross-border exposures were large factors behind the spillovers.

#### *International coordination issues*

To date, government interventions to support financial systems have largely been at national levels. While in the short-term, the large government interventions were necessary and often unavoidable, they have led to unintended effects on other countries, creating large distortions in international capital flows and financial intermediation. Liquidity support provided the first manifestation. The absence of standing dollar liquidity facilities was quickly and keenly felt in interbank markets around the world. Actions in the US initially focused on providing domestic support, even though market prices suggested significant dollar funding pressures for European banks and emerging markets. For mature markets, it took several weeks to act on stresses. And, even after ad-hoc bilateral swap lines between central banks were set up and their scope gradually increased, market prices continued to suggest that problems remained. The response was even slower and the amounts provided more limited in the case of emerging markets. With the (temporary) US dollar central bank swap lines provided only to a handful of countries, and the criterion for admission unclear, the lack of a broader-reaching and lasting liquidity insurance mechanism was keenly felt by many emerging markets. Large external financial support from various sources has been necessary for several emerging markets as they were hit by deleveraging process, but real consequences had already been incurred.

Guarantees on deposits and other liabilities issued by individual countries provide another example of a lack of coordination. They have led to beggar thy neighbor effects as they forced other countries to follow with similar measures. While some advanced countries, especially those closely integrated (such as the EU/EMU) more quickly coordinated policies, such as in having similar coverage in their deposit guarantee schemes, this did create further financial turmoil in other markets. Many emerging markets not able to match guarantees, suffered from capital outflows as depositors and other creditors sought the safe havens. Distribution of risks sharply changed over time and across circumstances. The CDS spreads for Irish banks, for example, fell sharply as the government provided guarantees, while the sovereign CDS spread for Ireland sharply increased. Another example of new distortions introduced is that policy measures aiming to encourage lending often had a bias toward local lending, putting international operations at a disadvantage.

Countries were also quick to “ring-fence” assets in their jurisdictions when cross-border entities showed signs of failing, reflecting the absence of clear burden sharing mechanisms for banks with international operations. In this crisis, examples of defensive “asset grabs” were: the decision by UK supervisors, fearing an imminent collapse of Icelandic bank branches (under the authority of Icelandic supervisors, who did not provide a commitment to fulfill UK bank liabilities), to resort to the Anti-terrorism, Crime and Security Act to ring-fence Icelandic bank assets within the UK; and the German initiative to freeze Lehman’s assets to assure the availability of cash to satisfy depositors before they could be attached to the parent under US bankruptcy proceedings.

The lack of coordination among authorities is the more problematic during periods of turmoil as the risk of contagion already intensifies. While group-wide reputational and operational concerns imply that risks to the constituents of large internationally active banking groups are strongly linked, the costs of failures can vary decidedly across stakeholders. While in normal times franchise considerations may create incentives for holding companies to support foreign subsidiaries in difficulty, in times of crisis—i.e., when the parent itself is under duress—liquidity and capital may be called in from abroad with little regard for any deleterious impact on foreign operations. Yet foreign operations that may be peripheral to the parent bank may be critical to the host financial system (e.g., Italian-owned banks comprise one-fifth of the Polish market but their assets account for only 4 percent of Italian banking assets). This provides an incentive for host regulators to defensively trap liquidity and assets through prudential measures (e.g., liquid asset requirements or limits on lending to parents) and to ring-fence assets in (anticipation of) times of stress. This further complicates business decisions already muddled by coordination uncertainties, e.g., about whether competitors will provide support to their subsidiaries or cut and run.

This lack of coordination among governments and agencies reflects a number of fundamental issues, most importantly that there are no harmonized ex-ante let alone ex-post rules governing cross-border bank resolution or safety nets and burden sharing, in turn leading to uneven provision of safety nets, liquidity shortages and asset grabs. Without such rules, central banks’ and supervisors’ obligations to their own taxpayers lead them to minimize liabilities to nonresidents, provide limited liquidity support across borders, even to subsidiaries affiliated with local banks, and maximize control of assets. This may even be tabulated in law, as with US “domestic depositor preference” and its “single-entity approach” to resolution under which the Federal Deposit Insurance Corporation as receiver is required to seek control over all foreign assets of a failed US bank.

Interventions have also led to a lack of clarity for private investors seeking to inject capital and created some doubts about the “rules of the game” (e.g., the bans on short-selling that were imposed in many markets for some periods). Furthermore, the demise of US investment banks, the disappearance of large institutions in several markets, and the smaller number of larger conglomerates, following a series of mergers and acquisitions, have appreciably altered the global financial landscape. This different landscape will mean changes in the way international financial markets operate. Authorities will have to adjust their regulations and supervision practices—e.g., addressing too big to fail issues may increase in importance—and competition policies—e.g., fewer institutions may raise more competition policy issues.

### *Current state of affairs and international repercussions*

While the relatively comprehensive actions over the last half year have provided stability in interbank and other financial markets, the financial crisis evolved and the rapid economic slowdowns in advanced countries spread and affected markets and economies globally. The crisis moved in full force to emerging markets and developing countries, through financial—as investors (banks active across borders, hedge funds, and other investors) pulled back—and economic channels. As the crisis spreads, the lack of sound mechanisms to deal with large cross-border banks became even clearer. The situation in Central and Eastern Europe has been a clear case. Banks in Western Europe are at risk due to their exposure in Eastern Europe, much of it through wholly-owned or controlled subsidiaries. Exposures are very large. For example, lending by Austrian banks to Central and Eastern Europe amounts to 80% of Austria's GDP. Given strong interbank linkages, defaults of a limited number of banks would have strong domino effects across a wide range of countries. Yet, coordinated solutions have been very difficult to organize and calls for pan-European recapitalization funds were repeatedly rejected.

