A Safer World Financial System: Improving the Resolution of Systemic Institutions

Geneva Reports on the World Economy 12

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The views expressed are those of the authors alone and should not be taken to represent those of their employers, and or any other persons mentioned above.

Foreword

Endgames matter. And in financial regulation, the endgame is more important than we may think. As we have seen (too often) recently, financial institutions that encounter serious difficulties may need to be liquidated, closed, broken up, sold or recapitalized. The allocation of responsibility and costs in this "resolution" stage will have a strong impact on incentives and behaviour long before difficulties arise. As a consequence, regulating financial institutions is much more difficult in the absence of an effective resolution framework for systemically important financial institutions (SIFIs).

Designing such a resolution framework at the national level is no easy matter, but the difficulties multiply across borders. And the international dimension is important: on average, the thirty largest SIFIs have 53% of their assets abroad and have close to 1000 subsidiaries, of which 68% operate abroad.

As the authors of the twelfth *Geneva Report on the World Economy* observe, "The internationalization of finance has thus projected the 'too big to fail' problem onto a global setting." The twelfth Report sets out very clearly the issues involved in designing resolution frameworks that operate effectively across national borders. The Report is a very nice blend of theory and empirical evidence. The theory highlights the importance of what they call *financial trilemma* – the conflict between three policy objectives – preserving national autonomy, fostering cross-border banking, and maintaining global financial stability. The evidence demonstrates very clearly that this trilemma is no theoretical curiosity, but poses serious and difficult issues for regulators. Failure to resolve these issues can have devastating consequences for the real economy.

The Report concludes by examining three approaches to resolving cross border financial institutions. The first, "universal" approach involves sharing all global assets among creditors according to the legal priorities of the home country. The authors conclude that while simple, it is only feasible among countries that are closely integrated countries. The second, "territorial" approach involves ring fencing assets locally so that they are first available for resolution of local claims. This avoids any need for burden sharing or coordination but essentially means financial de-globalization. The third approach, which the authors favour, is a "modified universal" approach. It requires SIFIs to put in place better resolution plans; each country to adopt improved resolution rules, and countries to jointly adopt an enhanced set of rules governing cross-border resolutions, all enshrined in a new *Concordat*.

The authors are surely correct in their judgement that "*ex ante* there was too much deference and too little willingness to challenge others' supervisory efforts, while *ex post* there was too little international cooperation." Their argument that more attention needs to be paid to incentives in order for regulation to be successful is also successful. Whether we can, as the authors hope, move from the present situation in which national authorities 'can' cooperate, to one in which they 'will' cooperate is, however, still an open question.

ICMB and CEPR are delighted to provide a forum for the authors to put forward their thoughtful analysis. The Report significantly advances our understanding of this issue, and we are sure it will stimulate a lively debate.

Charles Wyplosz
Director, ICMB

Stephen Yeo
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15 June 2010

Executive Summary

Increased financial integration, but with increased complexity, and at times large costs

The last few decades have seen a rapid rise in international financial integration, with financial claims having grown much faster than trade and global GDP. In addition, foreign financial intermediaries have assumed a much greater presence in country after country, with foreign banks now dominating banking markets in many emerging markets. Chapter 1 shows that these financial connections have become especially intense among a few key countries. Much of this has been driven by the actions of a relatively small number of large financial institutions (*systemically important financial institutions* or *SIFIs*) that operate across multiple borders. Many of these institutions are large, exceeding home countries' GDP, enormously complex, with numerous subsidiaries in many countries, and very difficult to manage.

This increased financial integration has provided many benefits, to which these SIFIs have contributed – through economies of scale and scope efficiency gains, by allocating capital and liquidity efficiently, by being a source of competition, by facilitating trade and by transferring technology and know-how across borders. But the crises of 2007–2009 have shown that these close linkages can transmit strong, destructive spillovers across markets and borders, enabling financial crises to spread quickly. These crises have entailed substantial costs. To stabilize financial systems, governments in many advanced countries provided substantial support to their financial sectors in the form of liquidity, guarantees and recapitalization. These interventions meant very large exposures for the public sector, equivalent to about one quarter of world GDP, and high direct fiscal costs, and have distorted financial markets.

Public sectors were not only forced to spend substantial sums on financial sector support, but now also have to face large recession-induced increases in overall public debt. Central banks had to depart from normal monetary policies, creating exit challenges. And the crises led to the destruction of wealth, reduction in output and jobs, and a loss of trust in financial systems.

The crisis has spurred renewed efforts in many countries to improve national regulatory and supervisory frameworks in order to make their financial systems less prone to excessive risk taking and better able to withstand the failures of large financial institutions without suffering large and damaging spillover effects. The

crisis has also spurred calls for changes to ensure that the international institutional environment is adequate for the ever-increasing financial connections between countries. But the crisis has made clear that the nature of the reforms that are needed are difficult to define and hard to achieve. This is particularly the case with regard to the resolution of large cross-border financial institutions. That subject is the focus of this report, an issue that is too much ignored in attempts to enhance the stability of the global financial system.

Leading to a trilemma of national authority, financial integration and global stability

In Chapter 2, we argue that it is difficult to preserve national regulatory authority, foster cross-border financial integration and maintain global financial stability. Indeed, deciding which of these objectives to pursue presents a *trilemma*. The aim of supervision and regulation is to reduce the incidence of both distress at individual financial institutions and system-wide crises. Even in the best system, however, a SIFI can run into trouble, and the government may have to intervene to stabilize the system with loans or guarantees. National authorities have, by definition, only a national reach, however, while large cross-border financial institutions operate on a global scale across numerous jurisdictions. National authorities focus on the spillover effects within their national perimeter and tend to ignore cross-border spillover effects of a SIFI failure. This can create negative international externalities and undermine global financial stability. This is why national regulatory authority, efficient cross-border financial integration and global financial stability represent a trilemma.

To create a safer global financial system requires addressing the causes of the trilemma. The trilemma arises because the end game – resolution of failing institutions – is not well defined at a cross-border level (and often within countries as well). To date, resolutions, whether in the form of outright bankruptcy or public interventions to facilitate restructuring, have taken place mostly along national lines. This is to be expected for two reasons. First of all, resolution is based on national legislation and procedures, and insolvencies are dealt with by national judicial systems. Most importantly, the national perspective dominates because the public resources often needed to resolve a SIFI – as market solutions are lacking and systemic risks are large – are raised nationally and the possible costs are borne by domestic taxpayers. Consequently, national authorities have a tendency to focus on minimizing local impacts. The local focus also creates incentives for countries to ring-fence assets. This in turn means supervision is nationally oriented and incentives for genuine cooperation are limited.

So far, solutions to this trilemma have been sought through international coordination of regulation and supervision. This is starting, however, from the wrong side. It assumes that what is needed is to make sure that supervisors can cooperate (by harmonizing rules and agreeing on protocols), but it does nothing to assure that they will cooperate. Cooperation requires incentives, which in turn depend on who picks up the pieces if supervision fails to prevent failures.

Without an understanding of the possible endgame – resolution – it is impossible to make a rationale choice about what needs to be supervised and who is in charge. Only by having clarity on cross-border resolution – which includes not just the procedures to be followed, but importantly who will be providing financing and shouldering losses – will there be proper incentives for supervisory cooperation. The incentives for cooperation must be structured correctly because 'He who pays the piper calls the tune'.

Confirmed by how cross-border failures were handled in the recent financial crisis

Using the insights from Chapter 2, Chapter 3 offers six case studies that detail the failures of important global financial institutions during the recent crisis. In each of these cases, there is an examination of: (1) the causes of the failures; (2) the determinants of whether or not there was international supervisory cooperation; (3) the inadequacy of national resolution powers; and (4) the impact of the failures on global financial stability. The cases illustrate a wide range of causes, consequences and outcomes, but in each instance, resolution was improvised, and in almost all cases the process led to more rather than less uncertainty as to the rules of the game. In some cases, the improvisation succeeded in limiting international spillovers, but at substantial cost to taxpayers and to market discipline. In other cases, the resolution process protected domestic interests with little regard to spillover effects to the rest of the world.

The variation in the approaches taken and the costs incurred arose not only from deficiencies in national and international institutional frameworks for dealing with weak financial institutions, but importantly from the lack of *ex ante* agreements on cross-border burden sharing when institutions need to be resolved. The case studies show that cooperation was more likely when the likely spillover effects were limited to a few countries with a tradition of cooperation or when another mechanism was in place for brokering a cooperative solution. There was no setting, however, in which countries were able to fall back on *ex ante* burden sharing agreements; instead the allocation of costs was typically done ad hoc or engendered a lengthy debate. The case studies support the view that regulation and supervision should be integrated with cross-border resolution and preferably burden sharing to enhance global financial stability. In other words, the world's policy-makers should tackle the trilemma head on.

The discussion of the trilemma and the case studies clarify the challenges in creating a safer world financial system, and also make it clear that reforms are needed in two areas. One, in most countries, risk prevention and resolution procedures need to be improved and harmonized with those abroad. Second, real cooperation among national authorities requires common interests, which means clearer understandings on how the financing and losses, if any, related to the resolution of cross-border SIFI will be shared. These reforms are taken up in Chapter 4 and 5. The logical starting point is reforms at home, and these are necessary in almost all countries. With better national regulatory and resolution

schemes and greater convergence, meaningful international cooperation can then be pursued.

Calling for much better national resolution frameworks for systemic institutions

The need for domestic reform is presented in Chapter 4. There is much scope for most countries to develop more effective measures for reducing the probability and magnitude of a SIFI's failure and for successfully resolving its operations. All countries need to construct a robust national supervisory and resolution system – including adequate resources and staffing, which minimizes the probability that a SIFI failure will generate spillovers that threaten financial stability. The system must make sure that the costs of failure fall only on shareholders and creditors who have been paid to take these risks. The ideal resolution system begins with a competent supervisory authority that has access to a wide range of information, some of it derived from resolution, or sometimes called 'living will', plans. This will enable supervisors to perform triage and focus their attention on the institutions that are most likely to disrupt the financial system. Supervision needs to be reinforced, however, by strong market discipline from three sources.

First, each SIFI should have a contingent capital requirement, triggered by market indicators that will automatically recapitalize a firm that encounters difficulty. The requirement for such contingent capital should be calibrated so that if conversion happens, shareholders will be severely diluted. This will ensure that owners and managers will make every effort to find a private solution to the SIFI's problems, including by sales of lines of business or assets or issuing new equity, before mandatory conversion is triggered. If nonetheless a conversion is triggered, this will give the SIFI some time to undertake an appropriate restructuring.

Second, if the SIFI's condition continues to worsen, it will need to be subject to prompt corrective action measures (comparable to those that any bank would apply to a borrower that is nearing default). This should strengthen the incentives for SIFI's owners and managers to find a private solution to the problems.

Third, if the SIFI still hits the regulatory insolvency trigger point (which must be substantially above zero economic net worth, book value insolvency, or illiquidity),[1] then it has to be subject to resolution. The plan for resolution would be negotiated in advance between the SIFI's supervisors and its management. This process should include the SIFI's board of directors and its international college of supervisors. The resolution plan should ensure that a SIFI can be dismantled without interrupting the provision of any systemically important services or creating any other major spillovers. The resolution plan will have to be reviewed annually and subjected to stress simulations by the college of supervisors. This process will make clear to the market that no firm is indispensable and that whatever essential functions a firm performs can continue to be provided. This

1 Indeed, an essential ingredient for closer cooperation among countries will be a common definition of regulatory insolvency.

will help to combat the increase in moral hazard resulting from the bailouts conducted by countries in the wake of the financial crisis.

And addressing cross-border resolution, in comprehensive and consistent manners

Improvements in national early intervention and resolution policies, even when harmonized internationally, will likely not suffice in addressing the problems of cross-border financial institutions. There will still be coordination issues as national regulators seek cooperation on regulation and supervision during normal times and on burden sharing during times of financial stress. Chapter 5 summarizes alternative reform models, focusing on the core issue identified by the trilemma: the resolution of SIFIs on an international basis. It lays out three conceptual approaches: (1) a *universal* approach; (2) a *territorial* approach; and (3) a *modified universal* approach. Each of these models addresses the trilemma challenge, but in different ways.

While the three models are not mutually exclusive and can be combined in some ways, it is useful to consider them separately since each model has its own objectives, internal consistency requirements, and some specific benefits and costs. The *territorial* approach is a very restricted model. It is not well suited to address the challenges posed by the current state of international financial integration because it limits the ability of financial institutions to optimally deploy capital and liquidity, and, in fact, it creates inefficiencies. Moreover, in times of financial turmoil, this approach can create runs on financial institutions and a race to the bottom as countries ring-fence their systems. Thus, it is a step backward. Because it gives up on integrated financial markets and can lead to closed markets, the report rejects this approach.

The report then analyses the other two models and argues that the best-suited models will vary by country. For groups of countries that are more tightly integrated financially, the universal approach may be both more feasible and more necessary. Specifically, the European Economic and Monetary Union (EMU), and more broadly the European Union (EU), are leading the world in financial integration efforts. By choice, and by circumstance, these countries have been forced to confront the issue of differences in rules and burden sharing earlier and more dramatically than other countries. For the EU, therefore, the universal approach is more attractive, and adopting it could even be a competitive advantage globally.

However, this does not mean that the universal approach can work for the EU as is. Serious institutional reforms are needed in several countries in order to improve resolution, along with greater harmonization of existing rules and practices. Even then, many coordination problems will remain unless *ex ante* models for burden sharing are adopted. The report presents several burden-sharing models, which could be adopted on a voluntary basis and phased in over time. These reforms would not only help avoid the *ex post* lack of coordination

when dealing with weak cross-border financial institutions, they would also overcome the limited incentives for supervisory cooperation.

The report recognizes that the adoption of a universal approach is not imminent in most countries. Most nations are simply not willing to give up the necessary degree of national sovereignty. Furthermore, a global approach could be undesirable if it undermines incentives for effective supervision; if it did that, it might actually increase the size of burdens to be shared. For many countries, the most realistic approach for cross-border resolutions, within the framework of established national sovereignty, will be a modified universal approach, which can still largely address the financial trilemma. However, nation-by-nation changes are needed in three areas for this approach to work: improved and converged national rules, especially regarding resolution; better resolution plans and simpler structures for SIFIs; and an enhanced set of rules governing cross-border resolutions.

A new *Concordat* would strengthen the intermediate approach. It would build on the existing home/host country principles embodied in the 1983 Basel concordat for supervision, but it would harmonize resolution with supervision. This new international agreement would be a framework for seeking clarification among supervisors on the responsibilities for common executed resolution. If such clarification could not be reached between home and host country, supervisors should at least be able to impose restrictions on the entry or operations of foreign financial institutions in their respective markets. This new *Concordat* would help improve the incentives for collaboration among supervisors, while enhancing market stability and respecting the sovereignty of individual countries.

1 The Rise of Multinational Financial Institutions

Over the course of the last few decades there has been a rapid rise in international financial integration. Countries have become increasingly intertwined financially as financial claims have grown much faster than trade and GDP. Financial connections have become especially extensive among a small number of key countries.

Interwoven with this process, the structure of the world's financial services industry has been transformed by two trends. One is the marked rise in the importance of large financial institutions and the consolidation of national financial markets, so that in most countries the financial system is now dominated by a small number of large institutions. The second is the internationalization of these institutions – many of the largest institutions in the world today operate across multiple borders. In fact, much of the increase in financial connections is driven by the actions of a small number of large institutions.[2] And the increasing presence of foreign intermediaries extends to many countries, with, in many emerging markets, foreign banks now dominating the local market.

These trends have resulted in the prevalence of institutions that are not only large but highly complex organizations composed of scores of subsidiaries and branches. Their size and complexity has given rise to concern that some institutions have become 'too big to fail'. Because of the central role that finance plays in economic life, if any of the largest institutions in a country were permitted to fail, this could have grave repercussions on other institutions and on the nation's economy. This has given rise to what have become known as systemically important financial institutions (SIFIs).

The internationalization of finance has projected this concern into a global setting. Many argue that if a SIFI deeply involved in a wide range of countries were permitted to fail, this would have repercussions that affect financial systems and national economies around the world. Many SIFIs are not only difficult to manage, however, but even more difficult to resolve. In this context, the question of resolving a SIFI has become of crucial importance to a safer global financial system. It is the subject of this report.

2 For example, in 1998 the five largest banks controlled 8% of global banking assets. Now they control more than 16% of global banking assets (Haldane, 2009, p. 9). Also, the relative size of SIFIs has increased: whereas in 1992 the percentage of banks whose liabilities-to-home country GDP ratio exceeded 25% was nil, in 2008 it was 4% (source: Figure 1 in Demirgüc-Kunt and Huizinga, 2010).

The 2007–2009 financial crisis has given this issue new urgency. The crisis has shown that intensified international financial links can create strong spillovers across markets. It has also shown how difficult it is for governments to resolve SIFIs without putting significant public resources at risk. Furthermore, it has once again shown the high costs that such crises can impose on the global real economy, through recessions, and on government budgets, not only through the direct costs of financial sector support, but also by way of large recession-induced decreases in tax revenues and increases in budget deficits and public debt.