The continued turmoil has had ongoing major repercussions: extraordinary government interventions continued and the (international) rules of the game remained in flux. Although support amounts were already very large, they may increase further. The coverage and scope of interventions and other policy measures may likely evolve depending on effectiveness and conditions. Governments may have to adjust the rules of the games, such as what to do with shareholders and creditors in case of a restructuring of a large financial institution, as circumstances evolve. And there remain risks that forms of support will become more nationally-oriented, as political support diminishes. Consequently international distortions may increase further. International coordination in all these interventions has been desirable, but difficult in practice.

The interventions create distortions, including unfair competition not only domestically but also across borders, and weaken market discipline. These distortions complicate the long term international financial architecture agenda. International distortions should be removed as quickly as possible to return to a sustainable system in line with a new financial architecture. This requires measures to reestablish a level playing field. For example, more extended retail guarantees need to cover all deposits uniformly within a jurisdiction and preferably across jurisdictions, especially critical when financial markets are closely integrated, as in the EU. Also, guarantees for interbank lending, bond issues and other wholesale funding should be clearly stated and capital injections should bring capital up to recognized standards at all institutions (with buffers for future losses), as undercapitalized institutions may undermine competition. General programs for purchasing assets should not discriminate between institutions or nationality.

Over time, exit from interventions will be necessary. The massive interventions across institutions and financial markets and around the world have meant more consolidated financial sectors with large government presence. Direct government ownership stakes in banks, large central bank liquidity support, direct purchases of, or provision of liquidity for commercial paper and other instruments, and the expansion of public safety nets to

investment banks and insurance companies have added up to very large government involvement in the financial sectors, an increase in public and a decrease in private leverage.

As the crisis abates, governments need to plan for exit, also given fiscal constraints. In terms of sequencing, logical steps involve first reducing guarantees, and then exiting from state ownership, along with scaling back the massive liquidity provision and disposing of any assets acquired. These are difficult, and largely unprecedented processes, especially so in the context of highly integrated financial systems. It is clear, however, that a lack of coordination can create distortions. If the unwinding of interventions is not timed and communicated properly and coordinated at the national and international levels, it can aggravate still weak confidence and create new distortions. Especially for the removal of guarantees, governments would do well to coordinate with others to avoid large capital flows due to arbitrage, akin to those observed when guarantees were put in place. And coordinating the sale of large ownership stakes in institutions and impaired assets could avoid flooding markets.

### **3. Cross-border spillovers: conceptual issues, current approaches, and options.**

Many of the international issues discussed center on the rules and mechanisms for dealing with large financial institutions which activities span many markets and activities. Reforming these rules and mechanisms will be a large agenda, which importantly depends on other, more national oriented financial sector reforms. I therefore first review the overall direction of reforms before discussing the conceptual issues in cross-border financial activities. I then present the current approaches and some possible options for international reforms.

#### *Overall direction of financial reforms*

Regulatory shortcomings have clearly been a key contributor to the financial crisis. The recognition of these failures is driving the current redesigns of national regulation and supervision systems across a large range of countries. Coordinated by the Financial Stability Forum (FSF; now renamed the Financial Stability Board, FSB), national authorities and standard setters are working to address deficiencies revealed in existing arrangements.<sup>4</sup> This is a broad agenda which will continue for some time and not all of it relates to international and cross-border banking aspects. A summary of overall objectives and current thinking will nevertheless be useful as it sets the stage for a discussion of specific reform options as regards cross-border financial transactions.<sup>5</sup>

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<sup>4</sup> The design and implementation of rules coordinated by FSF (FSB) covers five areas: a) strengthening capital, liquidity and risk management; b) enhancing transparency; c) changing the role, governance, and influence of credit ratings; d) strengthening supervisors and regulators' responses to risks; and e) redesigning arrangements for dealing with stress in financial systems. It issued on April 2, 2009, three sets of recommendations: Recommendations for Addressing Procyclicality in the Financial System; Principles for Sound Compensation Practices; and Principles for Cross-border Cooperation on Crisis Management. See further [www.fsforum.org](http://www.fsforum.org).

<sup>5</sup> For a review of needed financial reforms see IMF (2009a).

Actions are generally recognized as required in the following five general areas: *Regulatory perimeter*: The regulatory, supervisory, and information perimeter needs to be broadened to ensure that all financial activities that pose systemic risks are adequately captured. *Micro-prudential regulation*: Capital regulation, liquidity management, and risk management need not only to reflect individual institutions' risks but also their potential to form systemic risk. *Macro-prudential regulation*: Regulatory approaches that better dampen the procyclicality of financial markets need to be designed. *Information and market discipline*: Information disclosure and corporate governance practices need to improve to enhance market discipline. *Organization of regulation and supervision*: There is a need for greater coordination within and across countries in both the design of regulation and the monitoring of systemic risk.

The following key principles are recognized as essential guides to these redesigns: *The perimeter of regulatory and supervisory arrangements should be drawn to address concerns over systemic risk and be compatible across jurisdictions, institutions, and activities*. This means that supervisory authorities need to proactively identify and address gaps in oversight and information since markets and institutions will otherwise seek to exploit them. In that context, supervisory resources should be increased and allocated to the areas posing greatest systemic risk. Supervisory actions should result in prompt intervention whenever excessive risks arise. *Regulations need to be incentive compatible while balancing possible adverse impacts on innovation and efficiency*. This means that regulation should provide incentives to any institution whose distress would have systemic externalities to internalize such costs in its business planning and risk management.

Another principle is that *market discipline and supervision should complement each other*. This means an enhanced disciplinary role of markets requires allowing for the failure of individual institutions. This should occur within the context of a credible resolution framework for banks and non-banks that limits the wider impact of failure and reduces the moral hazard of a too large public safety net. It also requires improved corporate governance and information disclosure. Finally, *the redesign of financial regulation needs to be aware of and seek to overcome its inherent limitations*. Many questions remain about on how to best reform the architecture to mitigate systemic risks effectively without imposing too much and inefficient regulation. And many recent rules are still in the process of being implemented. The redesign needs to keep regulatory burdens in mind. At the same time, regulation tends to lag behind financial innovation, and is vulnerable to industry capture and political influence. Supervisors may lack the mandate, sufficient resources, or necessary independence to effectively contain systemic risk and enforcement may be poor. Implementing the new rules will thus remain difficult.

#### *Cross-border banking: conceptual issues*

If adopted and implemented, many of these reforms will help make national financial systems more stable and efficient, and thus aid to overall international financial system's stability and efficiency. At the same time, as highlighted above, the crisis has clearly underscored the need to address weaknesses in the international financial system specifically and directly. The crisis has shown the tension with regard to both risk prevention and crisis management between nationally-bounded supervisors and large financial institutions that

transcend national borders, have extensive operations across a large swathe of countries, and can be major transmitters of shocks. The tension is most evident in the resolution of global banks headquartered in relatively small countries but with balance sheets that exceed their home-country's GDP (as is the case for Belgium, Hong Kong, Iceland, Luxembourg Netherlands, Switzerland, and the UK). Few single countries can deal with such institutions on their own, yet they affect many markets. Clearly, in this crisis, and even more so in the future—as financial institutions may keep getting larger—and more complex, a better method has to be found to handle these institutions.

These, as many other international financial architecture questions, ultimately relate to the sharing of benefits and costs of financial integration. As noted at the outset, these benefits and costs have been hard to document empirically, but conceptually it is clear nevertheless that benefits, burdens and externalities can run both ways. Countries that “import” financial services may benefit from the comparative advantages of a home country producing financial services. These “export” advantages may arise from economies of scale or scope, better quality institutional environments, agglomeration gains in talent, and similar other factors. At the same time, by importing, countries can become more exposed to international risks, including through liquidity shortages and solvency spillovers in times of financial crises.

This increased risk-sharing might still be overall welfare enhancing, the typical prediction of neoclassical models in a single, integrated market. However, in a world with financial frictions and imperfections and given multiple countries, results will be different. Fundamentally, this is due to externalities and strategic interactions (“games”) between countries. Specifically, international financial stability has many pure public goods properties: it is non-excludable—the producer is unable to control who benefits from the consumption of the goods—and non-rival—consumption of the good by one consumer does not affect the benefits received in consuming the good by others (see Schinasi, 2007 for an analytical review). Conversely, such global public goods may be underproduced and underconsumed and can give rise to externalities.

Consequently, negative externalities may arise. Even though financial institutions could pose risks to international financial markets, national interests may not call for interventions. International spillovers may arise from poor regulation and supervision or the limited ability of home countries to stand behind their financial institutions as far as their international operations is concerned. Vice-versa, there can be positive externalities (“spill-ins”) when financial stability benefits accrue to other countries. Small countries, for example, may benefit by importing financial services from well-regulated financial markets.<sup>6</sup>

These issues have long been acknowledged in domestic financial markets and in a general sense in an international context, and specifically in the context of regional closely integrated financial markets (e.g., EU's and even more so Euro's). Various reforms and actions have

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<sup>6</sup> See Dell'Ariccia and Marquez (2006) for a theoretical model of how supervisory services may be undersupplied in an international context, and Calzolari and Loranth (2005) for a theoretical analysis on how disciplinary actions would be performed by independent national authorities in a multinational bank setting.

tried to overcome and deal better with these coordination issues. These reforms include, as noted, drives for convergence in financial sector regulation and supervision practices across countries. The major international standards (such as Basel II) are attempts to create greater uniformity in rules, especially for international active banks. And the Financial Sector Assessment Program of the World Bank and IMF is a means to check the implementation of rules and adequacy of practices, judged against international standards (such as the Basel Core Principles for Effective Banking Supervision), and thus assure greater convergence in practices. All of this is meant in part to reduce coordination problems.

### *Cross-border activities: current approaches*

Besides the general drive for convergence, there has been much focus on better arrangements for international financial transactions. In terms of cross-border banking, the traditional approach is largely based on the home-host principle. This principle says that home countries have to supervise the branches and subsidiaries of their banks in foreign countries. (In the context of Basel II, the Basel Committee on Banking Supervision (BCBS) writes in Principle 2: “The home country supervisor will be responsible for the oversight of the implementation of the new Accord for a banking group on a consolidated basis.”) Host countries supervisors’ have responsibilities as well, but their role is largely to provide information (Principle 3: “Host country supervisors, particularly where foreign banks operate in subsidiary form, have requirements that need to be understood and recognized”).<sup>7</sup>

Yet, many, including the BCBS itself, have recognized that this principle is not sufficient, particularly in light of the rapid internationalization of financial services. In BCBS’ own words (idem): “At the same time, the penetration of foreign banks in countries where financial liberalisation has taken place in recent years has become significant. In several countries, the largest retail bank is a foreign-owned subsidiary and the banking market may be dominated by foreign-owned banks. This situation raises legitimate concerns with respect to host supervisors’ ability to safeguard the stability of their financial systems.”

Fundamentally, a foreign subsidiary of a major international bank may be significant in the market in which it operates even though it is relatively less significant for the banking group as a whole. Conversely, a subsidiary that is significant for a banking group may not be significant for a host country, say if it is located in a major financial centre. Potential conflicts also exist in terms of management within the banking or financial group. For example, the local managers of foreign branches and subsidiaries may disagree with decisions taken at group level to manage capital in a certain way or of the decision to adopt a specific capital measurement (i.e., one or other option under Basel II), since it may conflict with the needs at the local level or legal requirements. Also, there can be legal or governance responsibilities of subsidiary bank management which differs from the requirements within the group (see further Jackson, 2006). These internal and other differences can adversely affect host and home markets, and thereby overall international financial stability.