Crises can also cause significant deviations from the expected economic growth trajectory and from the monetary policies that would have been pursued otherwise. This raises risks of increased inflation if central banks do not extricate themselves from their low interest rate policies with unusual skill. Furthermore, financial crises not only impact public finances, destroy wealth, and cause a loss of jobs, they also diminish trust in the fairness and efficiency of the financial system.[3]

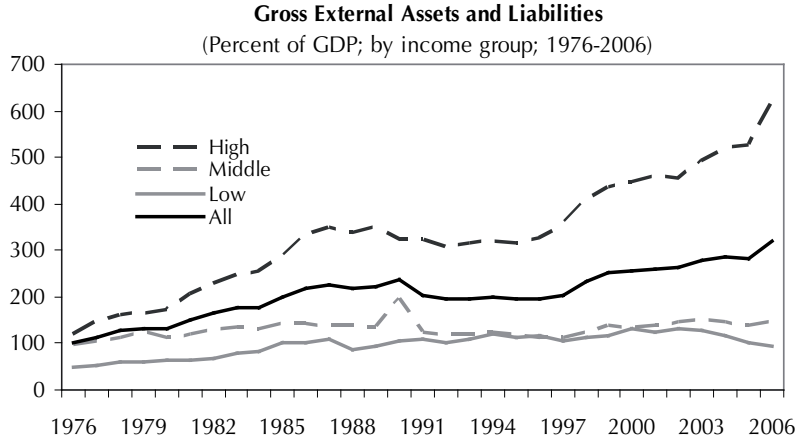
In light of these costs, the recent crisis has spurred renewed efforts in many countries to improve their supervisory frameworks in order to make their domestic financial systems more robust and better able to withstand the failures of large institutions without generating large and damaging spillover effects. The crisis has also spurred calls for changes in the international financial architecture to come to grips with the ever-increasing financial connections between countries. The crisis has made it clear though that the question of what reforms are best is complex, especially regarding the resolution of cross-border SIFIs, and that implementing reforms will require sustained efforts.

1.1 Increased international financial integration, especially among a core group of countries

Financial integration has increased dramatically over the past decade, especially among advanced economies, with growth in financial claims far exceeding growth in trade and GDP (Figure 1.1). The massive increases in gross cross-border positions have been driven by financial innovation and market reforms, especially in advanced countries, but also by increased financial openness in the emerging markets. Growth rates accelerated in the early 2000s and continued throughout the recent financial crisis. As a consequence, total cross-border claims between banks stood at $5.9 trillion in the third quarter 2009, versus $4.7 trillion at the end of 2005. Furthermore, the financial connections between countries have increased not only through interbank claims but also via other linkages, such as capital market transactions.

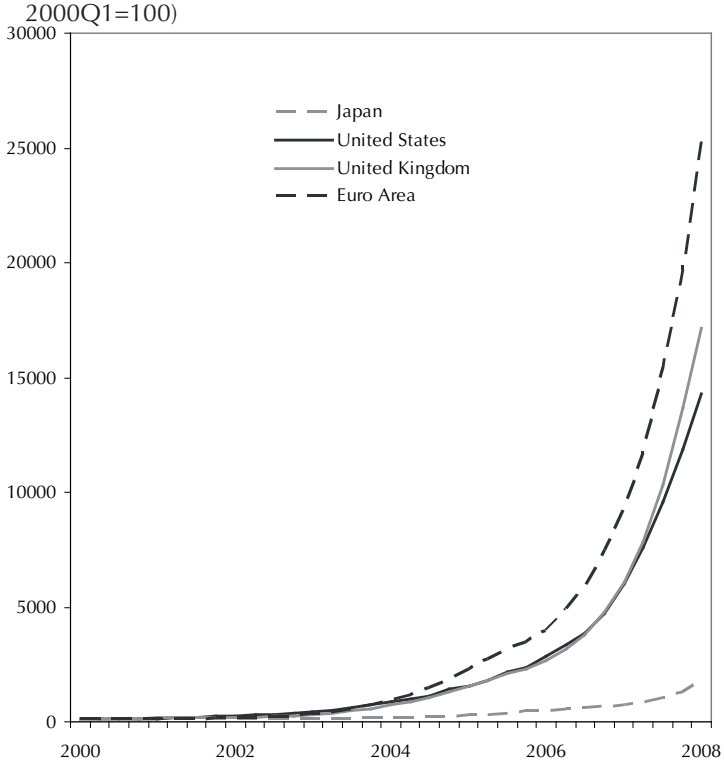
3 This has been particularly true over the past three years in which the principal direct beneficiaries of government subsidies have been sophisticated counterparties (usually other large financial institutions, who benefitted greatly from the preceding boom and should have been in the best position to monitor and exercise market discipline over their peers). Distrust in the essential fairness of the financial system is only exacerbated when these institutions, who have received government subsidies, pay large bonuses that often dwarf the lifetime earnings of many taxpayers.

Figure 1.1 Increasing financial integration



Source: Lane and Milesi-Ferretti (2007), with updated data provided by the authors.

Figure 1.2 Growth in cross-border bank claims, by bank nationality[a] (index, 2000Q1=100)



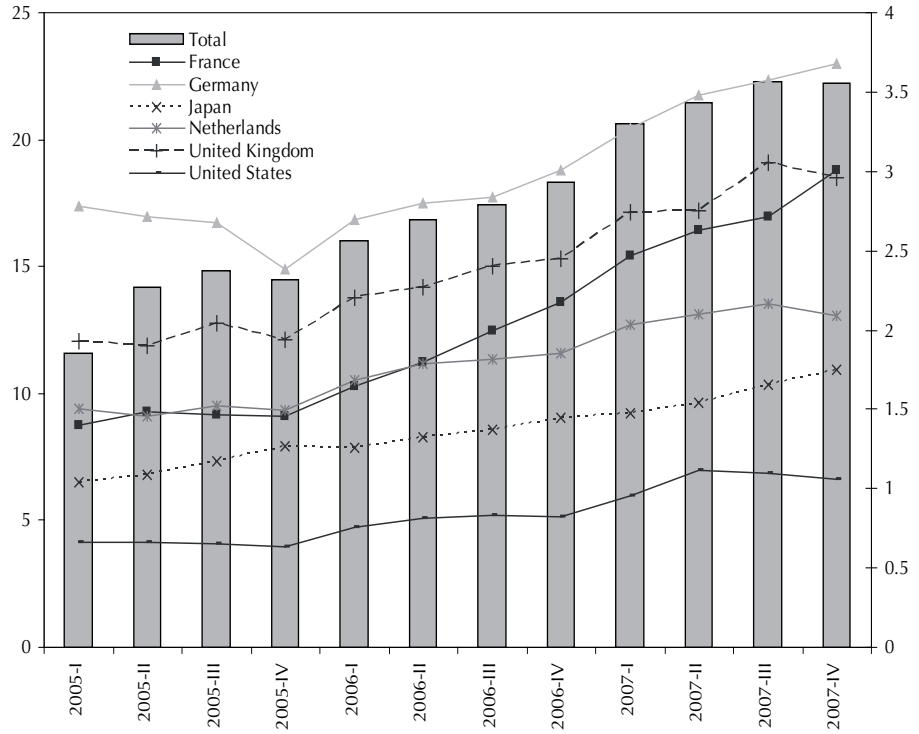
Notes: [a] Foreign claims vis-à-vis entities (banks and non-banks) in advanced economies, booked by banks headquartered in the countries shown. On an ultimate risk basis and excluding inter-office transfers. Foreign currency claims on home country residents are also excluded. The series are quarterly, but are smoothed on an annual basis.

Source: Bank for International Settlements (BIS).

These trends have been global, but they are largely driven by financial institutions in a few countries (Figure 1.2).[4] France, Germany, the United Kingdom and the Netherlands experienced especially large increases in the growth rates of the gross external positions (assets and liabilities) of their banks before the recent crisis. The United States saw some increases as well, but at a slower pace.

Reflecting the high growth rates for some European banks, the external positions of all banks at the end of 2007 was dominated by banks headquartered in a small number of countries, notably France, Germany, the Netherlands, Switzerland, and the United Kingdom (Figure 1.3).

Figure 1.3 Cross-border bank claims, by bank nationality[a] (in trillions of US dollars, country total on right axis and total on left axis)



Notes: a Foreign claims vis-à-vis entities (banks and non-banks) in advanced economies, booked by banks headquartered in the countries shown. On an ultimate risk basis and excluding inter-office transfers.
Source: BIS.

4 These data pertain only to commercial banks claims and thus do not include many other forms of international capital flows, such as investment in bonds or equities, nor do they necessarily cover banking type activities of non-bank financial institutions, including investment banks. Conversely, (increased) financial integration is in theory feasible without financial institutions that operate cross-borders, but in practice it is unlikely to proceed efficiently without large cross-border presence.

In addition to the high concentration of gross external claims in a few key countries, there is a substantial degree of interconnectedness among banks in these same countries. Figure 1.4 shows the top six countries, at two points in time (2005 and 2009), and indicates the overall external position of the country (i.e., stocks of cross-border bank assets) – proportional to the size of the nodes. It also shows the size of the bilateral positions, proportional to the thickness of the arrows, with the direction of the arrow depicting an asset claim. The figures show how concentrated the cross-border bank claims and links are among a few advanced countries.

As of the end of the second quarter of 2009, banks from the top six countries – France, Germany, the United Kingdom, the United States, Switzerland, and the Netherlands – accounted for some 47% of gross global cross-border banking assets. Meanwhile, the United States, the United Kingdom, France, Germany, Japan and the Netherlands accounted for some 50% of gross global cross-border bank liabilities.[5] This concentration suggests that these countries should be the focus of any changes in international banking regulations.

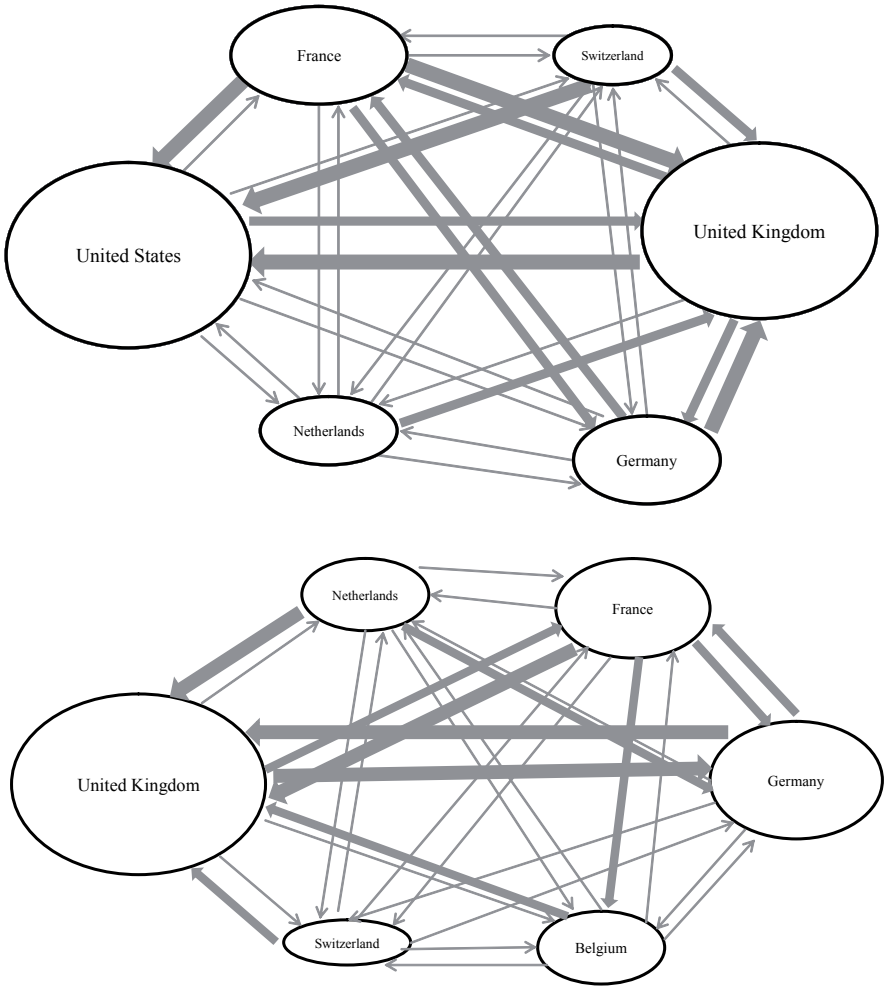
These same countries are also the ones most closely linked, as indicated by the size of the arrow (with the direction indicating an asset claim). There are particularly intense links between France and the United States (some 4% of global cross-border banking assets are French banks' claims on US banks); between the United Kingdom and the United States; and between Germany and France (each represents some 3% of global cross-border banking claims). Important links also arise from the claims of Swiss banks on the United States (some 2.5% of global cross-border banking claims).

The importance of these countries and the links among them have been increasing over time. Some bilateral data on foreign direct investment, equity, and debt claims have been collected by Kubelec and Sá (2010) for the period 1985 and 2005 (see also Bank of England, 2009). While in 1985, debt claims among the top five countries (the United States, the United Kingdom, France, Germany, and Japan) represented 47% of all the debt claims among 18 key countries, by 2005 this share had grown to 60.5%.[6] This also demonstrates that any progress in reforming the international financial system must depend heavily on achieving changes in a few key countries, notably the United States, the United Kingdom, Germany and France.

5 These are fractions of all claims reported to the BIS. Since not all countries report to the BIS, this fraction is higher than the true number (as the denominator is not the full set of claims), but since most large countries do report and since the data missing only refer to the intra-country claims of the non-reporting countries, the difference is likely to be small. Note that interbank data only refers to assets, so it is not possible to cross-verify bilateral data.

6 The trend between the end of 2005 and the second quarter of 2009, the period for which more detailed BIS data are available on interbank claims, is less apparent as the crisis itself has affected claims. Still, the three countries with the largest foreign currency assets were the same in 2005 as in 2009 (United Kingdom, France and Germany). The three countries with the largest foreign currency liabilities were almost identical in 2005 (United Kingdom, United States and Germany) to 2009 (United Kingdom, United States and France). The four most closely connected remained the same: United States, United Kingdom, France and Germany.

Figure 1.4 The size and intensity of links in cross-border bank claims, top six countries (2009 and 2005)



Note: This covers foreign claims (bank claims on ultimate risk basis) which equal the sum of claims on an immediate borrower basis and net risk transfers, and includes both cross-border claims and foreign offices' local claims in all currencies. Exchange rate movements can lead to changes over time in estimated measures of transfer or country risk exposures. No currency breakdown is available for the consolidated banking statistics; outstanding positions are converted by reporting banks into US dollars at end-of-quarter exchange rates. Therefore, movements in exchange rates can result in changes in reported positions even when actual positions remain unchanged. Also, only assets are reported in this format. See further McGuire and Wooldridge (2005).

Source: BIS, consolidated banking statistics.

1.2 Increased role and greater complexity of international financial conglomerates

The processes of consolidation and globalization have produced a number of financial conglomerates that are crucial to the functioning of the international financial system.[7] These institutions provide essential services by allocating capital and sharing risks efficiently across borders, and serve to provide competitive pressures and introduce foreign technology and know-how to many markets. But they have become large and, conversely, if any of them were to encounter serious financial difficulties – as happened in the recent crisis – this would create risks for the entire global financial system. Who are these SIFIs? In November 2009, the *Financial Times* (Jenkins and Davies, 2009) claimed to have identified 30 firms that are on a 'systemic risk' list that 'regulators are earmarking for cross-border supervision exercises'. Table 1.1 provides salient data on these 30 institutions. All are, of course, very big and very international, with non-home country activities accounting for, on average, 53% of assets (column 3), 56% of income before taxes (column 4), and 68% of subsidiaries (column 5).

In terms of geographic distribution, the largest group on the list is composed of 24 European financial institutions. This reflects both the concentration of European banking in a relatively small number of big banks, and also the central role of universal banks in Europe, as opposed to other specialized financial institutions, such as investment banks. Indeed, relative to GDP, Europe has very large banks, often multiple times (Demirgüc-Kunt and Huizinga, 2010 shows that the banks whose liabilities exceed their home country GDP are all European). Europe's dominant role on this list also reflects the international orientation of its banks. European banks have a far larger percentage of their assets abroad (65%) than either North American (32%) or Asian (26%) institutions.[8] And this large cross-border presence is by no means limited to an involvement in neighbouring EU countries; it also reflects high levels of international activity outside the EU (see Chapter 2).

In addition to 24 banks from Europe, North America and Japan, the Financial Times list includes six insurance companies. Before the AIG bailout, it was unlikely that any insurance company would have made the list. Indeed, a Group of Thirty report (2006) and a more recent report by a group of insurance companies (Geneva Association, 2010) both made a strong case that neither insurance nor reinsurance companies were likely to become a source of systemic risk. Nonetheless, six insurance companies were included on the Financial Times list, not only because of their size, but also because some of them have a large lending arm (Aviva) or a complex financial engineering business (Swiss Re).

7 We include here all types of financial conglomerates, that is, (universal) commercial banks, and conglomerates that consist of or include banks, insurance corporations, brokers, and other type of non-bank institutions.

8 In a more extensive survey of a top 60 of large banks, Schoenmaker and Van Laecke (2007) report slightly lower figures for the foreign activities of American banks (22%), Asian banks (14%), and European banks (48%) for 2005. The relative differences in foreign activities between regions, however, remain the same.

Table 1.1 International Importance of Financial Conglomerates (ordered by size within regions)

SIFI	Total assets (billions of $, year end 2008)	% of foreign assets	% of foreign net income before taxes	% of foreign subsidiaries
Americas				
JP Morgan Chase	2,175	25%	68%	49%
Citigroup	1,938	43%	74%	58%
Bank of America-Merrill Lynch	1,818	17%	18%	38%
Goldman Sachs	885	33%	46%	60%
Morgan Stanley	659	30%	46%	58%
Royal Bank of Canada	591	46%	41%	64%
Average Americas	**1,344**	**32%**	**49%**	**55%**
Asia				
Mitsubishi UFJ	1,921	26%	28%	58%
Mizuho	1,509	23%	30%	45%
Sumitomo Mitsui	1,174	17%	21%	39%
Nomura	252	38%	14%	73%
Average Asia	**1,214**	**26%**	**23%**	**54%**
Europe				
Royal Bank of Scotland	3,511	46%	42%	15%
Deutsche Bank	3,066	82%	75%	85%
Barclays	3,001	68%	56%	40%
BNP Paribas	2,889	41%	55%	67%
HSBC	2,527	64%	70%	74%
UBS	1,888	89%	47%	97%
ING	1,854	60%	72%	67%
Societe Generale	1,573	29%	57%	62%
Santander	1,461	64%	69%	80%
UniCredit	1,455	62%	51%	94%
Allianz	1,310	88%	78%	85%
Credit Suisse	1,097	85%	69%	92%
Axa	921	75%	72%	85%
Banca Intesa	885	15%	12%	62%
BBVA	755	30%	64%	74%
Aviva	507	64%	61%	54%
Standard Chartered	435	71%	93%	77%
Aegon	393	78%	76%	76%
Zurich	309	96%	84%	98%
Swiss Re	214	97%	97%	99%
Average Europe	**1,503**	**65%**	**65%**	**74%**
Grand average	**1,432**	**53%**	**56%**	**68%**

Source: Bankscope for the data regarding subsidiaries and asset size and individual annual reports for percentage foreign assets and foreign income. Data refer to 2008, which may explain why the ratios of foreign to domestic income are high for some banks as domestic income in the United States was very low in 2008 because of the crisis.