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<sup>7</sup> From the Basel Committee on Banking Supervision (2006). See also Herring (2002).

The home-host principle nevertheless remains the main principle today. For those banks with smaller international operations, where spillovers can be expected to be little (albeit this criteria can be hard to quantify), the home-host principle can be satisfactory from an overall international financial stability point of view. That does not mean that improvements are not necessary. The Accord Implementation Group of the Basel Committee has indeed suggested a number of other ways to develop pragmatic arrangements for enhanced collaboration and information sharing suggestions (see also FSF 2009). Clearer responsibility needs to be given to the lead or home supervisor of a cross-border group to ensure risk management at the group level is robust. This would in turn require more widespread use of MoUs to allow for better information sharing. Better assessments can be done through coordinated examinations. More generally, it is increasingly recognized that host country supervisors have a role in complementing the oversight of supervisors of parent banks.

While many such improvements are possible, these will still be fraught with significant limitations, especially taking into account the relative significance of local entities in the host market. Some limitations arise from differences in institutional environments, principles and standards in home and host countries. Further harmonization, convergence, and assessments of compliance can reduce such differences, but will unlikely make them disappear completely. The fact that in the EU most banks still largely choose the subsidiary model (70% in the Euro area), even through branches would allow banks better internal management, suggests still some imperfections, in spite of a long effort at institutional integration. Importantly, from the host country perspective, the interests of the shareholders of the parent bank are unlikely to fully maximize the value of the individual subsidiary for the host country. Some further rules on subsidiaries may correct for these divergent interests. For example, Ortiz (2006) and others have called for separate corporate governance and other requirements on local subsidiaries (such as the listing of some shares in the local market to allow for market discipline and to increase information).

### *Possible reform options*

By reducing differences across countries, these reforms, actions and specific requirements will contribute to greater international financial stability and efficiency. At the same time, it has to be acknowledged that there remain severe economic, legal, political and other limits to convergence in rules and practices. And, even with greater convergence, it remains the case that many of the precise channels through which international spillovers and contagion occur are not always well understood. For example, similar to within a domestic context, the channels for liquidity spillovers internationally are not always clearly due to differences in policies or institutions, but to more general coordination problems.

As such, it is likely that risks of international financial instability will remain, in large part due to a lack of coordination. In many cases, especially in banking, this lack of coordination comes down to limited coordination ex-ante in dealing with financial institutions that cross borders and poor mechanisms for burden sharing ex-post, when financial institutions fail.<sup>8</sup>

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<sup>8</sup> While poor regulation and supervision also give rise to negative externalities, these are not the subject of discussion here. To some extent these can be addressed through the various convergence processes (standards, (continued)

Various solutions have been proposed over the years, each with their own advantages and problems. They vary from centralization, a new regime, enhanced coordination, to increased convergence in rules and practices.

**A World Financial Regulator.** The very first best would be an international financial regulator, perhaps called a World Financial Authority that would regulate and supervise all, or at least all large financial institutions. This was perhaps first proposed by Eatwell and Taylor in 1998, and it has an analogue in the World Trade Organization.<sup>9</sup> It is the obvious solution to any coordination issues. At the same time, this model is very demanding to be fully consistent in all dimensions. The international financial regulator would need to be complemented, for example, by lender of last resort liquidity facilities, an international deposit insurance and recapitalization fund, similar to the requirements in a domestic context, to assure a well functioning and stable international financial system. This World Financial Authority would also be difficult to govern as its objectives would be hard to establish. And, from a political economy, it is unlikely to materialize in the near future. The experiences of the EU and EMU suggest that, even after achieving very close financial, economic and political integration, adopting a common, single regulatory and supervisory authority is a very difficult process.

I will discuss therefore solutions that are not first best, but perhaps second or third best policies. I call the second best, the international bank charter—a new regime, and two third bests (the ordering is obviously difficult): increased harmonization in rules and convergence in practices without increased coordination, and increased coordination with less or no harmonization or convergence.

**International Bank Charter.** One approach closely related to the first best, but perhaps more feasible in the medium term, is to establish a separate regime for large, internationally active financial institutions, with some elements of voluntarism. Under this “International Bank Charter” (IBC) model international active banks would only be globally chartered and under the supervision of a single regulator. The European bank charter that has been proposed some time ago (Cihak and Decressin, 2007; see also Decressin, Faruqee and Fonteyne, 2007), and possibly similar charters, could be the equivalent on a regional basis.<sup>10</sup>

Under this model, there would be an international regulatory and supervisory body overseeing (all) international active banks. It could be a separate new institution or part of one or more existing (international) institution(-s). It would be staffed with professionals

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FSAP, regional integration). And, while also imperfect, countries do have the option to exclude financial institutions from some countries from their own markets on prudential grounds (as has been done to keep banks from emerging markets and developing countries from entering advanced countries).

<sup>9</sup> The idea was first mentioned in a working paper of 1998, and then published in their book of 2000.

<sup>10</sup> Technically, European banks can already establish themselves as an European Company (“Societas Europaea”), but that would not imply a corresponding shift in regulation and supervision from national to supranational authorities (Dermine, 2006).

recruited internationally. It would have to be governed by the nations sponsoring the concept in accordance with some objective criteria consistent with its mandate of improving international financial stability and efficiency. To come up with some specific governance criteria that satisfy the economic and financial objectives of a single supervisory authority would obviously be difficult.<sup>11</sup> Regardless, the regulator would have to satisfy general principles of accountability, independence, transparency and integrity (see Quintyn 2007 for a review of what this would entail).

The set of actions available to this body would be the regular tools of any national financial regulator. It would regulate, license and supervise international active financial institutions, including commercial banks, and possibly others, including financial conglomerates, insurance corporations, and brokers. It could, among others, raise capital adequacy requirements for those institutions that contribute to or represent greater systemic risks or for all institutions to deal with the procyclicality of financial markets. The arsenal of remedial actions available would include those normally related to weak banks, such as limits on operations and risk-taking, minimum capital requirements as well as cease-and-desist orders. Its actions, especially remedial, should be as rule-bound as possible for an international body. It is worthwhile to note here that the WTO has formal sanctions and appeals, making its processes stronger than that of many other international organizations.

There are many complementary measures needed for this model to work (again, many of these issues have long been analyzed in the context of the EU and especially the Euro; see for example, Boot, 2006, papers in Caprio, Evanoff and Kaufman, 2006, and Veron, 2008). Besides responsibility over regulation and supervision, liquidity support would have to be provided using a common lender of last resort facility, or by individual central banks but at the instructions of one agency (or at least according to very common rules and proper oversight). The international regulator would need to have access as well as to shared intervention resources with fiscal backup. These complementary measures are essential: any regulator without the capacity to provide liquidity, intervene, pay out depositors, and recapitalize is a risky proposition.

To complement the unified regulation and supervision, there would therefore need to be the equivalent of an International Deposit Insurance Corporation (IDIC). The same agency or a different, specialized agency could also provide insurance for brokerage and insurance firms' activities, necessary in light of the fact that many of the large institutions active

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<sup>11</sup> Voting powers, for example, could be related to the size of international activities of participating banks in a particular host country, or to the (foreign or total) assets base of the same international active banks in their home country. The first might be better if the effects on local markets are the main concern of the supervisor. This would deal with some of the concerns of the large influence of foreign banks in many emerging markets, which they do not supervise directly themselves. The second might be better if spillovers from international financial centers to other markets are the main concern, since it would, for example, reflect that banks from countries like the UK are active in many markets. There may be parallels to be drawn in how international organizations that explicitly deal with global externalities, e.g., global warming or pollution, are designed. For a theoretical analysis of voting in international organizations, see Maggi and Morelli (2006).

internationally are financial conglomerates. As is the case for most other, national deposit insurance agencies, it would be funded by insurance premiums paid by the chartered institutions. It could also allocate any insurance costs ex-post among participating members—i.e., a charge-back, but that may be less attractive as it can diminish the agency's incentives and ability to intervene timely (while the evidence is not clear on what model is preferred, e.g., see Demirguc-Kunt and Laeven, 2007, international practice seems to converge on the pre-funding model). Regardless, the agency should be eligible for loans from governments, and possibly international financial institutions, to deal with large interventions in times of crisis, especially initially when it has not yet accumulated funds. This could come in the form of callable capital from governments for backup purposes.

The deposit insurance could be supplemented by a recapitalization fund. The arguments for a recapitalization fund separate from a deposit insurance fund are several. For one, retail deposits are often only a small part of bank's overall liabilities. Second, the reasons to intervene in large cross-border banks arise not just from possible default on their deposit liabilities, but also from their role in overall financial intermediation. Being large players in various financial markets, with numerous connections, could justify interventions in weak banks, as happened in the current financial crisis on a national basis. Importantly, a recapitalization fund would give the regulator the ability to address weak financial institutions independently of individual countries' support, which is difficult to organize and to secure in times of financial crisis.

The recapitalization fund can be fed by a fee also paid by the banks themselves based on international assets and/or by more general contributions from the sponsoring countries based on, say, the value added of financial services in the country's GDP (since the ultimate gains relate to the real economy). The latter could be justified since countries derive direct benefits from large financial institutions while they can impose negative externalities globally. For example, a small country with large banks funded mainly through wholesale markets, would in normal times receive large benefits from financial services value added, but might only have contributed limited amounts to the deposit insurance fund (as it has few local deposits). At the same time, in times of financial turmoil, institutions from such a country could pose risks to international financial markets that can require interventions, even when national interests do not call for interventions. This could justify a recapitalization fund based on assets or financial services' contributions to GDP.

Like the deposit insurance agency, the fund would need to have access to callable capital from its shareholders, the governments sponsoring the concept, with contributions based on, say, GDP. Bail-outs and pay-outs would be centrally administered by the recapitalization fund. Whether the lender of last resort, c.q., liquidity provider, deposit insurance and recapitalization funds should be managed by or separately from the regulator is subject to a debate similar to that at the national level.<sup>12</sup>

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<sup>12</sup> Factors that play a role are conflict of interests, and clarity of objectives and accountability of the institutions.

In exchange for being required to participate—or, alternatively, subjecting themselves to this regime, the IBC banks could operate around the world (or at least within the group of sponsoring countries) without any further permissions, regulations or additional needs for reporting and compliance (except for country-specific requirements, such as macro-prudential requirements to mitigate country-specific booms or systemic risks). Because IBC banks opting in would only need to report to one regulator and branches and subsidiaries would be treated the same way for regulatory purposes, they would avoid many compliance costs, etc. While they do have to pay some insurance premiums, they would do only to one fund. And the possibility of a recapitalization, with burden sharing agreed upon, can be a source of financial strength (say for a large bank from a small country with limited fiscal resources).

This model could achieve (close to) the first best: coordination for the largest, international active banks through one institution. It would differ from the ones tried and tested (e.g., the messy constellation of home and host supervision in various agreements), which seemed to have deliver limited results, as least as judged from the most recent past. It would get around the problem that coordination is hard to agree on ex-ante, especially of actions aimed at containing and resolving a crisis. In the current crisis, as most often in the past, actions at the national level regarding large institutions were largely determined ex-post, and aimed only at (near) insolvent institutions, rather than being pre-emptive.<sup>13</sup> While eventually there were more concerted and somewhat coordinated interventions, these happened only under great financial duress, were sometimes undone, and created unexpected repercussions in other markets. A common and well resourced regulator would avoid this and thus be a much better solution; coordination is assured, and if intervention is necessary, the regulator's powers are backed by sufficient resources to make it credible.