These 30 firms display considerable corporate complexity, as reflected in their armadas of subsidiaries, many of which are related to their international operations.[9] Table 1.2 shows that all 30 financial institutions have at least 100 majority-owned subsidiaries (column 3). More than half of the firms have over 500 subsidiaries, and three have more than 2000 subsidiaries.

Some of this propensity to organize operations in subsidiaries rather than branch offices arises from variations in domestic regulations. Reflecting in part the more fragmented US regulatory system, US banks always had more subsidiaries. In Switzerland and Germany, in contrast, there has been virtually no regulatory or legal obligation to create subsidiaries, reflecting their universal banking systems. Thus, in 1990 Citibank had 521 domestic subsidiaries, while by contrast UBS had 35 domestic subsidiaries in Switzerland and Deutsche Bank had 35 in Germany (Herring and Santomero, 1991). More recently, however, even in the absence of regulatory pressure, the number of Deutsche Bank's domestic subsidiaries has grown markedly. More generally, there is a trend to greater complexity.

Aside from regulatory issues, there are often good business reasons for any large firm to establish subsidiaries as a way of engaging in certain businesses in certain places. For example, subsidiaries may ease asymmetric information problems among shareholders, creditors and managers. They can also mitigate conflicts of interest and insulate the rest of the group from the risks associated with special activities. Often they are simply a legacy of growth through mergers and acquisitions.

Subsidiaries may be particularly useful in foreign operations. Setting up a business in a risky country or joining a local stock exchange are, for example, better done through a subsidiary since it does not put the bank's entire capital base at risk. In any case, the number of domestic and foreign bank subsidiaries has increased for banks from all types of countries, making these institutions even more complex. It is striking that the 30 large financial institutions on the *Financial Times* list have 2.4 times more subsidiaries than the 30 largest non-financial firms. This is true despite the advantages financial firms can enjoy from operating through branches. This permits greater pooling of capital and risks, which therefore allows financial institutions to borrow on more advantageous terms, make larger loans, or take larger positions with a given amount of capital.

The extent to which these financial institutions rely on subsidiaries to conduct their foreign operations is an important aspect of their complexity. All but five have more than half of their subsidiaries located abroad. Indeed, one (Swiss Re) has 99% of its subsidiaries located abroad (column 4). One of the 30 has subsidiaries in 89 different countries (column 5), and many have subsidiaries located in Offshore Financial Centers (OFCs), many of which are tax havens (column 6), including more than half that have at least 10% of their subsidiaries located in OFCs (column 7).

9 Obviously, complexity goes much beyond the simple measure of number of subsidiaries. For example, the degree of centralization of treasury and IT function can be key (see further Herring and Carmassi, 2010). Work is underway to analyse the impact of these other dimensions (for example, the Basel Committee on Banking Supervision's work under the Cross-Border Bank Resolution Group and its Working Group on Liquidity, and the Financial Stability Board's Working Group on Cross-Border Crisis Management).

Table 1.2 Importance and Complexity of International Financial Conglomerates (Ranked by size)

SIFI	Total assets (billions of $, year end 2008)	Total subsidiaries	% of foreign subsidiaries	Number of countries	Subsidiaries in OFCs, number	Subsidiaries in OFCs, %
Royal Bank of Scotland	3,511	782	15%	15	50	6%
Deutsche Bank	3,066	1,992	85%	61	544	27%
Barclays	3,001	844	40%	57	133	16%
BNP Paribas	2,889	2,056	67%	67	176	9%
HSBC	2,527	1,765	74%	73	442	25%
JP Morgan Chase	2,175	839	49%	54	61	7%
Citigroup	1,938	2,631	58%	89	462	18%
Mitsubishi UFJ	1,921	146	58%	20	8	5%
UBS	1,888	294	97%	48	31	11%
ING	1,854	1,694	67%	64	49	3%
Bank of America-Merrill Lynch	1,818	2,484	38%	53	236	10%
Societe Generale	1,573	1,074	62%	69	64	6%
Mizuho	1,509	139	45%	18	16	12%
Santander	1,461	898	80%	47	61	7%
UniCredit	1,455	1,286	94%	48	47	4%
Allianz	1,310	964	85%	66	41	4%
Sumitomo Mitsui	1,174	144	39%	14	26	18%
Credit Suisse	1,097	267	92%	39	44	16%
Axa	921	1,248	85%	50	82	7%
Banca Intesa	885	392	62%	34	87	22%
Goldman Sachs	885	294	60%	24	38	13%
BBVA	755	495	74%	31	40	8%
Morgan Stanley	659	1,809	58%	57	323	18%
Royal Bank of Canada	591	235	64%	26	39	17%
Aviva	507	454	54%	26	38	8%
Standard Chartered	435	298	77%	49	98	33%
Aegon	393	649	76%	30	20	3%
Zurich	309	444	98%	28	31	7%
Nomura	252	162	73%	29	27	17%
Swiss Re	214	206	99%	24	35	17%
Average	**1,432**	**900**	**68%**	**44**	**112**	**12%**

The fact that so many subsidiaries are located in OFCs suggests that tax avoidance may play a significant role in the creation of subsidiaries. Of course, the same rationale applies to all businesses, not just financial corporations. Since these 30 financial institutions have many more majority-owned subsidiaries than the 30 largest non-financial firms, there is a strong presumption that regulation plays an important role as well (Herring and Carmassi, 2010).

There are a number of reasons to prefer subsidiaries over branches that have nothing to do with tax avoidance or regulatory arbitrage, but subsidiaries come at a cost. In addition to the start-up costs associated with obtaining a charter and creating a governance structure, there are ongoing expenses for accounting, financial reporting, tax filings, and meeting the costs incurred by dealing with a host of supervisory authorities.

From the perspective of international financial stability, the relevant question is whether the high degree of corporate complexity within and across countries intensifies vulnerability to systemic risk. Most countries have taken the view that they do not want to constrain the corporate structures of their institutions lest they make them less competitive with institutions headquartered in other countries. But this ignores an important public policy issue that comes to the fore when one of these complex international financial institutions approaches insolvency. Because of the operational and financial interdependencies among the various entities as well as the number of different regulators who have oversight over many of the entities, resolution becomes enormously complex – and potentially disruptive to the rest of the financial system. To the extent that authorities conclude that a failing institution has become too complex to resolve, government support and bailouts seem inevitable and moral hazard is thus exacerbated.

1.3 Systemic risk and SIFIs

In the recent financial crisis, as in earlier crises, governments in Europe and North America felt compelled to provide support to a number of financial institutions. The cost of this support added up to almost one-quarter of world GDP (Haldane, 2009).[10] Why did they undertake this effort? This question applies especially to the international SIFIs that are the focus of this report, many of which had to turn to their home country national governments for support during the crisis. As aptly put by Bank of England Governor Mervyn King, SIFIs are 'international in life, but national in death'. Because governments lack resolution tools to resolve the affairs of one of these institutions without creating potentially intolerable 'systemic' spillovers to the rest of the financial system, there has been a pronounced increase in improvised bailouts.

The principal channels of contagion include (1) interconnections with other large complex, international financial institutions that are rapidly changing, so

10 See Laeven and Valencia (2010) for country specific breakdown of the total amounts of support.

that the collapse of one could lead to the collapse of others;[11] (2) the inability to continue systemically important services during a resolution of non-essential activities;[12] (3) the inability to resolve an institution with substantial corporate complexity. In short, the fear of systemic risk may leave governments little choice but to provide support to systemic financial institutions, even if this means putting substantial public resources at risk.

To be sure, systemic risk is notoriously difficult to define. Paul Volcker likened it to Justice Potter Stewart's definition of pornography: You know it when you see it.[13] This may be true, but it is not a very helpful basis for building a coherent supervisory system.[14] The standard working definition of systemic risk was provided in the Group of Ten's *Report on Consolidation in the Financial Sector* (2001, p. 126):

> 'Systemic financial risk is the risk that an event will trigger a loss of economic value or confidence in, and attendant increases in uncertainty about, a substantial portion of the financial system that is serious enough to quite probably have significant adverse effects on the real economy.'

This definition has two important implications. First, to qualify as systemic risk, the shock must be associated with the possibility of a contagious loss of value or confidence that spreads to other parts of the financial system and may disrupt financial activity well beyond the location of the precipitating shock.[15] Second, the disruption of the financial system must be so grave that it is likely to cause a substantial decline in real economic activity.

The problem with this definition, as Kane (2010) has noted, is that to be useful in controlling systemic risk it must lead to a verifiable metric.[16] The inclusion of terms like 'quite probably', 'possibility of a contagious loss of value', and 'likely to cause', makes it very difficult to verify whether an incident is systemic or not.

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11 Policy-makers are understandably risk-averse when they think that withholding support may set off a systemic crisis, and so are vulnerable to being pressured by financial markets and large institutions specifically (and have an obvious interest in collecting subsidies). The next section describes work underway to reduce such linkages, lower the impact of linkages, increase the transparency, and reduce the information and other disadvantages of the authorities that leave them vulnerable to this kind of uncertainty.

12 Some of these points of vulnerability arise from the parts of the international financial infrastructure that must be kept functioning even during a crisis. The next section notes some international efforts to deal with this problem although we shall focus on these critical parts of the infrastructure that are controlled by particular large complex financial institutions.

13 Some scholars would argue that Volcker has seen systemic risk when it was not there. See, for example, Kaufman's (2004a) critique of the bailout of Continental Illinois.

14 Peter Wallison (2009a) has argued, 'While the terms "systemic risk," or "systemic breakdown" can be defined in words, they cannot be used as an effective guide for policy action. We have no way of knowing when or under what circumstances the failure of a particular company will cause something as serious as a systemic breakdown – as distinguished from a simple disruption in the economy.'

15 This assumes that the financial system is reasonably competitive. If, instead, a financial system is heavily concentrated, the collapse of a single firm may qualify as a systemic event. This may be a problem in particular, small countries, but it is certainly not the case for the international financial system.

16 John Taylor (2010), after reviewing the empirical literature concludes that systemic risk is still not well defined and that 'reform proposals that rely on systemic risk to determine in advance whether a firm should be deemed systemically significant are not ready for prime time. They should be shelved until an operation definition is available'. Nonetheless, we believe that it is possible to identify in advance at least some of the institutions that have the greatest potential to cause systemic problems.

Faced with lack of information and limited understanding of what might happen tends to make the authorities understandably risk averse. Uncertainty is inherent in policy-making, but it can mean that authorities intervene to support insolvent institutions that may not be systemic because they cannot determine who is a systemic risk.

Some experts have argued that it is impossible to define SIFIs because no one can provide an operational definition of systemic risk. They argue that the reason it is impossible to define a SIFI is because so much depends on the particular circumstances.[17] Still others contend that even if SIFIs can be identified, this information should not be made public because it would exacerbate moral hazard.[18] If SIFIs were to be identified and subjected to heavier compliance costs or harsher regulations, some institutions would be tempted to game the system by shrinking just below the threshold or withdrawing from some systemically important activity.

While recognizing that no definition will be perfect, we think that it is possible to identify such institutions by their characteristics. Indeed, much work is underway to define the attributes of SIFIs in order to help pinpoint which institutions are most likely to cause significant spillovers in the financial system (see IMF, 2010 for further analysis on how to define and measure the systemicness of financial institutions).

What are the key characteristics of a financial group that may give rise to significant, damaging spillovers? The IMF/FSB/BCBS (2009) paper on systemically important financial institutions provides a good starting-point, and we will expand on that list to address some specific issues related to the cross-border context. The merit of the following list of characteristics is that they are generally accepted and fairly easily quantifiable, which means that cross-country comparisons can be made with comparative ease.[19]

1. Size relative to the economy in which it is headquartered.
2. Complexity as measured in terms of the number of affiliates.
3. Complexity as measured in terms of operational and financial interdependencies among affiliates and between the parent and affiliates.

17 The examples that are often mentioned to support this view, however, are usually examples of weaknesses in the official framework for dealing with institutions – e.g., Northern Rock would not have been a systemic problem except that it exposed a fatal weakness in the British deposit insurance system – or because the authorities have intervened in an unexpected way – e.g., Herstatt would not have been a systemic problem if the German authorities had waited until the end of the clearing and settlement day in New York before closing the bank. The other category that is difficult to capture is multiple smaller firms that all take the same position as in the US S&L crisis, but this too was a regulatory enforced vulnerability to a real estate shock.

18 It also implies that information from debt markets is not very useful to the extent it reflects the expectation of a government bailout. In the recent crisis all of a troubled bank's counterparties and debt holders have been bailed out, except in the case of Lehman Brothers. On the other hand, shareholders were almost always given a substantial haircut or wiped out.

19 As we note in Chapter 4, it leads to a slightly different list of institutions than the Financial Times identified as 'systemic'. Nor should this list be considered exclusive as some institutions may be systemic for other reasons or circumstances.

4. Performance of functions which are systemically important to the maintenance of the international financial infrastructure, such as being a major factor in the custody business or in clearing and settlement.
5. The number of regulatory agencies and/or courts that would have to approve a resolution of the group. This is a function of the number of countries in which offices are located and the number of regulated businesses in each country.

Each institution could be scored along each of the five dimensions (which are also important components of the resolution planning advocated in Chapter 4). The institutions that receive the highest scores on these characteristics would be termed potential SIFIs and would be distinguished from other financial institutions. Most of these will also have a large international presence.

This process should not only prove helpful in defining the individual institutions that are most likely to create damaging spillovers, it should also help in allocating supervisory resources more rationally since these institutions should receive the greatest supervisory scrutiny.

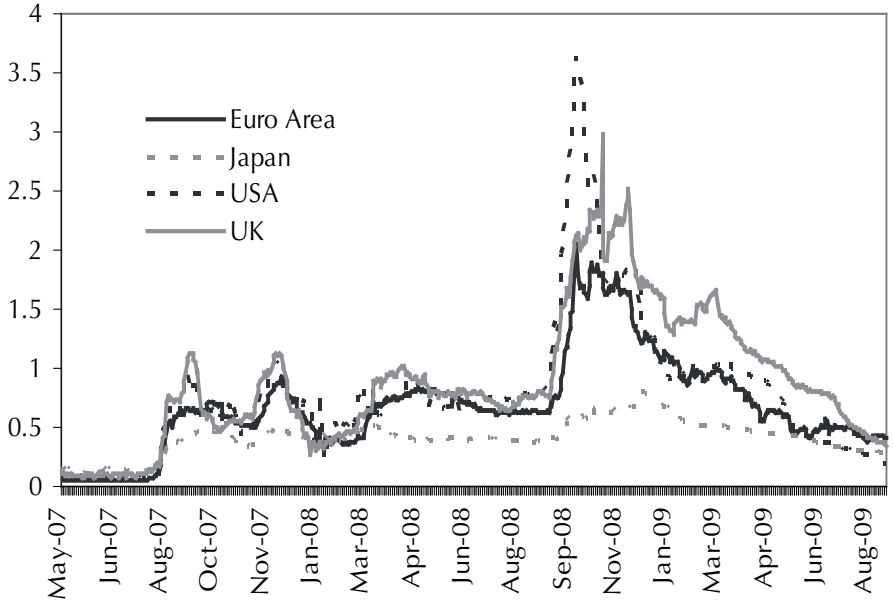
1.4 International financial stability and costs of crises

Increased financial integration has led to increased international risk sharing, competition and efficiency. Cross-border banking has contributed to these benefits, in normal times, and even during times of stress (see Claessens, 2007 and Chopra, 2008 on the general experiences with foreign banking; Navaretti et al., 2010 analyses the experiences with multinational banking in Europe during the recent financial crisis). But as a counterpart it has also created a higher risk of transmitting financial and real shocks across borders. During the recent financial crisis, cross-border spillovers intensified in an unprecedented way. The spillovers, which occurred through many channels during the various phases of the crisis, significantly amplified the economic and social costs of the crisis (for review of the various causes of the crisis, see Calomiris, 2009).

Uncertainties about the incidence of shocks created asymmetric information that made creditors less willing to extend credit, even in the interbank market. Schwarz (2009) shows that interest rates – including those in the international interbank market – rose dramatically as the result of heightened expectations of default. Rising liquidity risks produced a global scramble for cash and increasingly demanding haircuts on the collateral used to mitigate counterparty risk. The ramification of the liquidity squeeze affected all global financial institutions through their direct counterparty exposures to one another. It also exerted an impact on balance sheets through the effects on the prices of risky securities, and the volatility of exchange rates.

The collapse of Lehman Brothers further heightened risks, not only because of the dislocations and confusion specifically related to Lehman's disorderly resolution, but also because of the heightened uncertainty about public policy regarding future interventions. In the United States, for example, there was no clear understanding as to why Bear Stearns had been saved but not Lehman, or

Figure 1.5 Interbank Spreads



Source: Bloomberg

why just two days after Lehman's bankruptcy, AIG received an unprecedented bailout. Nor was there much confidence in the asset purchase plan advocated by the Treasury (which ultimately was not used as originally proposed). These concerns amplified the flight to quality and deleveraging, which produced massive sell-offs of risky assets and collapsing prices for stock and debts (Figure 1.5).

As the crisis was unfolding, there appeared to be decidedly limited coordination among countries – or within countries, as deposit insurance agencies, lender of last resort facilities, and specialized regulators at times failed to work together effectively. There were often slow reactions to unfolding events due to a lack of pre-existing plans for the resolution of institutions. In short, recognition of insolvency problems at large financial institutions was delayed and resolution proved haphazard in practice. All in all, 2008 saw some 16 'failures' (involving bankruptcy, conservatorship, government takeover or assisted merger) among the top 100 global financial institutions, more than in the 20 preceding years combined.

Part of this reflected the difficulty of managing the issues that arose from increased cross-border complexity. Since policy approaches varied among countries, this required modifications and rounds of international coordination, and it led to unease in financial markets regarding the viability of some internationally active banks. Disappearing market confidence and eroding trust in financial markets culminated in the decisions by various national authorities to intervene in a number of SIFIs.

Table 1.3 The costs of banking crises

	Gross fiscal costs	Increase in public debt	Output losses
		Medians in % of GDP	
Old crises			
Advanced economies	3.70	36.16	32.90
Emerging economies	11.45	12.67	29.41
All	10.00	16.29	19.49
New crises			
Advanced economies	5.85	24.92	28.34
Emerging economies	4.80	21.61	2.73
All	4.90	24.40	27.28

Notes: Gross fiscal costs include direct public sector outlays (up to end-2009 for new crises). The increase in public debt measures the change in public gross debt-to-GDP ratio between t-1 and t+3, where t is the crisis year, using projected figures for the recent crisis. Output losses are the percent deviation of actual real GDP (with actual GDP for the new crises assumed equal to April 2010 IMF World Economic Outlook projections) from its long-run trend, computed using the HP filter over the 20-year period prior to the crisis. New crises episodes include the 2008-09 crises in the U.S., the UK, the Netherlands, Austria, Germany, Belgium, Luxembourg, Ireland, Iceland, Denmark, Ukraine, and Mongolia. All data are medians.

Source: Laeven and Valencia (2010)

Several governments provided extensive support to their financial sectors, and SIFIs in particular, in the form of capital injections, asset purchase and protection schemes, guarantees, and the provision of liquidity. In addition to liquidity support from central banks, several countries also expanded deposit insurance coverage. The advanced economies, which were more affected by the crisis than most emerging economies, provided extensive support to their financial sectors, with contingent liabilities adding up to some 25% of GDP (Laeven and Valencia, 2010; Bank of England, 2009 reports total support to have been $13 trillion).

The final net costs of these government interventions will turn out to be much lower than this sum, but the extent of the ultimate costs was not known in advance, so taxpayers were asked to assume huge unknown resolution costs. Furthermore, the wider fiscal, economic and social costs resulting from the severe decline in economic activity caused by the financial crisis are much higher than the direct costs of government assistance to financial institutions. The cumulative output loss in those advanced countries that experienced a systemic crisis (the United States, United Kingdom and Germany) is 27% of GDP. In addition, the fiscal policies associated with the automatic and discretionary stabilization measures significantly accelerated the secular increases in government debt that were already underway.

This experience of sizeable direct and indirect government expenditures and economic costs is, of course, a familiar part of the financial crises in recent decades (Laeven and Valencia, 2008; Calomiris, 2009; Reinhart and Rogoff, 2009a). The direct fiscal cost of systemic financial crises for advanced countries and emerging markets has typically been 4% and 11% respectively (Table 1.3; see further Laeven and Valencia, 2010). The impact on public debt around the time of the crisis, as

measured by the change in the public debt-to-GDP ratio between the pre-crisis year and 4 years later, has typically been some 36 percentage points of GDP for advanced countries and some 13 percentage points for emerging markets. The real output losses, measured as the cumulative percentage deviation of actual GDP from its long-run trend over the 4-year period beginning with the crisis year, has typically been 33 percentage points of GDP for advanced countries and 29 percentage points for emerging markets.

1.5 State of affairs in terms of regulatory responses

The financial crisis has exposed many flaws in both the macroeconomic policy frameworks and the institutions and rules that govern banking supervision. It has also raised moral-hazard problems as a result of government subsidies for assuming risk, including too-big-to-fail protection in many countries and mortgage risk subsidization via various public policies in the United States prior to the crisis). It has shown the limits of traditional macroeconomic policy measures in dealing with the deep recessions associated with severe financial crises. National regulation and supervision frameworks failed to stop the build-up of vulnerabilities that proved to be systemic (New York University Stern School of Business, 2009; IMF, 2009b).

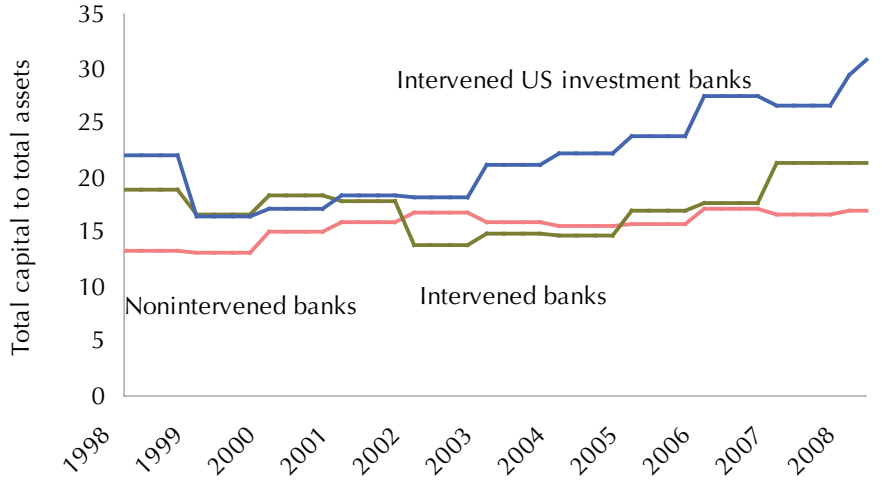
At the international level, the crisis made clear that the public sector has failed to integrate regulation, supervision and resolution as thoroughly as the private sector has integrated its operations globally. Consequently, there have been new calls for an improved international financial architecture and more global coordination of financial policy. The growing need to confront the issues raised by large cross-border financial institutions has become even more clear during the recent crisis when the impact of the deficiencies in dealing with these cross-border institutions was felt everywhere.

One struggle in guiding these reforms is to identify the right mix of independent national actions and international coordination to restore stability and efficiency to the management and regulation of global financial institutions. Much of the improvement in the regulation of cross-border financial institutions will have to be sought through the actions of individual nations, building on those national elements that have worked reasonably well.

There are many opportunities here. For example, rules calling for well-capitalized and transparent banks to adhere to sound corporate governance and accounting standards, macro-prudential improvements that would mitigate the pro-cyclicality of prudential regulation, and various other reforms will help reduce the challenges created by cross-border financial institutions. Furthermore, competition among nations in regulation and supervision can be helpful in identifying and spreading best practice. To a large degree, nations can move independently and still improve the functioning of the global financial system.

There are concerns about global financial institutions that are not necessarily eased by global approaches. Moreover, although domestic reform does not require it, agreements on common standards and practices can facilitate the

Figure 1.6 Intervened versus non-intervened banks



Note: The ratios of non-intervened banks, intervened banks and intervened US investment banks are the average of all institutions in each category.

Source: IMF (2009c), Chapter 3, p. 7.

domestic reform processes. The specific menu of desirable reforms cannot be a repeal of global financial integration. Rather, the answer is that both national and international reforms are needed. The current national and international agendas reflect that assessment (see Box 1.1). Initiatives involve a range of micro and macro prudential initiatives in such areas as supervisory cooperation and crisis management.

However, there are limits to what regulation and supervision can achieve in reducing the risk that a financial crisis will occur or that a major financial institution will fail. The limits of existing regulation are aptly illustrated by a comparison of the capital ratios of financial institutions which faced government intervention and those which did not (IMF, 2009c). Intervened banks actually showed higher capital adequacy ratios before the crisis than the non-intervened banks (Figure 1.6).[20] But it is clear that capital regulation alone cannot protect the system. It is essential to enhance resolution policies to deal with the inevitable failures.

20 This is regardless whether one uses the tier 1 capital-to -asset ratio instead of the capital adequacy ratio.

Box 1.1 State of affairs on regulation and supervision as it relates to SIFIs[21]

- **Micro-prudential regulation.** One focal point of the regulatory response to the 2007–2009 crisis is the Basel Committee's proposal to strengthen the capital framework and introduce new global liquidity standards. A number of modifications to existing requirements will affect SIFIs more than other institutions because of their complex capital structures and lines of business. The proposed enhancements of current capital standards encourage greater use of central counterparties (CCPs) by lowering risk weights for transactions involving CCPs and raising requirements on bilateral over-the-counter (OTC) derivative exposures. Introducing a leverage ratio will help contain growth within reasonable boundaries and avoid gaming of regulatory measures by employing a simple transparent measure based on a gross exposures capital base. The Basel Committee's proposed liquidity framework includes a minimum liquidity standard which takes into account a stressed liquidity coverage ratio and a longer-term structural ratio for internationally active banks.
- **Macroprudential regulation**. In a number of jurisdictions, efforts are underway to establish system-wide oversight and macro-prudential policy arrangements. For example, the EU is establishing a European Systemic Risk Board (ESRB) that will be responsible for the macroprudential oversight of the EU financial system. The ESRB would collect and analyse all of the relevant information required to assess potential threats to financial stability arising out of macroeconomic developments as well as from developments within the financial system. It would issue warnings when risks are deemed to be significant and issue recommendations for action to deal with these risks.
- **International initiatives.** The IMF/BIS/FSB joint paper issued in October 2009 set out a framework for assessing a firm's systemic importance. Current work is building on this paper and attempting to calibrate a firm's size, substitutability, and interconnectedness on a continuous scale. The Financial Stability Board (FSB) has been working with its members to advance international policy initiatives to address the moral hazard arising from SIFIs. This work has three main objectives:

  (i) reducing the probability and impact of failure;

  (ii) improving the capacity to resolve firms in crisis; and

  (iii) reducing interconnectedness and contagion risks by strengthening the core financial infrastructures and markets.
- **Supervisory cooperation.** Supervisory colleges have already been established for SIFIs identified by the FSB as needing college arrangements (FSB, 2009b). In the EU, all European cross-border banking groups will need to have a college in place by the end of 2010 under the Capital Requirements Directive. Meanwhile, the Solvency II Directive requires that colleges be established for all cross-border insurance groups by the end of October 2012.
- **Crisis management.** The FSB Principles for Cross-border Cooperation on Crisis Management call for the establishment of firm-specific cross-border crisis management groups composed of representatives from supervisory agencies, central banks and resolution authorities from the key home and host country jurisdictions. According to the FSB, work is underway to promote contingency planning for all major global financial institutions. Meanwhile, within the EU, cross-border stability groups are being established for all major European financial groups.

21 See further FSB (2009a, 2009b and 2010). The FSB is scheduled to issue its recommendations to the November 2010 G-20 Leaders Summit.

1.6. Organization of the report

In the next chapter, we describe the 'trilemma' facing global financial regulation: The goals of advancing cross-border banking, global financial stability, and national regulatory authorities are not always mutually consistent. In Chapter 3, we will offer case studies of some of the most important failures of global institutions during the recent crisis. That chapter not only illustrates the variation in approaches that were taken, but also the costs of the deficiencies in national and international institutional frameworks for dealing with SIFIs.

The discussion of the trilemma and the case studies clarify the challenges facing policy-makers. Improved national early intervention and resolution policies to prevent burdens are key with resolution frameworks to be improved in all countries. The need for domestic reform of resolution processes and other related regulatory reforms is presented in Chapter 4.

Such policies are not sufficient to address all the problems of cross-border financial institutions. There are still coordination issues among nations, in terms of cooperation on regulation and supervision during normal times, and on burden sharing during times of financial stress. These coordination issues can be reduced to some degree through three steps: improved and converged national rules, especially regarding resolution; better resolution plans and simpler structures for SIFIs; and an enhanced set of rules governing resolution of cross-border financial institutions.

Even with these changes, however, there will inevitably be cases where SIFIs run into trouble, and governments need to provide working capital and some risks. In cases of cross-border financial institutions, differences in burden sharing will then arise, and this will lead to coordination problems, unless a sharing arrangement has been agreed upon beforehand. When possible, these issues are better resolved *ex ante* rather than attempting to improvise an *ex post* solution.

The challenges will differ from country to country, but there is much scope to develop more effective measures for reducing the probability that a global institution will fail and also to develop more effective means of resolving their operations. For some countries, there is additional scope for cooperative approaches. For others, the approach will be to operate within the framework of established national sovereignty. Chapter 5 summarizes these alternative approaches for coming to grips with the global financial trilemma.

2 Cross-border Resolution: The Financial Trilemma

The costs associated with major financial crises are not only large but far-reaching. They not only affect financial institutions and their creditors and stakeholders, they also extract a toll from taxpayers and the real economy. One aim of regulation is to internalize these negative externalities. This can be done by reducing the incidence of distress at individual financial institutions and by intervening in an efficient manner if insolvencies or financial crises do occur. However, these objectives are complicated by the rise of large cross-border banks which operate on a global scale across several jurisdictions. Most national authorities generally only address the spillover effects generated by a distressed bank within their national perimeter and ignore cross-border spillover effects.[22] Those who seek to reduce these international externalities while also achieving other policy objectives, such as improved financial integration, must address what we have labelled a 'trilemma' head on.

The trilemma arises because three principal policy objectives – preserving national authorities, fostering cross-border banking, and maintaining global financial stability – are not always mutually consistent. One reason for this is that the endgame, the resolution of failing banks, is not well defined at a cross-border level. To date, resolutions, ranging from outright bankruptcy to government-led restructurings, have largely taken place along national lines. This is to be expected. Insolvencies and bankruptcies are dealt with by national courts and resolution agencies based on national legislation. The dominance of the national perspective arises because the direct costs of resolution have been borne by domestic taxpayers, so authorities have tended to focus on minimizing the local impact of any failure. This, in turn, means supervision will be nationally oriented. And that creates the trilemma.

So far, solutions to this trilemma have been sought by enhancing international coordination of regulation and supervision. But these approaches will not suffice. Regulation and supervision need to be integrated with resolution in order to enhance financial stability. While a number of rescues have been improvised,

22 There are variations, however, across countries and across time. Apart from Lehman Brothers, which was not a bank, the United States has always intervened to protect all creditors and counterparties of US banks, even very small ones that were not remotely systemic in the United States and it improvised an unprecedented bailout of AIG. It also arranged a private-sector bailout of LTCM, a hedge fund. Aside from Lehman Brothers, however, there have been many other cases in which countries have let foreign subsidiaries or even branches fail without assistance from the home country. Among the most notorious have been the recent Icelandic banking crisis and Banco Ambrosiano.

they are often very expensive, as measured by actual outlays and by the damage done to market discipline. Without an understanding of a plausible endgame for each SIFI, one which spells out procedures that would be undertaken and indicates where the losses are likely to fall, it is impossible to make a rational choice about what institutions need to be supported and how the financing should be provided.

Given the complexity of contemporary SIFIs and their international engagement, it is not only clear that improved resolution procedures are needed at the national level but also that they must be better harmonized with those abroad. Effective resolution of cross-border financial institutions requires a degree of coordination between national authorities that genuinely reflects mutual national interests. It should include an understanding of the extent to which losses will be shared. It is equally important to understand which countries will want to ring-fence assets so that appropriate adjustments can be made in the way each part of the SIFI is supervised.

2.1 Cross-border externalities are ignored by national authorities

The potential failure of a bank can generate negative externalities by affecting other banks and the real economy. There are several reasons for such externalities (reviewed in the 2009 Geneva Report by Brunnermeier et al., 2009). Externalities are spillover effects which markets cannot solve. When assessing the private costs of a bank failure, market participants do not consider the wider impact on the financial system through the exposure or information channels. Governments try to incorporate these externalities in their actions and decision-making. The challenge banking supervisors face is that they do not want to undermine market discipline by intervening unnecessarily, yet they are often uncertain about the potential damage externalities may cause. In most nations, private sector solutions to financial system problems are the preferred route; public intervention is considered only when there are substantial negative externalities. And even then, it is thought that governments should not bear the full loss if they expect market discipline to be effective in the future. When a rescue is undertaken, shareholders and junior debt-holders should lose money first. However, that has not happened during the recent financial crisis. Aside from the Lehman Brothers failure, no creditor or counterparty lost money in a SIFI. An improved resolution process for SIFIs is needed to address this moral hazard problem (see Chapter 4).

How, in a world with cross-border financial institutions, can transnational externalities be addressed? National authorities will inevitably place a priority on their domestic objectives (Hardy, 2009; Herring, 2007; Schoenmaker, 2010b). These objectives include safeguarding the domestic financial system and minimizing the costs incurred by taxpayers for recapitalization or insolvency. Guided by these objectives, national authorities typically only take into account externalities in their own national financial system while cross-border externalities are often ignored (Schoenmaker and Oosterloo, 2005). This leads to

globally inefficient outcomes, as several theoretical analyses show (e.g., Freixas, 2003). But others, including Kane (2009) and Herring (2009a), have argued that bailouts tend to be overprovided because resolution policies are so weak and ineffectual.

Several authors have applied game theory to a bank recapitalization in order to model the impact of externalities in a multi-country setting (e.g., Freixas, 2003; Schinasi, 2007; and Goodhart and Schoenmaker, 2009). In these models, the decision rule is that it is only socially optimal to recapitalize a failing bank when the benefits of preserving financial stability exceed the costs of recapitalization; otherwise the bank should be put into liquidation. In a single country setting, national authorities can make this welfare calculation and reach the appropriate solution. In a multi-country setting, however, this decision rule can result in an undersupply of bank recapitalizations because national authorities have an incentive to play down their share in potential recapitalizations. Since the home country typically has the largest stake in the game, their choices are reduced to deciding whether to rescue a failing bank as a whole or to let it fail. Thus, the externalities in the home country are weighed against the total cost of recapitalization, ignoring the global impacts.