One key issue is the degree of “voluntarisms”: should international banks be allowed to choose themselves or should they be forced to be subject to the international regime? Obviously there can be adverse selection here: weaker banks may not be interested to subject themselves to presumably a stronger international regime. Required participation may therefore be the better approach. But then there need to be clear and common criteria, say banks above a certain cutoff in terms of international operations (even that may not be sufficient, since, especially in times of turmoil, small banks can have negative externalities).

A variant of this approach would be an opt-in approach, where countries can choose to delegate the supervision of large banks to an international regime, instead of letting the banks themselves choose themselves (for this proposal, see further Hertig, Lee, and McCahery, 2009). The opt-in could be reversible, which would provide the national government with some continued leverage over the central regulator. There can also be some tailoring of the commitment to delegate regulation and supervision. Since there would be high fixed costs and path dependence, opt-out would be costly, however, and the value of the opt-out might be more for political economy reasons since it is not (and should not) expected to be used.

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<sup>13</sup> A few coordinated actions took place among Belgium, the Netherlands and Luxembourg (to resolve Dexia and Fortis).

The country (and bank) opt-in approach, however, may have some disadvantages as well. Specific, adverse selection at the bank may coincide with adverse selection at the country level, since weaker international banks from relatively more relaxed regulatory regimes may be more likely to choose not to subject them to the international regime. While the concept of regulatory competition has some conceptual appeal (it can allow financial institutions to avoid onerous regulation), it can also lead to a race to the bottom in terms of standards.

Recent experiences in the U.S. and elsewhere have probably moved the consensus (further) away from the benefits of regulatory competition. In general, however, with country opt-in, the potential adverse selection problem is less than with bank opt-in, as there are more pressures for countries to improve their rules. Regardless, regulators will need some form of international enforcement and some mechanisms to assure that either more relaxed countries are forced to participate or (their financial institutions) are credibly excluded from international financial markets, or at least from operating in other, sponsoring countries.<sup>14</sup>

**Decentralized, but converged approaches.** One “third” best could be a decentralized approach, i.e., where actions are not coordinated, but frameworks are adapted, even to the point so as to mimic outcomes similar to those under a second best regime. This would at the minimum involve more harmonization and convergence in five areas. One, the rules and regulations governing international active banks. These regulatory regimes would have to be fairly uniform since differences in rules can create distortions, lead to arbitrage opportunities, and increase risks.<sup>15</sup> This convergence would have to go beyond Basel II and other international standards as these still allow for considerable room for local differences. Second, ex-ante clarity on the responsibilities for supervision: who will supervise what aspects of international banks, with in particular the coverage of branches and subsidiaries and treatment regarding off-shore financial centers to be clarified. This has to go beyond the current structures of MoUs and the like which often still leave gaps, including a poor allocation of intervention responsibilities. Besides harmonization of supervision and intervention, this also has to include clear rules for the sharing of information.

Third, there has to be consistency in lender of last resort, liquidity support, deposit insurance and other forms of safety net, i.e., government support and guarantees. This means at the minimum harmonization of lender of last resort facilities and deposit insurance, i.e., what institutions are eligible or covered, criteria for liquidity access, minimum as well as limits on deposit insurance coverage, rules for adequate funding, clarity over intervention responsibilities, and common payout procedures. Complementary, enhanced mechanisms

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<sup>14</sup> This in turn raises of course competition issues since some banks would be excluded.

<sup>15</sup> Note that more harmonized resolution frameworks are also needed even within many national boundaries where there remains the potential for jurisdictional conflict between competing laws—the US system, for instance, has separate federal statutes for banks and broker-dealers, state-level laws for insurers, and leaves holding companies and other intermediaries under the corporate bankruptcy code.

may be needed for cross-border liquidity support and adequacy of deposit insurance coverage for cross-border institutions.

Fourth, resolution regimes should be internationally consistent—with foreign creditors treated equivalently to domestic counterparts—and allow for the recognition of collateral security across legal jurisdictions. For international banks, this would have to be complemented with specific agreements on the modalities for (prompt) corrective action, including areas such as the scope and threshold of public intervention, etc. Bank resolution frameworks and bankruptcy laws should be reviewed globally to ensure that they permit an orderly resolution of large, complex cross-border financial institutions.

Fifth, there would need to be ex-ante agreed upon rules on burden sharing and resolution in case of an international bank failure that requires some form of bail-out or pay-out, with the rules depending perhaps on profits, asset size, or income tax payments at each subsidiary.<sup>16</sup> Arrangements may also need to include more common recovery procedures for impaired assets. Complementary, uniform or shared mechanisms may be needed regarding the role of state ownership in intervened financial institutions to avoid unequal treatments.

In parallel, improved monitoring of global systemic risk will be needed, especially of large financial conglomerates, and covering cross-border exposures and off-balance sheet activities of all types of financial institutions. Closer cooperation and greater coordination, together with more effective global monitoring, will be necessary to adequately address market disruptions as they arise and forestall policy measures that can have adverse spillovers. An enhanced role for “colleges of supervisors” for large financial institutions with specific mandates and accountability will be an important component of this. Clearer responsibility will need to be given to the lead or home supervisor of a cross-border financial group to help ensure risk management at the group level is more robust. Furthermore, other elements also need to be in place (see further FSF 2009).

Common rules alone will not be enough, since even with strengthened and more coherent frameworks, differences in practices can arise. Broad participation by many countries in rulemaking will increase legitimacy and facilitate the enforcement of rules. At the same time, however, practices still need to be assessed. Some assessments can be undertaken by market participants, but there is a limitation of over-reliance on market assessments, as the crisis has again made clear, which have reconfirmed the need for public sector involvement. Some of the apparatus for assessing policy implementation is already in place (such as the FSAP), but procedures can be improved, their voluntary nature reassessed, and modalities for raising concerns clarified. At the country level, there could be a “comply or explain” requirement on member authorities. Associated with this, new or strengthened guidelines on best practices could be designed, which could be monitored as to their use (through regular surveillance and FSAPs, or possibly a new thematic/cross border assessment instruments).