2.2 Potential for conflicts of interest between national authorities

In a more general setup, whether or not there will be an undersupply of recapitalization for cross-border institutions depends on the overlap of national interests.[23] When national interests diverge, there may be no motivation for cooperation. When national interests converge, there is a possibility of a joint solution for a failing cross-border bank. One key issue determining the overlap of national interests is whether the bank is systemically important in either or both of the countries involved. When the banks has asymmetric positions, coordination problems can arise, as formally modelled by Freixas (2003).

Coordination failures can, however, also occur when the systemic relevance (and thus the potential level of externalities) is large in both the home and host countries. This is because other interests may still conflict, thus leading to overall coordination failures. Herring (2007) lists three additional asymmetries between home and host countries that may create further conflicts of interests.

The first is an asymmetry of resources. Supervisory authorities (as well as central banks, deposit insurance funds and fiscal authorities) may differ in terms of staff skills and financial resources. This means that even if the fundamental conflicts of interest could be set aside, the home country supervisory authority may not be able to rely on the host country supervisory authority (or vice versa) simply because it may lack the capacity to provide effective oversight.

23 In addition to the potential cost of recapitalization, various authorities may value domestic financial stability differently, which can create further externalities. Consider one country that is willing to take more risk domestically because it has a more diversified real economy. Its financial sector risks can then spill over internationally, even when it does not consider recapitalization costs.

Second there may be an asymmetry in the accounting, legal and institutional infrastructures. Weaknesses in accounting standards and in the quality of external audits may impede the efforts of supervisors in a country just as informed, institutional creditors and an aggressive and responsible financial press may aid them in another country. The legal infrastructure matters as well: inefficient or corrupt judicial procedures may undermine even the highest quality supervisory efforts. In short, differences between countries in these attributes create asymmetries in responses.

Third, there may be a differential impact of national resolution regimes, which can vary greatly. Triggers for filing for bankruptcy vary across countries. The question of which entity files for bankruptcy, when, and where may all have a profound influence on the allocation of losses. In addition, ring-fencing of assets may make creditors in one jurisdiction better off than they would be in a coordinated resolution. This may be perceived as unfair and generate a race for assets that can disrupt markets and make national responses hard to coordinate. The larger the difference in rules, the greater is the scope for coordination failures.

The key issue in overcoming these asymmetries in national interests is whether the bank is systemically important in either or both countries. The various possibilities are arrayed in Table 2.1 where the columns indicate whether the parent bank is of systemic importance to the home country. The rows indicate whether the host country entity can be considered to be of systemic significance to the host country.

In case (d), conflicts of interest are not likely to be a problem. In this case, the local entity is not of systemic importance in the host country. Therefore, apart from issues that might raise concerns about the reputation of the host country's financial system, its supervisors will lack an incentive to take an active role in supervision. Moreover, the bank is not sufficiently large to be systemically important in its home country. As a result, both the home and host country supervisors are likely to exercise relatively light oversight. And if a troubled entity

Table 2.1 Alternative patterns of asymmetries

	HOME country/parent bank	
HOST country entity	Systemic	Non-systemic
Systemic	(a) Potential for coordination	(b) Conflicts of interest and potential for coordination problems
Non-systemic	(c) Conflicts of interest and potential for coordination problems	(d) Not a big problem

Source: Herring (2007).

does not pose a systemic risk in either the home or host country, the situation is not likely to pose a serious threat to the international financial system.

The most difficult situations are likely to arise when supervisory responsibility for managing the resolution process and meeting its cost are misaligned. From the home country's perspective, the worst case is (c) where a foreign office is not regarded as systemically important by the host country, but is a significant part of a systemically important bank in the home country. Regardless of whether the foreign entity is a branch or a subsidiary, the home country may feel that it needs to have primary supervisory oversight of this foreign entity. The Basel Concordat on Supervisory Coordination not only provides it with the right but also the responsibility to do so in the case of a branch. The situation is a bit more ambiguous with respect to a subsidiary, because both the home and host country can claim to be the primary supervisor.

Case (b) represents the biggest nightmare scenario for host country supervisory authorities. In this case, the foreign entity is assumed to have a large enough role in the local market to be systemically important, while at the same time, the parent banking group is not systemic in its home country. In this case, the home country lacks an incentive to exercise strong, consolidated supervision, creating risk for systemic stability in the host country. This kind of situation is increasingly prevalent in Central and Eastern Europe, Latin America, Africa and to some extent in emerging Asia. The situation becomes a bit more tractable when the foreign office is systemically important to the host country and also large enough to be economically significant to the parent banking group. Although the parent banking group is not considered to be of systemic importance, the fact that the foreign entity is a significant part of the banking group may elicit more attention from the home country supervisor (see the case study on Western banks in Central and Eastern Europe in Chapter 3).

Case (a) may lead home and host countries to coordinate supervision because the entity is assumed to be both systemically important in the host country and of economic significance to a systemically important bank in the home country. As a result, both the home and host country will have an incentive to supervise the entity intensively. Although this may result in some conflicts, it is unlikely to result in large gaps in supervisory attention. Nonetheless, cooperation and joint actions may, but not necessarily, occur in all cases. In Chapter 3, there are examples of diverging national interests, such as the handling of Lehman Brothers by US authorities and the 49 other countries around the world in which Lehman operated. There have also been examples of largely converging national interests, such as the handling of Dexia by Belgian and French authorities.

The Fortis case illustrates the way in which other factors can play a role in creating coordination problems. Belgian and Dutch authorities have had a long tradition of cooperation, but Fortis was systemically important in both Belgium and the Netherlands. The Belgian authorities wanted to rescue Fortis as a whole, keeping the home base in Brussels while the Dutch authorities wanted to return ABN-AMRO, which had just been acquired by Fortis, to Dutch control by divesting it from Fortis. In other cases, cooperation has occurred even when interests were

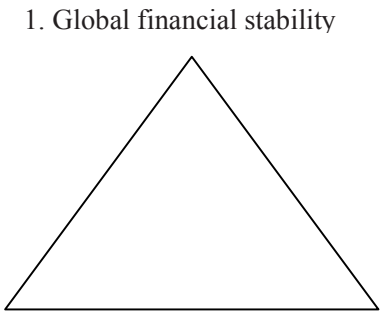
asymmetric, as, for example, in the cases of foreign banks in emerging markets that were large for the local markets, but small by home market standards.

How can these asymmetries in national interests be addressed without imposing excessive compliance costs on SIFIs? This requires addressing the financial trilemma.

2.3 Resolution authorities have to confront a financial trilemma

The Freixas model of cross-border externalities provides the theoretical foundation for the financial trilemma (Schoenmaker, 2010a). The trilemma is that the three policy objectives – maintaining global financial stability, fostering cross-border financial integration, and preserving national resolution authority – do not easily fit together. Figure 2.1 illustrates this financial trilemma.[24] Any two of the three objectives can be combined with relative ease, but it is difficult to achieve all three. The financial trilemma forces policy-makers to make a choice. Maximizing global welfare means considering global financial stability[25] and other global objectives, such as reliability of financial contracting and efficiency of global allocation of funds. As cross-border financial integration progresses, policy-makers will have less scope for independent policy-making, including fiscal independence. That is in particular true for countries within a monetary union.

Figure 2.1 The financial trilemma



Source: Schoenmaker (2010a).

24 In this report, we apply the trilemma idea to the financial sector (Schoenmaker, 2010a). See Rodrik (2000) for an overview of the more general trilemma of monetary policy, international financial integration and exchange rate flexibility in an international environment.

25 Achieving financial stability has several dimensions. At the global level, it means all adverse externalities (both national and cross-border) are taken into account in policy-making. In the case of national financial stability, only national externalities are taken into account. The latter leads to sub-optimal global solutions.

Ultimately, the trilemma boils down to the issue of sovereignty. At one extreme, policy makers can hand over part of their sovereignty to foster global banking and global financial stability. At the other extreme, policy-makers can choose to impose restrictions on cross-border banking to preserve their full sovereignty. The range of conceptual models to solve the financial trilemma goes from national, segmented financial systems to an integrated global financial system with a supranational approach to financial supervision and stability.[26] In between are models which combine various degrees of national sovereignty with various degrees of open global financial markets. Chapter 5 lays out in more detail these models and indicates how they could be applied.

What is the state of the financial trilemma in various parts of the world? The potential for coordination failures in maintaining global financial stability depends on the intensity of cross-border externalities. Cross-border externalities are related to the impact of a potential SIFI failure on the wider global financial system (contagion). And they are also linked to the effects of a potential SIFI failure on the global economy (real effects).

For both the contagion and real effects a SIFI's asset size is often a useful metric for assessing the potential impact of the institution's failure. Assets reflect the size of a SIFI. The contagious impact is partly related to the size of a failing SIFI.[27] On the real side, assets, especially loans, are an indicator of the credit capacity of a SIFI. The availability of credit may be disrupted by a SIFI failure, particularly if it has specialized knowledge about its borrowers (Diamond, 2001). Using assets as a measuring rod is attractive because they are relatively easy to ascertain. But this measure does not capture a SIFI's involvement in capital markets. In the bankruptcy of Lehman Brothers, its liabilities caused a run on a money market mutual fund that had purchased Lehman's commercial paper, ultimately forcing this fund to 'break the buck', that is, reduce its net asset value to less than a dollar a share. Moreover, this run became contagious and many other mutual funds had to respond to rising levels of redemptions by selling their holdings of commercial paper from many issuers (including manufacturing firms). This had an almost immediate impact on the flow of corporate finance, causing damage to the real economy.[28]

Table 2.2 illustrates that European SIFIs have a much larger international presence, as measured by foreign assets (65%), than their American (32%) and Asian (26%) counterparts. Thus, the financial trilemma is most pressing for European SIFIs. The data in Table 2.2 also indicate that the foreign assets of European SIFIs are not only located in other European countries (31%), but also beyond Europe (34%). All European SIFIs have a large foothold in the United

26 See also the Turner Review (2009), which indicates that the current European framework (home country supervision, minimum harmonization of rules, and mutual recognition) is not stable. Turner argues that we need either more Europe (handing in sovereignty by putting supervision at the European level) or less Europe (converting cross-border branches into subsidiaries controlled by the host country).

27 As noted in Chapter 1, size, complexity and interconnectedness of SIFIs are indicators for their potential to cause contagion.

28 By the same token AIG would have been much less important than its assets. The threat it posed, which may not, in fact, have been especially serious, derived from its exposure to derivatives, which were a miniscule part of its overall business. The bulk of its assets were in its insurance units, which were ring-fenced by regulators across America and around the world.

States, and some are also very active in Asia (e.g., HSBC) or Latin America (e.g., BBVA, Santander). The extensive international reach of European banks suggests that resolving the trilemma is most urgent for Europe.

2.4 Working back from the end-game: resolution

The trilemma makes clear that in order for SIFI supervision and resolution policies to be coordinated, an integrated framework is needed. This involves addressing the three typical stages of financial supervision and stability: preventive, remedial and resolution. Table 2.3 presents these stages in a stylized manner.

In the preventive stage, new entrants in the financial system need to apply for a licence and be scrutinized by a supervisory agency. In this stage, the national authorities concerned with cross-border financial institutions are generally the agencies which also supervise financial institutions on a going concern basis. After entry, supervisors perform ongoing supervision by examining financial statements, and they may take disciplinary actions if deemed necessary.

Table 2.2 Specification of foreign business of SIFIs

SIFIs	Percentage of foreign assets	Percentage of regional assets	Percentage of global assets
Americas	32	13	19
Asia	26	9	17
Europe	65	31	34

Source: The foreign assets of SIFIs (taken from Table 1.1) are split into assets in the rest of the region and in the rest of the world. The split is based on international bank data assembled by Schoenmaker and Van Laecke (2007).

Table 2.3 Toolkit for financial supervision and stability

	Preventive	Remedial	Resolution
Supervision of individual financial institutions	1. Licensing 2. Ongoing supervision	1. Internal controls 2. Management 3. Liquidity rules 4. Capital requirements (cross-sectional)	1. Private sector resolution 2. Bankruptcy/restructuring 3. Individual LOLR
Overall financial stability	1. Financial system design 2. Financial stability review	1. Liquidity charge 2. Capital surcharge (longitudinal)	1. General LOLR 2. General capital support

Source: Schoenmaker (2010b).

In terms of overall financial stability, central banks and other agencies examine the robustness of the financial system. If there are weaknesses, they may adapt the infrastructure. For example, they may move to real-time gross settlement for large value payments or establish central counterparties (CCPs) for clearing derivatives. They may also adopt new rules regarding such issues as the treatment of off-balance sheet risks. And they may alter their monitoring of the overall system in various ways. The ongoing monitoring of threats to the stability of the financial system should be published in a Financial Stability Review.

In the remedial stage, supervisors take actions in response to problems that they see emerging. They can, for example, ask for improvements of internal controls, remove managers, and impose sanctions, such as restrictions on lines of business or limits on dividends. Supervisory capital requirements for individual banks typically make distinctions on the basis of the riskiness of assets. Other measures of a cross-sectional and cyclical nature could be considered, as discussed in the 2009 Geneva Report, to address macroprudential concerns. Recently, the Financial Stability Board (FSB) has been discussing whether supervisors could require higher capital adequacy requirements for those banks deemed to be systemic. Liquidity and capital requirements can be important tools in managing overall financial stability. While the macro-level tools for managing the stability of the financial system were extensively discussed in the 2009 Geneva Report, so far no specific proposals have been put forward by policy-makers to deal with the cyclical aspects of financial systems.

In the resolution stage, supervisory authorities have to deal with the weaknesses of financial institutions. In normal times, authorities can restructure financial institutions in many ways. In times of troubled SIFIs, however, procedures become more complex. For example, the roster of national authorities dealing with troubled banks expands to include central banks, ministries of finance, resolution agencies, if any, and bankruptcy courts. The toolkit also expands. It ranges from *private* sector solutions (e.g., a subsidized take-over of a weak bank by another bank) and bankruptcy or restructuring to *public* support of liquidity by the central bank (acting as lender of last resort) or the government providing an injection of capital (De Haan *et al.*, 2009). Liquidity and capital support can be provided directly to individual banks or liquidity can be provided to the market while capital can be made available to a broad range of financial institutions.

The existence of these stages (depicted in Table 2.3) indicates that the different tools in each stage are interrelated and should be considered collectively. Most importantly, the framework guiding interventions at various stages by various actors should be compatible with the incentives being offered. The incentives to intervene using the various prevention and remedial actions will be driven by the perception of the level of financial resources at risk from failing to take proper actions. Consequently, prevention and remedial actions are tightly interwoven with resolution. This view helps to determine how to structure the division of powers in Table 2.3. Goodhart and Schoenmaker (2006) propose a backward-solving approach starting at resolution (the right-hand column in Table 2.3). But in any case, the guiding principle for decision-making in a crisis is 'he who pays the piper calls the tune'.

This interrelation also means that the interventions at each stage should be managed at an appropriate level of authority (Goodhart and Schoenmaker, 2006).[29] Thus, so long as liquidity, capital injections, or other forms of financial assistance or burden sharing are organized and paid for on a national basis, national governments will normally want to oversee supervisory activities.[30] If supervisory responsibilities are not aligned with potential fiscal or financial burdens, supervisors may be tempted to under-invest so that costs can be shifted to other countries. This is also an obstacle to making *ex ante* cross-border agreements. Often the willingness of a government to contribute to the costs of resolution will depend on the cause of the insolvency. If the insolvency can be attributed to faulty supervision in another country, for example, the authorities may be much less likely to willing to share the burden.

2.5 Implications for international cooperation

The analysis makes clear that successful international cooperation depends on three steps:

1. Enhanced national regulation, supervision and resolution to minimize the pressure for international cooperation.
2. Harmonization or coordination of national approaches to reduce the scope for conflicts of interests.
3. Incentives for cooperation between national authorities to increase the scope for cooperative solutions.

The most important step in reducing the need for international cooperation is to enhance regulatory, supervisory and resolution policies. But this requires robust, compatible resolution regimes in the major countries (which will be explored in Chapter 4). For most countries, there is scope to enhance rules on intervening to achieve prompt corrective action at weak banks before they become insolvent. In this regard, the Basel Committee's Pillar 2 was a significant, but missed opportunity. It came very close to adopting a Prompt Corrective Action (PCA) standard. Pillar 2 (Basel Committee, 2006, p. 166) exhorts supervisory authorities to 'undertake prompt remedial action if a bank fails to meet the capital standards set forth in this Framework'. Unfortunately, it did not reinforce this exhortation with policies and procedures that would remove concerns about the frequent tendency for supervisory authorities to exercise forbearance that can lead to large losses at resolution.

The next revision of the Basel Accord should correct this omission and emphasize meaningful prompt corrective action and rapid resolution. This will certainly not eliminate conflicts among supervisors. Indeed, the reality of

29 Taking a different view, Posen and Véron (2009) argue that the arrangements for supervision and stability can be considered separately. In the European context, Posen and Véron propose to move supervision to the European level, while leaving the more thorny issue of burden sharing aside, thus keeping the core of crisis management – capital support by the government – at the national level.

30 See, for example, the arrangements in Europe. Since there is no fiscal back-up for the European Central Bank (ECB), the ECB is happy to let national central banks take the lead on individual lender-of-last-resort operations.

integrated international financial markets requires supervisors to execute such policies in a coordinated way, and this may require many countries to change their laws governing the resolution of banks. However, the potential gains are substantial. Prompt corrective action, strengthened by structured early intervention[31] and rapid resolution measures, will buttress supervisory discipline with market discipline, thus adding force to Pillar 3. When the losses that must be allocated are largely confined to shareholders and holders of contingent capital or subordinated debt, conflicts among supervisors should greatly diminish.

Moving to the second step, so far international supervisory efforts have mainly focused on harmonization of capital adequacy rules and supervisory standards, while bank resolution has largely been neglected.[32] As a result, approaches to bank resolution still differ substantially across countries. For example, there are significant differences among countries with regard to determining at what point a weak bank requires resolution. In many countries, intervention is required when a bank's net worth (which may be defined in a number of different ways) declines to zero or it becomes illiquid (akin to corporate bankruptcy), but in the US (and more recently in the UK, Japan, Korea and Taiwan) supervisors are permitted to intervene at an earlier point. Following earlier banking crises, the United States adopted a Structured Early Intervention and Resolution policy (also known as Prompt Corrective Action), which specifies that corrective action must be taken before net worth reaches zero, when the ratio of tangible equity to total assets falls below 2%.[33] In Switzerland, the authorities may intervene even earlier if they perceive a threat to depositors' interests.

Countries also differ with regard to what entity may initiate the resolution process: It may be supervisory authorities, the courts, creditors, or the bank itself, depending on the country. Clearly cross-border differences regarding how and when the resolution process is initiated can have a significant impact on the allocation of losses and cause delays that will be costly in a crisis. In the event that a bank is declared insolvent, for example, which jurisdiction will be the insolvency jurisdiction? Should it be the place where the bank was chartered, the place where the management resides, the principal place of business, the domain of the largest concentration of assets, or the place where the largest concentration of creditors resides?

The collapse of BCCI revealed that each of these questions may have a different answer. Baxter et al. (2004, p. 61) observe that it is difficult to devise a good jurisdictional rule that 'would be both *ex ante* predictable (to defeat forum shopping or subsequent jurisdictional squabbling) and sensible in application (to discourage name-plate incorporations or prevent unseemly jurisdictional choices)'.

31 See Kaufman (1995) for an analysis of the prompt corrective action, structured early intervention and resolution policy in the US.

32 Examples include the harmonization of rules at the global level (e.g., the Capital Accord and Concordat of the Basel Committee on Banking Supervision; Guidelines of the Financial Stability Board) and at the regional level (e.g. Directives and Regulations of the European Union). This harmonization largely concerns harmonization of capital regulation and rules for supervision.

33 Because it covers only insured banks and does not consider systemic aspects, it has proven hard to apply to SIFIs (see discussion in Chapter 4).

The choice of jurisdiction, however, may have important implications for the outcome of the insolvency proceedings. Most countries have adopted a universal approach to insolvency in which one jurisdiction conducts the main insolvency proceedings and makes the distribution of assets, while other jurisdictions collect assets to be distributed in the main proceedings. But the US follows a more territorial approach with regard to US branches of foreign banks: it conducts its own insolvency proceedings based on local assets and liabilities. Assets are transferred to the home country only if and when all local claims are satisfied.[34]

While greater harmonization *enables* international cooperation, it may not require it. An additional next step is needed to make cooperation actually occur. The Basel Concordat on Supervisory Coordination has given rise to hundreds of Memoranda of Understanding (MoUs) for coordinating supervisory efforts and sharing information across borders. More recently, some of these MoUs have been expanded to include crisis management. The range of signatories has also been expanded beyond supervisors to include central banks and ministries of finance (see, for example, various European Union MoUs). But MoUs are signed on a voluntarily basis. The last article of a typical MoU specifies that the arrangements discussed are not legally binding and thus preserve the sovereignty of national supervisors.[35] Similarly, the Basel Concordat specifies the allocation of supervisory responsibility between home and host supervisors for international banks, but the Concordat does not incorporate mechanisms to enforce cooperation or incentives to induce cooperation.[36]

Experience has shown that in times of stress, information-sharing agreements are likely to fray: bad news tends to be guarded as long as possible.[37] An example is the reluctance of the Japanese supervisory authorities to share with the US authorities their discovery of trading losses in Daiwa's New York branch. A trader in the New York Daiwa office had lost $1.2 billion in a series of unauthorized trades over an 11-year period from 1985 to 1996. When the trader finally confessed, and the home country authorities in Japan were informed, there was a two-month lag before the information was shared with the host country authorities in the United States. This is only one of several examples of home authorities showing reluctance to share information on a timely basis with host country authorities (see the case studies in Chapter 3).

Bank managers are often reluctant to share bad news with their regulators because they fear they will lose discretion for dealing with the problem (and, indeed, lose their jobs as well). Similarly, the primary banking supervisor is likely to be reluctant to share bad news with other supervisory authorities out of concern that the leakage of bad news could precipitate a liquidity crisis or that the other supervisory authority might take action that would constrain the primary

34 Baxter et al. (2004, p. 61) note that in the United States, although the nationality of creditors is irrelevant, 'only creditors of the local branch of the insolvent firm may participate … On the asset side, the insolvency official asserts jurisdiction over all local assets and assets outside the jurisdiction that are "booked" to the jurisdiction.'

35 As noted during the presentation of the draft report, hundreds of MoUs were signed, yet none was used during the crisis.

36 The literature on mechanism design can help to devise appropriate incentives for cooperation.

37 As Baxter et al. (2004, p. 79) note, 'Once the bank's condition degrades, supervisors think less about monitoring and more about protecting their creditors. This creates a conflict among supervisors.'

supervisor's discretion in dealing with the problem or exercising forbearance. Often, the primary supervisor will use its discretion to forbear as long as there is a possibility that a bank's condition may be self-correcting, particularly if the alternative is closing the bank.[38] A decision to close a bank is sure to be questioned, so supervisors will tend to forbear until losses are so large that there can be no reasonable doubt that the institution is insolvent. Losses that spill across national borders, however, will intensify conflicts between home and host country authorities and make it difficult to achieve a cooperative resolution of an insolvent bank (as discussed in Section 2.1). Thus, international cooperation may break down precisely when it is most needed (Herring, 2007).

Finally, the interrelationship between the various interventions and the need to work backwards from the resolution stages and associated burden-sharing also applies to the design of the institutional environments. So long as bankruptcy and restructuring procedures for cross-border banks are anchored in national jurisdictions, the resolution of cross-border SIFIs has to be done at the national level. And as long as the legal mandates and accountability for resolution are derived from national frameworks, it is unlikely that remedial interventions will be focused on achieving globally efficient outcomes. Only when resolution of cross-border banks by national authorities is coordinated internationally, whether that means at a regional or global level, are national supervision and stability efforts likely to be adequately coordinated at the regional or global level.

Summing up, the necessary steps to improve the resolution process require (1) enhanced regulation, supervision and resolution to minimize the costs of failure, (2) harmonization of national resolution approaches, and (3) a focus on mechanisms that incentivize international cooperation.

38 Supervisors are more likely to be criticized for bank failures than for the resources wasted in letting an insolvent institution continue operations and so this reinforces the tendency to forbear.

3 Cross-border Resolution: Case Studies

The 2007–2009 financial crisis highlighted the lack of an effective crisis management framework for cross-border financial institutions. While approaches differed from country to country, broadly speaking authorities either used public money to bail out banks or they sought to ring-fence a bank's assets within their territory and apply national resolution tools focused at the level of the entity within their territory rather than at the level of the cross-border group.

This country-by-country approach undermined confidence in the international financial system and enlarged competitive distortions while increasing bailout costs borne by taxpayers as well as legal uncertainty. The events surrounding the failures of Fortis, Lehman and the Icelandic banks in the recent financial crisis illustrate how much damage the absence of an adequate cross-border resolution framework can do to the stability of the global banking system. By contrast, authorities reached a cooperative solution in the bailout of Dexia and the continuation of Western bank operations in Central and Eastern Europe.

In this chapter, we will review several major cross-border bank failures to examine (1) the causes of the failures; (2) the reasons for international cooperation, or the lack of it; (3) the inadequacy of national resolution powers, and (4) the impact on global financial stability. We classify the case-studies in line with Table 3.1 (reproduced from Chapter 2). In the final section, we draw some conclusions from the case studies.

Table 3.1 Alternative patterns of vulnerability

	HOME country/parent bank	
HOST country entity	Systemic	Non-systemic
Systemic	Potential for coordination	Conflicts of interest and potential for coordination problems
Non-systemic	Conflicts of interest and potential for coordination problems	Not a big problem

3.1 Case studies of cross-border bank failures

3.1.1 Lehman Brothers[39]

Causes

In 2008, Lehman Brothers was the fourth largest investment bank in the United States. It was more than twice as large – and twice as complex – as Bear Stearns, which had agreed to a subsidized, shot-gun merger with JPMorgan Chase in March of 2008 after it became unable to meet calls for additional collateral. According to the Basel Committee on Banking Supervision, the Lehman Brothers Group consisted of 2985 legal entities in 50 countries, and many of these entities were subject to host country national regulation as well as supervision by the US Securities and Exchange Commission (SEC).[40]

In 2006 Lehman had made a deliberate decision to embark on an aggressive growth strategy, and to take on greater risk by substantially increasing its leverage and making concentrated bets on commercial real estate, leveraged lending, and private equity-like investments. These undertakings were far riskier than many of its traditional lines of business because instead of simply brokering transactions, the firm would be holding substantial amounts of risk on its balance sheet. And these risks were financed largely by short-term repurchase agreements often totalling hundreds of billions of dollars per day. In the words of one Lehman employee, they had shifted from the 'moving business' to the 'storage business' (Valukas, 2010, vol. 1, p. 44). Lehman had, in essence, taken on the risk profile of a commercial bank without the benefit of the bank safety net. When the sub-prime crisis erupted, Lehman's management saw it as an opportunity to double-down on their bets, and they consistently violated their declared risk appetite and risk limits to position themselves for a market rebound.[41]

In 2008, just after the demise of Bear Stearns, Lehman announced its first loss since going public in 1994, but the firm was able to raise $6 billion in new capital. Secretary of the Treasury Paulson, in a private communication to the CEO of Lehman, warned that this was not enough and that if Lehman were to announce a loss in the third quarter without having a buyer or a definitive survival plan in place, its existence was in jeopardy (Valukas, 2010, vol. 1, p. 5). However, the Treasury Department did nothing to prepare for such an eventuality by seeking statutory power to intervene – even though it knew it lacked such power.

Lehman Brothers did not succeed in finding a merger partner or in developing a survival plan. Instead it resorted to window dressing its monthly and quarterly

39 Sources: Basel Committee on Banking Supervision (2010), Summe (2010) and Valukas (2010).

40 This is an unusually clear example of the law of unintended consequences. The EU threatened to force the large American investment banks to form holding companies in Europe if they did not submit to consolidated supervision by a competent authority. Although it had no prior experience, the SEC somehow convinced the EU that it was a competent supervisory authority and the five largest investment banks became voluntary Consolidated Entities (CSEs) subject to Basel II capital rules. When they measured their required capital under Basel II the five CSEs discovered that they had considerable excess regulatory capital and quickly doubled their leverage, which was surely not what the EU intended.

41 Lehman exceeded its risk limits by margins of 70% with regard to commercial real estate, and 100% with regard to leveraged loans (Valukas, 2010, Vol 1, p. 50).

reports by arbitraging accounting requirements,[42] and it overstated its liquidity by including 'comfort deposits' that it held with its clearing banks in order to continue clearing operations with them.[43]

Over the weekend of 12–14 September 2008, US authorities met with CEOs of leading financial institutions from around the world to try to broker a merger for Lehman, or at least raise a fund to subsidize a merger for the troubled firm (as had been done for Long Term Capital Management in 1998). At one point on Sunday afternoon, Federal officials believed they had struck a deal with Barclays Capital Management, a deal that would be subsidized by many of Barclays' competitors, but the UK's Financial Services Authority refused to waive the shareholder approval rights required in the United Kingdom. Thus, with no buyer and, the authorities claimed, no way of funding Lehman,[44] the head of the SEC instructed Lehman's board to file for bankruptcy before the opening of markets in Asia, when it would be unable to meet its cash obligations. On 15 September 2009, at 1:45 am, Lehman Brothers Holding Inc. (LBHI) filed for protection under Chapter 11 of the Bankruptcy Act, becoming the largest bankruptcy in US history.

In many respects it is surprising that so many market participants were surprised when Lehman failed. But much of the surprise had to do with a perceived change in US policy that would let a sizeable financial intermediary go under. Many market participants believed that if the authorities had managed to find $29 billion to arrange a merger for Bear Stearns, they would also be willing and able to advance at least $60 billion to save Lehman. It is clear that the market was not surprised that Lehman was insolvent and had been so at several times during the summer. Figure 3.1 below shows the implied market value of Lehman's assets relative to its total liabilities. The administrators of the Lehman bankruptcy in the United States have estimated that at least $75 billion has been wasted because of the complete lack of any preparation for bankruptcy (Cairns, 2009).

Typology

The action that the US authorities took could be interpreted as implying that the collapse of Lehman was not systemically important. But the intensive negotiations they arranged over the weekend suggest otherwise. Moreover, they claimed to have simply lacked the statutory authority to do anything else.

Cooperation

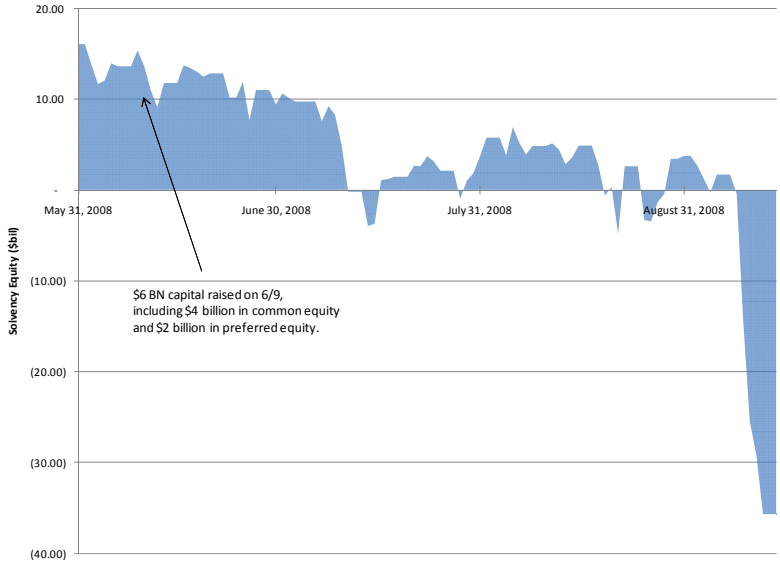
While the US authorities refused to support LBHI, the parent company, they did support Lehman Brothers Inc. (LBI), the US broker-dealer subsidiary, for another five days until it could enter the Securities Investor Protection Act trusteeship on 19 September when its prime brokerage activities, asset management business and a substantial portion of its client's assets and obligations were sold to Barclays Capital Inc. and others. This removed one of the chief systemic

42 Valukas (2010) gives a full account of the so-called 105 repo transactions that could be reported as sales rather than borrowings.

43 By 12 September 2008, two days after it reported $41 billion in its liquidity pool it actually contained less than $2 billion of readily monetizable assets (Valukas, 2010, vol. 1, p. 10).

44 The authorities claimed that they lacked legal authority to make a direct investment in Lehman, and that Lehman's assets were insufficient to support a loan large enough to avoid collapse.

Figure 3.1 The implied market value of Lehman's assets relative to its total liability



Note: The implied market value of assets is equal to the market value of Lehman's equity plus the market value of Lehman's liabilities.

Source: Valukas (2010, Vol 5, p. 1580).

concerns in the United States. The other concern, Lehman's leading role in the opaque OTC derivatives market, turned out not to be a problem. Most derivatives were promptly closed out and netted under ISDA Swap Agreements. Although counterparties were not necessarily happy with the prices they received, there were no knock-on effects attributable to the unwinding of the derivatives book.[45]

The only domestic impact that could be labelled systemic was due to a 'moral hazard' play by managers of the $62 billion Primary Fund, a wholesale money market fund that was forced to 'break the buck' because of its outsized holdings of Lehman's commercial paper (which yielded a return sharply higher than its rating would warrant). News that one of the oldest money market mutual funds had seen the net asset value of its shares fall below a dollar started a run on other money market mutual funds, which led to dumping corporate commercial paper on the market to meet the demand for withdrawals.

The collapse of prices in the secondary market caused the primary market for commercial paper to shut down. Commercial paper is the primary mode of finance for much of corporate America and so the Treasury hastily provided insurance for money market mutual funds. (And to maintain parity, the Federal Deposit Insurance Corporation (FDIC) increased the deposit insurance ceiling from $100,000 to $250,000.)

Still, many observers interpreted this as a successful application of bankruptcy rules to a large, complex financial institution (Ayotte and Skeel, 2010, are a particularly good example). Apart from the unanticipated spillover to the

45 See the appendix by Kimberly Summe for additional details.

wholesale money market and knock-on effect on the commercial paper market, the United States had shown that the economy could function perfectly well without Lehman Brothers.

This relatively orderly outcome was in stark contrast to the chaos created abroad. The immediacy of the impact was in large part due to the highly integrated structure of the Lehman Group. Like many other global financial firms, Lehman managed substantially all of the cash resources centrally at the holding company. Since LBHI declared bankruptcy before cash could be swept out again to the subsidiaries, these subsidiaries found themselves suddenly illiquid and unable to continue operation. Bankruptcy proceedings were initiated in a variety of jurisdictions including Australia, Japan, Korea and the United Kingdom.[46] Because London was Lehman's largest centre of activity outside the United States, many of the problems showed up most vividly there.

The London subsidiaries, including Lehman Brothers International Europe, its largest broker/dealer in Europe, filed for bankruptcy and turned to PriceWaterhouseCoopers (PwC) for administration. Because there is no provision under UK law for DIP (debtor in possession) financing, the administrators had to struggle to find money to fund main basic functions, including even the employee cafeteria. PwC was confronted with 43,000 trades that were still 'live' and would need to be negotiated separately with each counterparty.

The integration of the group was such that a trade performed by one affiliate could be booked in another, without the client necessarily being aware that the location of the asset had shifted. Record keeping fell into disarray when LBHI filed for bankruptcy. At the time of filing, Lehman maintained a patchwork of over 2600 software systems applications, many of which were outdated or arcane. These systems were highly interdependent, but difficult to decipher and not well documented. Moreover, most systems covering trading, valuation, financial accounting and other activities had been transferred to Barclays in the sale, and Barclays had integrated its own proprietary and confidential data into some of the systems.[47] Thus many non-US affiliates experienced enormous difficulties even in determining what their balance sheets were and who owed what to whom.