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<sup>16</sup> As noted, the right allocation rules are not obvious. Goodhart and Schoenmaker (2007) suggest assets as the key, but it is not obvious that this captures the social benefits and costs for each country.

In principle, this could reduce many of the current problems. Indeed, some have argued, for example, that moving in the EU to a common, principles based means of intervention in weak financial institutions (along the lines of the US Prompt Corrective Action model) would overcome in part the coordination issues (Mayes, Nieto, and Wall, 2007).<sup>17</sup> It will not be enough to mimic the first best solution, however, since it does not consider the scope for many externalities at the international level. Similar to the observation that proper regulation and supervision of individual financial institutions does not guarantee systemic stability, it is also the case that proper national regulation and supervision does not guarantee international financial stability and efficiency. Coordination issues at the international level, both among private sector participants and between national authorities, are simply too plentiful. Under the common Prompt Corrective Action (PCA) model, for example, there still remains the possibility that the supervisor takes actions that are beneficial to her country, but that are harmful to the banking group or do not support the various countries' economies.<sup>18</sup> This is the more likely since there always will be a need for discretionary actions to address weak or resolve insolvent financial institutions, particularly when they are large.

The essential condition for this to work is probably that ex-post, the ex-ante agreed rules on the sharing of the resolution costs are binding. As Freixas (2003) shows, recapitalization facilities will be underproduced in case of improvised coordination, as is likely in the ex-post bargaining in case of the failure of a large cross-border bank. Tight ex-ante rules are necessary, but since there always is a chance governments signing up to this ex-post wiggle themselves out of some settlement, this may not be sufficient. Indeed, many observers conclude that even in the EU, where many efforts have been underway to make sure the rules have been harmonized and practices have converged, some form of a recapitalization fund is still necessary for this to work (see for example, Goodhart and Schoenmaker, 2006).

One restricted way under which this model could most likely work would be if the operations of international active banks in each jurisdictions are limited to separate subsidiaries (by limiting licenses or charters). If each of these would be resolved on its own in case of solvency problems—preferably in a prompt and structured fashion, and if firewalls among subsidiaries are adequate—possibly reinforced by a holding company structure, many spillovers could be prevented. It could be complemented with other institutional changes, such as requirements for greater use of centralized clearing and settlement in international transactions among banks (and in capital markets).

In its extreme form, however, this is a large step backward for international financial integration as it prevents any synergy gains arising from economies of scale and scope for banks operating across borders. While it is perhaps an acceptable approach in case there

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<sup>17</sup> One complementary proposal is to require all (large) financial institutions to present on a regular basis plans to their supervisors for their own orderly wind-down and closure. This could make the system less fail-prone and help identify and reduce the risks of spillovers.

<sup>18</sup> This concern is separate from the fact that many countries may not satisfy the preconditions for an effective PCA (see, for example, Nieto and Wall (2006) for an analysis).

would be no political support for improving the international financial architecture, it does not present a genuine solution to the international coordination issues.<sup>19</sup> Furthermore, since the financial crisis already has led to more financial nationalism, formalizing this could be a serious set-back to (regional) financial integration, such as the Single Market Program in the EU.

**Enhanced coordination, including through colleges.** Another, substitutionary or complementary model is to rely on more coordination, even in the absence of (further) harmonization of rules. This is the model for the EU laid out in de Larosière report (2009), largely adopted by the European Commission and subsequently agreed upon by European finance ministers in June 2009. Under this proposal, a set of existing bodies (the European Committees for Banking, Securities and Insurance) will be reformed in three new authorities—collectively called European System of Financial Supervisors (ESFS)—each of which will oversee respective national EU regulators and supervisors and thereby enhance institution level (micro-prudential) regulatory capacity. The new bodies would have the powers to mediate in a legally binding way between national supervisors and adopt binding technical decisions in regards to specific financial institutions. In addition to adopting binding supervisory standards, they are assumed to play strong coordinating roles, especially in financial crisis. When backed up by appropriate legal changes, this structure could presumably overcome many of the coordination issues, even when national structures, rules and practices are still quite different.<sup>20</sup>

The current approach is moving towards such an approach. A number of large financial institutions, for example, now have an international supervisory college. The goal is to have supervisory colleges for all significant cross-border firms, with the expected number close to 50. There is, however, still quite some uncertainty on the exact modalities of these colleges. What are the criteria for representation of country supervisors in each college? Is it by choice or required? Who will be the chair of each college, always the home country supervisor, even if the financial institution is larger in some other market? On what criteria will the decision-making within each college take place? Will it occur, say, on the basis of the impact of actions on the value of liabilities held by residents in each of the countries or on the basis of the impact of the specific financial institution on the overall global financial system or individual economies? How often will colleges meet? Will they be able to act swiftly enough in case of financial crisis? How will information be shared among college members?

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<sup>19</sup> It could be seen as step backwards as it resembles the unit or branch banking model that was in practice in the US before the 1980s and that limited banks from operating outside a narrow geographical area, or the segmented banking markets that prevailed in much of Europe before the SMP. That model has generally been considered to have led to large inefficiencies and poor risk-sharing (Strahan and Jayaratne, 1997 for the US case and CEPR, 2005).

<sup>20</sup> An equivalent model would entail a council directing national supervisors to act according to global instructions. Obviously, to make this happen is very demanding. It is nevertheless the model suggested in the recent de Larosière (2009) report for the EU.

Mayes, Nieto and Wall (2007) analyze some of these questions in the context of greater use of PCA by individual countries, and provide some options on how the decision making processes, among others in colleges, may have to take place. Much of this, however, will need to be sorted out in practice, as colleges are becoming a more common feature of the international financial landscape. And even then, there will remain some conceptual and practical limitations, potentially leading to risks. Since colleges are designed to concern themselves with individual financial institutions, they will not explicitly consider the stability of the international financial system as a whole. Given the many interlinkages among financial institutions these days, this is a design drawback. It can be addressed, but would require separate processes on how inter-college concerns are taken into account. This in turn may require (members of) colleges to share information about individual financial institutions to get a better aggregate picture. Importantly, concerns from financial institutions not covered by colleges and other financial institutions will need to be included since these can create spillovers and international financial instability.

Presumably the colleges will help with information sharing, but even here confidentiality arguments and pure power play may still lead to the hoarding of information. For the EU, this need for additional information collection and oversight is reflected in the fact that de Larosière report (2009) also called for a function called the Systemic Risk Council (when adopted in June, it was renamed the European Systemic Risk Board). It would gather information on all macro prudential risks in the EU and give early warning of threats to financial stability in the EU. At the global level, the FSF and the IMF are called upon to undertake more intense surveillance, but information sharing and modalities are still to be refined. An important drawback is that none of these agencies have direct intervention powers. More generally, it is recognized that colleges and enhanced surveillance alone are not the sole answer. The risks may be, however, that these and other complementary measures are not forthcoming or not sufficient; as such it might mean false security.

#### *Complementary changes needed*

As noted, many complementary changes are needed to reduce overall systemic risks globally. The crisis has made clear the enormous costs of not identifying risks early enough. Private market discipline failed in many respects, while public surveillance identified risks at a broad level but did not drill down deep enough to expose the full extent of vulnerabilities or draw specific policy conclusions. A more effective approach to detect impending dangers to the world economy will require close cooperation among international agencies to bring together the scatter of macro-financial information and expertise, and identify key risks and vulnerabilities. Only by working across organizations—supported by significant information sharing and drilling down—can one hope to “connect the dots” (across financial institutions, markets, and countries), clearly articulate risks, and propose practical remedies.

Obtaining better information will in turn be another essential step. More and better organized information is required for markets and policymakers to improve systemic risk assessments. The crisis has underlined the importance of going beyond traditional statistical approaches to obtain timely and higher-frequency real and financial indicators, at least for systemically important countries and financial institutions. This requires enhancing the accessibility and

timeliness of existing data, developing new sources, and promoting transparency and disclosure more generally. Data need to cover non-bank financial institutions, such as insurance companies and hedge funds, and housing-related statistics, and allow a better understanding of credit risk transfers. Better information is needed as well on the financial operations of large non-financial corporations that have significant links in national economies and potentially across borders.<sup>21</sup>

Better risk assessment will also mean strengthening macro-financial analysis and work on early warning systems. More analysis is needed on the linkages between financial sector and macroeconomic performance (for instance, on the relationship between monetary policy and risk taking). And new and better operational tools need to be developed for macro-financial surveillance. Perhaps most critical is recognizing that early warning exercises are less about “calling” crises—whose exact timing and occurrence is nearly impossible to foretell—than about identifying risks and underlying vulnerabilities that may trigger loss in confidence and propagate a crisis, and taking remedial policy actions. But even then, new channels through which identified risks can spread and novel risk manifestations may be missed, especially as financial innovation and integration continue and the complex web of interlinkages grows.

Early warning and surveillance work by multilateral agencies will need to balance voluntary engagement in assessments with mandatory compliance. Multilateral and bilateral assessments could be used more systematically to examine macro-prudential risks and progress in the implementation of multilaterally agreed principles, standards, and actions. It will, however, mean stronger requirements on member regulators and authorities to participate, more streamlined processes, and improved means of dissemination, while recognizing the tension inherent in the function of whistle blower and crisis preventer. More broadly, an overarching challenge in improving early warning will be to convince country authorities to take actions to deal with vulnerabilities, particularly during good times. Change in international financial governance and representations (in both rule making and decision making bodies (FSB, BCBS, IMF, G7/9, G20, etc.) will be needed to make this effective.

Importantly, improved crisis management will require better international liquidity provision, to both financial institutions and countries, to prevent spillovers from becoming solvency issues. While one can take off from the designs and institutional frameworks for national lender of last facilities, much work is still needed to obtain better facilities for cross-border banks (see, among others, Schinasi and Teixeira, 2007, for a discussion of the complications of establishing LoLR in the EU). Many of the obstacles are similar or relate to the same underlying factors hindering ex-post crisis resolution reviewed above. For liquidity provision at the country level, the approaches are conceptually also well-known and can involve, besides private market solutions (including contingent credit lines and insurance contracts), bilateral or regional swaps among countries, other forms of reserve pooling, and an expanded

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<sup>21</sup> To advance this work at the global level, assess other data gaps, and to leverage resources and expertise, an inter-agency group on financial statistics is being established by the IMF in collaboration with other agencies (BIS, ECB, and OECD).

IMF, including a larger SDR allocation (as agreed in principle at the G20 meeting of April 2, 2009). But between principles and actual practices can be many barriers.

#### **4. Conclusions**

The need for reforms and greater cooperation and coordination across countries in an increasingly integrated global financial system has become more obvious with the recent financial crisis. There is especially a need for improved mechanisms to deal with cross-border banks and other large financial institutions, which few single countries can deal with on their own, yet they affect many markets. This is even more necessary for the future since institutions keep getting larger and more complex.

Recent events and a review of the conceptual issues involved in cross-border banking provide some insights into the elements of potential approaches, although clearly, this is a very complex problem, with many aspects. For conceptual clarity, I present a number of options on how to deal with cross-border banks. A first best approach—called a world financial regulator—is unlikely to be attainable in the short-run (and some would say not desirable anyhow). Other options—such as increased convergence in rules and policies and enhanced coordination in actions—are obviously difficult to rank. I argue, however, that an International Bank Charter cum regulator, lender of last resort, deposit insurance and recapitalization funds, offers the best approach for the medium term.

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