Although arrangements were ultimately negotiated with Barclays for access to some essential information, it was almost impossible to salvage much going concern value out of the rest of the group (with the exception of the sale of the foreign equity business to Nomura by PwC). In London, where much of the prime brokerage business had shifted, it was permissible to mingle client funds with the firm's own funds, so several hedge funds suddenly became illiquid.

The fragmented data system impeded the salvaging of going-concern value from the remainder of the Lehman Group because different parts of a line of business lodged in different subsidiaries in various parts of the world had no way of reintegrating their line of business even if that business had been viable.

46 Some Lehman Brothers entities did not file for bankruptcy, however. For example, Lehman Brothers operated a bank, today known as Aurora Bank FSB, which employs 1700 people servicing over $100 billion in mortgages (Summe, 2010, p. 65).

47 In addition, the technology supporting the prime brokerage business was inadvertently sold to Nomura in the United Kingdom, rather than Barclays, who acquired that US business.

It is clear that significant value was destroyed by the lack of cooperation in the resolution of the Lehman Group, which may continue for a decade.

Impact
The systemic impact of the bankruptcy of Lehman Brothers is difficult to sort out because it occurred amid a number of different shocks to the system. It took place, for example, just after Fannie Mae and Freddie Mac entered conservatorship, protecting all creditors and counterparties, but causing losses to both common and preferred shareholders. And Lehman fell just before the bailout of AIG two days later. The Dow Jones Industrial Average fell 150 points the day Lehman declared bankruptcy, but a considerable part of this may have been due to the apparent change in the rules of regulatory intervention. The explanation offered by Federal officials as to why they protected creditors and counterparties of Bear Stearns but not those of Lehman Brothers was not convincing. The run on money market funds and, subsequently, the collapse of the commercial paper market was a direct result of the collapse of the value of Lehman commercial paper.

Conclusions
In many ways, the Lehman bankruptcy was unnecessarily disruptive. The firm was badly supervised and regulated, and benefited from widespread expectations that its creditors and counterparties would be protected if worse came to worst, which proved to be mistaken. The United States acted unilaterally, providing an orderly resolution for the US broker/dealer arm of Lehman through a merger with Barclays Capital, but there was no cooperation offered in the resolution of the Lehman subsidiaries in 49 other countries, including, most notably, the major operations in the United Kingdom.

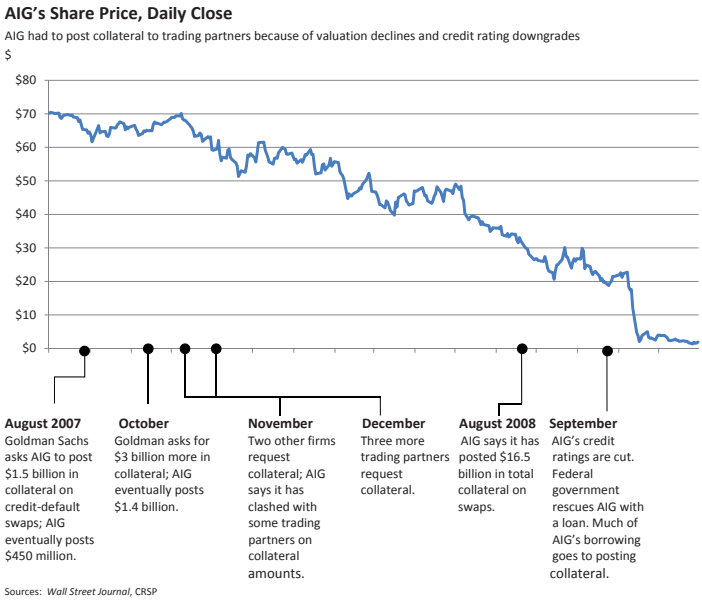
3.1.2 AIG[48]

Causes
In its heyday, the American International Group (AIG) grew into a giant financial conglomerate with an unparalleled global footprint. It operated in more than 130 countries around the world and had more than 110,000 employees. The holding company, rated AAA at the beginning of the decade, had more than 4000 subsidiaries that were entangled in a complex web of cross-ownership. Although the largest share of AIG's revenue came from its property and casualty insurance, it also owned businesses that were involved in a broad range of other lines of insurance, as well as international banking, consumer lending, and asset management. It also had what it called a financial products division – AIG Financial Products (AIG FP).

Although AIG FP never contributed more than 3% of AIG's total revenue (Geneva Association, 2010, p. 17), it subjected the group to enormous risks that were highly leveraged and often unhedged. Many of these transactions were conducted through a subsidiary located in London, but AIG FP evaded oversight by the British Financial Services Authority because AIG had purchased a US thrift

48 Source: Geneva Association (2010).

Figure 3.2 Share Price Drops as Collateral Calls Increase



institution that made it subject to consolidated supervision by the US Office of Thrift Supervision, which was deemed an 'equivalent regulator', even though many regarded it as completely ineffectual.

As of September 2008, the notional value of AIG FP's derivatives portfolio, which was concentrated largely in the US housing market and corporate collateralized debt obligations (CDOs) and collateralized loan obligations (CLOs) was $2.7 trillion. Of this, $440 billion consisted of Credit Default Swaps (CDS) guaranteed by the parent holding company. As part of the contract to sell CDSs, AIG was required to maintain its credit rating. If it were to be downgraded, it was obliged to add new collateral to compensate for the increased risk that it might not be able to pay out claims on a timely basis. This proved to be AIG's undoing.

As shown in Figure 3.2, AIG's share price fell steadily from August 2007 because it was obliged to post additional collateral as the group suffered downgrades from the ratings agencies, and the securities it had borrowed against had declined in value. Despite the clear warnings of impending danger from the stock market, however, AIG did not come to the attention of the authorities until September 2008. This was partly because it had positioned itself to avoid competent oversight and partly because the United States lacks a national insurance supervisor who might have taken an interest in the group. Moreover, US financial authorities were overwhelmed with the problems of Fannie Mae, Freddie Mac and Lehman Brothers and were simply not prepared to deal with the collapse of another financial giant so soon.

AIG's management information systems were so decrepit that senior executives did not realize the full magnitude of its problems. When they finally approached the New York Fed and the Treasury Department for assistance, they asked for only a fraction of the $183 billion they ultimately received. In the wake of the turmoil

following the bankruptcy of Lehman Brothers, the Treasury and the Fed believed that it was essential to bail out AIG in order to avert a world-wide financial crisis.

The conjunction of the Lehman Brothers and AIG crises – just two days apart – made it clear that the authorities lacked the tools to resolve a faltering non-bank. They had only two unpalatable alternatives: send the firm to bankruptcy court and hope that spillovers could be contained or provide an extraordinary bailout. In the case of AIG they took the latter course, and the US government soon owned 79.9% of the group.

Typology

US officials clearly believed that the failure of AIG would have dire systemic implications for both the United States and the rest of the world. Because the insurance units were all separately regulated and effectively ring-fenced, their concern appeared to be centred on the derivatives book. It is impossible to know whether the bankruptcy of AIG FP would have caused other failures, but it is interesting to note that none of the 30 largest counterparties of Lehman Brothers failed after its bankruptcy.

Cooperation

The United States neither sought nor received cooperation from any foreign governments, in part because they had not foreseen the crisis and had so little time to arrange some sort of solution. The authorities were extraordinarily reluctant to disclose how the money paid to AIG was used, but finally, under enormous pressure from Congress and the TARP oversight board, AIG revealed that $62.1 billion was paid to 16 counterparties. The largest payment, $16.5 billion, was made to Société Générale. In fact, only 25% of the largest counterparties were headquartered in the United States. Congress was outraged that the Fed had not bargained for a reduced settlement, but once the threat of bankruptcy was removed, the Fed stressed that it had very little leverage.

Impact

This extraordinary intervention calmed the markets but left participants confused about the apparently ad hoc nature of US policy. Many questioned what difference between Lehman Brothers, on the one hand, and AIG and Bear Stearns on the other had led to such different regulatory responses and outcomes. If the authorities were trying to reduce moral hazard by sending Lehman Brothers to the bankruptcy court, they completely undercut that message by bailing out AIG two days later. Nevertheless, the bailout of AIG may have prevented further deterioration in financial markets.

Conclusions

Federal Reserve Board Chairman Ben Bernanke, who is famously even-tempered, expressed public outrage that he had been forced to bail out AIG and that taxpayer funds had been used to pay retention bonuses to some of the very traders who had brought the company to the brink of collapse. Both Bernanke and Treasury Secretary Hank Paulson urged Congress to provide them with new tools that

would allow them to resolve non-bank SIFIs without causing chaos or generating enormous cost to taxpayers. Although two bills in Congress attempted to deal with the problem of resolving non-bank SIFIs, neither dared to propose a national insurance charter that would provide effective oversight for insurance firms.

3.1.3 Fortis[49]

Causes
Fortis was a financial conglomerate incorporated in Belgium, listed on both Euronext Amsterdam and Euronext Brussels, with substantial banking and insurance activities in Belgium, the Netherlands and Luxembourg. In May 2007, Fortis joined with the Royal Bank of Scotland and Bank Santander in a complex transaction to acquire ABN-AMRO for €71 billion. After outbidding Barclays Bank in this hostile takeover battle, the trio planned to divide ABN AMRO's activities among them. Fortis was to acquire the domestic Dutch business of ABN AMRO as well as its private banking and asset management operations for a price of €24 billion, at a time when the market capitalization of Fortis was around €40 billion. The deal, together with a €13 billion equity issue, was approved by Fortis' shareholders in August 2007. In addition to the acquisition of ABN-AMRO, Fortis was weak as it appeared to have a €40 billion CDO/RMBS portfolio based on US mortgages.

But difficulties began to surface by June 2008, when Fortis announced a new equity issue and cancelled its dividend payment. Both steps were in contradiction to earlier promises, and this led to a sharp drop in the Fortis share price. Liquidity became a serious concern amid growing uncertainty in the market as to whether Fortis would be able to execute its plans for ABN-AMRO.

Typology
Fortis was systemically important in three countries – Belgium, the Netherlands and Luxembourg – because of its large presence in each country as well as its role as a clearing member at several exchanges.

Cooperation
The coordinating supervisor was the Belgian CBFA, which remained lead supervisor of Fortis, despite the importance of the growth in Dutch activities after the acquisition of ABN-AMRO. Fortis' weakness proved fatal after the Lehman failure and subsequent market meltdown. By 24 September 2008, interbank lending to Fortis had collapsed and significant deposit withdrawals were starting to take place. The crisis was managed by each of the three nations acting separately most of the time. When Fortis was initially recapitalized, the Belgian, Dutch and Luxembourg governments provided capital injections of €4.7, 4.0 and 2.5 billion to Belgium's Fortis Bank, Fortis Bank Netherlands and Fortis Bank Luxembourg respectively, but not to the Fortis Group as a whole. However, this agreement failed to calm the markets, obliging the National Bank of Belgium, as

49 Sources: Dewatripont and Rochet (2009) and Basel Committee on Banking Supervision (2010).

home central bank, to keep providing massive Emergency Liquidity Assistance to Fortis in the next days.

A second round of negotiations then followed, and on 3 October, the Dutch government bought the Dutch business of Fortis as well as its ABN-AMRO business for a combined total of €16.8 billion. In addition, the Dutch government took over the €50 billion funding of Fortis Bank Netherlands from Fortis Bank Belgium. While the Dutch parts of Fortis were essentially nationalized by the Dutch government, the solvent Belgian/Luxembourg banking parts were sold (75% stake) to BNP Paribas. In December 2008, the Brussels Court suspended the sale to BNP and decided the sales to the Dutch government and the Belgian government, and the subsequent sale to BNP, had to be submitted for shareholder approval in order for these sales to be valid under Belgian Law.

Shareholder approval was obtained for the BNP deal, after renegotiating the sale to BNP. The decision of the Brussels Court was later overturned by the Belgium Court of Appeals, which decided that no shareholder approval was needed.

Impact

The Fortis rescue and dismemberment served to foster stability in the Belgian and Dutch banking systems. Nevertheless, the lack of full regulatory cooperation increased uncertainty about large cross-border banks in Europe and increased the cost of the rescue operation.

Conclusions

The cooperation between Belgian and Dutch authorities started as expected though not covering the entire group. The governments were willing to engage in burden sharing for the parts of Fortis within their respective countries, but not for the rest of the holding company. Later on, domestic objectives got the upper hand with the Dutch focused on returning ABN-AMRO to Dutch control, and cooperation broke down despite a long-standing relationship in ongoing supervision. The case also showed the problem that supervisors face if they do not have effective resolution powers overriding shareholders' rights.

3.1.4 Dexia[50]

Causes

Dexia was created through a merger of Crédit Communal de Belgique and Crédit Local de France. The holding company of the Dexia group was based in Belgium. The French subsidiary, Crédit Local de France, had bought a monoline insurer in the United States, Financial Security Assurance (FSA). Dexia also had a significant presence in Luxembourg.

Dexia's main business has been financing local authorities. During 2008, Dexia experienced difficulties in financing long-term assets with short-term funds, and there were also problems with structured products in its US subsidiary, FSA. When FSA faced liquidity problems, the Belgian parent provided liquidity funding in line with Dexia's policy of centralized liquidity management.

50 Sources: Van de Woestyne and Van Caloen (2009) and Basel Committee on Banking Supervision (2010).

Typology
Dexia was systemically important in Belgium. By contrast, it was not systemically important in France and Luxembourg, but it was the major bank for local authorities in France and Luxembourg, which made it politically important.

Cooperation
Dexia's vulnerabilities appeared after the Lehman failure and subsequent market meltdown. On 30 September 2008, Dexia increased its capital by €6.4 billion. A combination of public and private sector investors in Belgium and France each invested €3 billion, and the Luxembourg government invested €376 million. A week later on 9 October 2008, Belgium, France and Luxembourg reached agreement on a joint guarantee mechanism for its new financing. The burden-sharing was done on a voluntary basis and based on the proportions of share ownership held by the public authorities and institutional investors each of the three countries. The burden was shared as follows: 60.5% by Belgium, 36.5% by France and 3% by Luxembourg. On 14 November 2008, the Belgian and French governments gave additional guarantees for the sale of the US subsidiary, FSA (jointly because France was the owner and Belgium had provided liquidity). The guarantee was to cover possible losses up to $4.5 billion, with 62% of the guarantee from Belgium and 38% from France. This $4.5 billion tranche was the first loss tranche for the portfolio amounting to $16.2 billion.

Impact
The bailout of Dexia fostered banking stability in the three countries and prevented pressure on the financing of local authorities. It also fostered the wider stability of the European banking system.

Conclusions
The Belgian, French and Luxembourg authorities cooperated effectively in providing joint support to Dexia. The shared exposure of Belgium and France to the US subsidiary provided an effective incentive for cooperation. The burden sharing was done on a voluntary basis by the three countries.

3.1.5 Icelandic banks[51]

Causes
Iceland experienced a deep financial crisis when its three major banks all collapsed in the same week in October 2008. After the Icelandic banking system was deregulated and privatized in the 1990s and early 2000s, banking quickly became a large part of the economy. This occurred in a country where neither the government nor the private sector had sufficient understanding of risk management processes nor was there familiarity with the scope of banking supervision needed when banking becomes a large part of an economy. Over the

51 Sources: Basel Committee on Banking Supervision (2010), Danielsson and Zoega (2009), and Special Investigation Commission (2010).

course of the next few years, the banking system grew to about ten times the size of the economy – and then it began suffering mounting liquidity problems.

Four factors combined to make the Icelandic banking system more fragile than its counterparts abroad. First, unlike many other nations with an outsized banking system, such as Switzerland, the Netherlands and the United Kingdom, the institutional experience of running a modern banking system in Iceland spanned less than a decade, not centuries. Second, the banks had invested significant portions of their funds in their own shares and in each other's shares. This shared capital, financed by the banks themselves, did not provide protection against losses as it was intended to do. Third, there were widespread accusations of political favouritism when the banks were privatized; their senior management and boards were typically composed of Icelandic citizens with little or no experience in international banking. Finally, given the size of the country and the tight political connections between the private sector and the political superstructure, supervision was weak. These factors are complicated by the fact that because of its EEA membership, Iceland essentially has the same banking regulations as other EEA/EU countries. Iceland, therefore, is more an example of the failure of supervision rather than the failure of regulation.

The reasons for the failure of the Icelandic banks are in many ways similar to the difficulties experienced by many financial institutions globally. These reasons include the seemingly unlimited access to cheap capital, excessive risk-taking, and lax standards of risk management. The crucial difference in Iceland is scale. In many countries with troubled banks, the problems have been confined to a segment of their banking system, and the aggregate assets of the banks have been much smaller relative to GDP. In those countries the government has had adequate resources to contain the fallout from individual bank failures. This was not the case in Iceland, and many of its banks were 'too big to save'.

A unique feature of the Icelandic financial system was the high level of internet savings accounts that Icelandic banks had in the United Kingdom, and later in the Netherlands and other European countries. The banks had originally relied on the wholesale market to fund themselves, but when this became more difficult, they decided to attract deposits by offering high-interest deposits in Europe. Kaupthing and Landsbanki, the two largest banks in Iceland, both pursued this strategy. Kaupthing, with its Kaupthing Edge, chose to hold these accounts in a subsidiary so they were supervised by the host countries – with the exception of Kaupthing Edge in Germany. By contrast, Landsbanki offered its Icesave accounts through local branches of the Icelandic bank, meaning they were primarily regulated, supervised and insured in Iceland. Icesave started in the United Kingdom and its deposits there grew to over £4 billion. Later, Landisbanki sought funds in other jurisdictions, most notably the Netherlands, where it raised €1.7 billion. Under the EU's Second Banking Directive, the host country supervisors had no powers to supervise the solvency of these branches.

Typology

The three Icelandic banks were clearly systemic in their home country, but not so in the host countries.

Cooperation

As concerns about the Icelandic banks increased in September 2008, the Icelandic government purchased a 75% stake for €600 million in Glitnir Bank, the smallest of the country's three large banks. But the partial nationalization of Glitnir served to undermine confidence in the Icelandic banking system and the Icelandic state. The government and the banks had repeatedly claimed that all of the three main banks were liquid and solvent. The failure of Glitnir undermined confidence in the other two banks and in the government's ability to assess the condition of its banks.

The immediate effect was to cause credit lines to be withdrawn from the two remaining banks. There was also a run on Landsbanki's Icesave branches in the United Kingdom and the Netherlands. Both Kaupthing and Landsbanki had significant operations in the United Kingdom, and UK and Icelandic authorities had been in discussion on how to solve the difficulties facing these two banks. The UK authorities used a clause in its antiterrorist laws to freeze the assets of Landsbanki in the United Kingdom, which then triggered the bankruptcy of the remaining Icelandic bank, Kaupthing. Discussions were also held with other supervisors from EU countries in which Kaupthing was operating (Basel Committee, 2010).

In 2008, the Icelandic government had prepared emergency legislation granting it widespread powers to maintain the domestic operations of the banks. This legislation, which was passed by the Icelandic Parliament on 6 October 2008, created 'new banks' from the ruins of the old ones to hold domestic deposits and loans. Meanwhile, the foreign operations were left in 'old banks', which were put in administration and were on their way to formal bankruptcy. This has created legal issues having to do with equal treatment of domestic and foreign deposit holders. This has undermined the EU Deposit Insurance Directive, which requires equal treatment of domestic and foreign depositors of a bank, including its branches, but not its subsidiaries. After passing the legislation in early October, the Icelandic Financial Supervisory Authority (FME) took control of Landsbanki and Kaupthing, leaving the foreign supervisors and depositors in the cold. The FME also put Glitnir Bank into receivership after Iceland abandoned its decision to buy a stake in the bank.

Impact

The collapse of the three banks had a major impact on the Icelandic economy. But given the relatively limited size of these Icelandic banks, there was no impact on banking stability in Europe or beyond. Depositors in Iceland got preferential treatment, however, which rankled European supervisors.

Conclusions

The Icelandic crisis reveals how limitations on national resources and supervisory capacity can diminish the effective home country supervision and resolution. Effective cooperation between home and host country supervisors was absent. Notwithstanding EU legislation, Iceland protected only its domestic depositors.

3.1.6 Central and Eastern European banking system[52]

Causes

When the global financial crisis swept the world in 2008, many countries in emerging Europe proved vulnerable because of their high levels of private debt to foreign banks. The debt to foreign, as well as domestic, banks was often denominated in foreign currencies. Policy-makers in the region became increasingly concerned that foreign-owned banks, despite their declared long-term interest in the region, would seek to cut their losses and run. The banks themselves were also getting worried: Uncertainty about what competitors were going to do exacerbated the pressure on individual banks to scale back lending to the region or even withdraw, setting up a classic collective action problem. Under these circumstances, bank behaviour was clearly key to macroeconomic stability.

Typology

A number of Western European banks had major subsidiaries which were of systemic importance in Central and Eastern Europe. Most of the Western European banks were also of systemic importance in their home countries.

Cooperation

In the face of these risks, the European Bank for Reconstruction and Development (EBRD), the IMF, the European Commission, and other international financial institutions initiated a process aimed at addressing the collective action problem, starting in Vienna in January 2009. In a series of meetings, the international financial institutions and policy-makers from home and host countries[53] met with some systemically important EU-based parent banks with subsidiary banks in Central and Eastern Europe.

The European Bank Coordination Initiative has played a major role in averting a systemic crisis in the region. This initiative, which combined appropriate host government policies, massive international support, and parent bank engagement, has helped to stabilize the economies in the region. Continued parent bank support has accompanied balance of payments support from the IMF, the European Union, and other multilateral financial institutions. This support, totalling some €52 billion, has gone to Hungary, Latvia, Romania, Serbia and Bosnia-Herzegovina. It took the form of parent banks recapitalizing subsidiaries when necessary while broadly maintaining exposures to countries. Meanwhile, these banks have benefited from the stabilization of the macroeconomic environment.

Impact

The coordinated response has fostered stability of the European banking system, both in Western Europe (where the parent banks are located) and in Central and Eastern Europe (where major subsidiaries are located).

52 Sources: IMF (2009d) and IMF Survey (2009).

53 The meetings were held with 15 systemically important European banks with major subsidiaries in Central and Eastern Europe and their home and host country supervisors, fiscal authorities and central banks from Austria, Belgium, France, Germany, Greece, Italy, Sweden, as well as Bosnia Herzegovina, Hungary, Latvia, Serbia and Romania.

Conclusions
The setting offered a typical coordination problem with high stakes. By setting all parties together, including relevant Western and Eastern European governments and banks as well as several multilateral financial institutions, a win–win situation could be created. The financial support of the multilateral financial institutions worked as an effective lubricant to get the deal done.

3.2 Concluding comments

These six cases illustrate a wide range of causes, consequences and outcomes. In each case resolution was, out of necessity, improvised. In some cases, the improvisation succeeded in limiting spillovers – but at substantial cost to taxpayers. In other cases, the resolution process protected domestic interests without regard to spillover effects in the rest of the world. The results are summarized in Table 3.2.

It seems clear that cooperation was most likely to occur when the likely spillover effects were limited to a few countries which had a tradition of cooperation or a regional mechanism for brokering a cooperative solution. There were no cases in which countries appeared willing to agree to share the costs of a bailout *ex ante*.

In times of crisis, clarity about crisis management arrangements and predictability of official actions is crucial. The confusion following the Lehman 'resolution' (markets expected a bailout similar to the previous investment bank failure of Bear Stearns, but got a bankruptcy) meant uncertainty among market participants about the rules of the game. The 'improvised' cooperation in the case of Fortis raised questions about how other cross-border SIFIs might be handled. These and other cases showed that international crisis management arrangements for SIFIs and the rules or principles to guide officials in such situations are not very clear. Market participants need to make assumptions about how officials are likely to behave, however. If they behave in an unexpected way, market participants are likely to flee to safe, liquid assets until they are confident once again about the rules of crisis management.

Another illustration of the lack of clarity is the case of liquidity support for foreign banks' operations. More than a decade ago, Schoenmaker (1997) raised the question regarding which agency would provide liquidity support to Deutsche Bank's branch in London (about one-quarter of Deutsche's balance sheet is in London) if the branch experienced liquidity problems because of its London wholesale business. Who would act as lender of last resort: (1) the Bank of England on its own risk; (2) the Bank of England on behalf (and at the risk) of the Bundesbank; or (3) the Bundesbank? To date, the answer to this question is not clear, at least not to outsiders and markets. It is imperative that resolution plans, discussed in the next chapters, specify these and other divisions of responsibilities between authorities clearly.

Table 3.2 Summary of six case studies

Case	Systemic in home country	Systemic abroad	Coordination	Short-term impact on financial stability
Lehman Brothers (USA and UK)	Yes	Yes	No	Substantial instability
AIG (USA)	Yes	Yes	Unilateral bailout of units in 130+ countries by US government	May have prevented further deterioration in financial markets
Fortis (Belgium, Luxembourg, Netherlands)	Yes	Yes	Partly, improvised cooperation, 'make do' solution. Bailout on basis of national entities, not for the Group as a whole	Enhanced stability in Belgian and Dutch banking system, but raised questions about how other cross-border SIFIs might be handled
Dexia (Belgium, France, Luxemburg)	Yes	No	Yes, joint solution based on proportions of shares held by governments and institutional investors in three countries	Enhanced stability
Icelandic banks (Iceland)	Yes	No	No. Iceland protected only Icelandic depositors	Instability largely limited to Iceland (some unrest with retail depositors in foreign countries)
Central and Eastern European banking systems	Mixed	Yes	Yes, joint solution based on European Bank Coordination ('Vienna') Initiative	Enhanced stability in both Eastern and Western Europe

4 Integrating Regulation, Supervision and Resolution of Systemically Important Institutions

The starting point for any truly effective process to resolve cross-border SIFIs is an effective national resolution procedure. Although most observers might think this objective has been achieved long ago, the Report and Recommendations of the Cross-border Bank Resolution Group (Basel Committee, 2010) makes it clear that insofar as national frameworks for resolving financial institutions exist, they vary in many substantive dimensions. And none of them adequately addresses the problems that arise in the resolution of a purely domestic SIFI, much less a cross-border SIFI. The US Congress has been considering bills that would set forth specific requirements to resolve non-bank SIFIs, but the specifics of any legislation are uncertain, and even if the proposal is enacted, it will not cover bank conglomerates. A number of jurisdictions have special resolution regimes[54] or administrative arrangements for banks and other financial institutions, including Brazil, Canada, Hong Kong, Italy, Japan, Korea, Singapore, Switzerland, Turkey, the United States, and the United Kingdom. Yet no countries have established effective procedures for resolving a financial group that encompasses not only a bank, but also a securities firm and an insurance company.

The United States provides a clear example of one aspect of the problem despite the fact that concerns about systemic risk have been at the top of the US policy agenda for decades. A US bank financial conglomerate may be subject to numerous different resolution procedures, with no established approach for coordinating the actions of the multiple regulatory authorities involved. The bank will be subject to the FDIC's prompt corrective action (PCA) measures and resolution will be an administrative process. But a systemically important bank in the United States is almost certain to be part of a holding company, which makes it subject to resolution by a bankruptcy court (although the Federal Reserve Board may choose another approach). Since holding companies sometimes own 20% to 40% of the assets of the group, a lack of coordination between the bankruptcy court and the FDIC can easily lead to chaos.

In addition, if there is a securities subsidiary, a broker-dealer will be subject to Chapter 7 liquidation proceedings under the bankruptcy law or the special resolution procedures of the Securities Investor Protection Corporation (SIPC), while the rest of the securities firm will be subject to resolution by the bankruptcy court under Chapter 11 restructuring proceedings. Meanwhile, any insurance units will be subject to regulation procedures established in each individual state.

54 See Brierley (2009) and Cihak and Nier (2009).

Apart from the FDIC – and potentially the Federal Reserve Board – none of the other regulators is required to consider systemic risk implications when making decisions about resolving the parts of the failed institution that fall within its jurisdiction. Their first and foremost obligation is to protect the customers of the failing entity. Inevitably, they will ring-fence the assets they control for the benefit of the customers they are charged with protecting. Only after this objective has been met will they consider releasing additional assets to the parent. In effect, this means that the United States lacks a coherent domestic resolution mechanism for a financial conglomerate – yet the international complications are much more substantial.[55] The result has been a series of enormously costly bailouts that often result in Zombie institutions (Kane, 1989) that warehouse dead debt, weaken competitors, and cannot play a constructive role in the economy until, after sufficient subsidy, they work through their losses.

The United States is a particularly incoherent case because of the fragmented nature of its regulatory system. But it is not the only one, since many countries have no special resolution system for financial institutions.

4.1 What are the objectives that a good resolution procedure should accomplish?

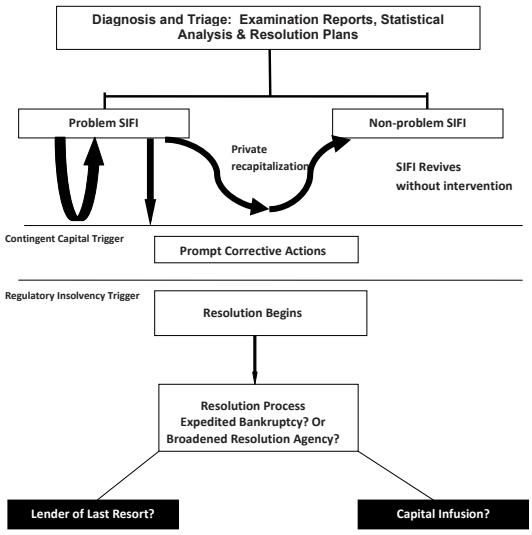
Oliver Hart has identified several goals that all good[56] resolution procedures should meet (2002, pp. 3–5). First, a good procedure should deliver an *ex post* efficient outcome that maximizes the value of the bankrupt business that can be distributed to stakeholders. Second, it should promote *ex ante* efficient outcomes by penalizing managers and shareholders adequately in bankruptcy states so that the bonding role of debt is preserved. And third, it should maintain the absolute priority of claims in order to protect incentives for senior creditors to lend and to avoid the perverse incentives that may arise if some creditors have a lower priority in bankruptcy than they would if the firm were a going concern. These objectives apply equally to financial and non-financial firms, but in the case of SIFIs, three additional objectives should be included.

Fourth, a good resolution procedure should also be mindful of the costs of systemic risk. It should be cognizant of – and attempt to limit – the spillover effects that may not only damage other institutions but also markets, the financial

55 Moreover, the potential number of US SIFIs is much larger than the *Financial Times* list analysed in Chapter 1. Using attributes similar to those presented in Chapter 1, one knowledgeable market participant (Summe, 2010, p. 98) included the following institutions headquartered in the United States: Bank of America (primarily a bank, but also an investment bank); Citigroup (a bank, investment bank and insurance company); Goldman Sachs & Co. (a bank holding company, migrating a portion of its derivatives portfolio to the bank, a broker-dealer (repo), and other corporations); J.P. Morgan Chase Bank (primarily a bank and investment bank); Morgan Stanley (a bank holding company migrating a portion of its derivatives portfolio to the bank, a broker-dealer (repo) and other corporations); Wells Fargo (a bank). Also major custodians that operate as banks including the Bank of New York Mellon, Northern Trust, PNC Financial Services Group, and State Street Corporation. She identified this group of institutions based on their participation in the payment and settlement systems, as well as in clearing transactions, plus the significance of their role in particularly interconnected financial markets such as the $600 trillion+ over-the-counter derivatives market or the $5 trillion daily repo market.

56 Given that economists do not have a satisfactory theory of why parties cannot design their own bankruptcy procedures, Hart is careful not to describe these procedures as 'optimal'.

Figure 4.1 Schematic overview, supervision and resolution of SIFIs



Note: It may seem odd to consider the Lender of Last Resort (LLR) as part of the resolution functions because it directly contradicts Bagehot's famous advice to lend only to solvent banks. But time and again, the LLR has been used to prop up an insolvent bank until a final resolution can be arranged. With wind-up plans in place this should be less necessary, but it still may be the logical entity to provide debtor in possession financing (on a fully collateralized basis) if sufficient private funding cannot be found.

infrastructure, and, ultimately, the real economy. Fifth, a good resolution procedure should protect taxpayers and other sources of bailout funds, including other banks, from loss, since imposing losses on parties that do not share in the *ex ante* gains creates perverse incentives that encourage excessive risk taking by SIFIs.[57] Sixth, a good resolution procedure should lead to predictable results. Markets abhor negative surprises, particularly if they are the result of unexpected behavior by regulators, because they cast doubt over the rules of the game. The response is often a withdrawal from risky markets and a flight to quality until market participants regain confidence in the legal framework.

Figure 4.1 outlines an integrated system for the regulation, supervision and resolution of SIFIs. It begins with identification of SIFIs by their characteristics as described in Chapter 1: size relative to the economy, complexity as measured in terms of number of affiliates, opacity as measured in terms of operational and financial interdependencies, performance of systemically important functions and the number of regulatory agencies or courts that would have to approve the resolution of a group. Once the group is identified, triage begins in an attempt to separate healthy SIFIs that require no special monitoring from potentially troubled SIFIs that require more careful official scrutiny to determine whether they have problems that can be remedied or whether they are headed

57 The fact that the guarantees and subsidies which regulators in the United States and Europe were forced to provide amounted to 25% of world GDP (Haldane, 2009) indicates how badly current efforts fall short of this goal.

for resolution. This determination is based partly on the factors that determine a SIFI's vulnerability to a shock: the amount of leverage employed by the group, the group's vulnerability to a liquidity shock, the alignment between subsidiary structure and lines of business and the resolvability of the SIFI as measured in the estimated time it would take to resolve. It is also based on examination reports and statistical analysis, which are absolutely routine in most modern supervisory systems. In addition, it depends importantly on an assessment of the SIFI's resolution plan, which surprisingly is almost never part of the supervisory process.[58] Most supervisory attention would then be focused on SIFIs that are likely to experience problems.

A suitably designed contingent capital requirement provides a powerful market incentive that is likely to induce a SIFI to recapitalize or sell lines of business or assets if they can in order to avoid setting off the contingent capital trigger. Although the contingent capital trigger is designed to restore their equity position, it will cause substantial dilution of existing shareholders. This is very much like the recovery plan emphasized in the UK FSA's recovery and resolution plan. If the SIFI is unable to restore its capital ratio, conversion will automatically take place and its equity will be roughly doubled. This may well enable the SIFI to execute a restructuring plan or negotiate a merger. But if its capital ratio continues to decline to the mandatory conversion point, it will be subject to PCA measures. Although most countries do not have a statutory basis for applying PCA measures,[59] such measures are advocated under Pillar 2 of Basel II and appear as Principle 22 in the *Core Principles for Effective Banking Supervision*.[60] PCA measures should consist of a series of escalating measures designed not only to conserve the bank's liquidity, but also to intensify pressure on the bank to find a private solution to its problems before it must be resolved. If, nonetheless, the SIFI hits the regulatory insolvency trigger, the resolution plan will be implemented. Questions remain about whether the resolution process is conducted more effectively in a streamlined bankruptcy process or by a resolution agency.

Meanwhile, ISDA Master Agreements have played an important role in dampening spillovers in derivatives markets, but at the cost of some reduction in market discipline. This raises the question of whether it may be useful to reduce the range of instruments covered by ISDA Master Agreements to those

58 It is surprising not only because it is logically important to understand the potential endgame in order to supervise a SIFI properly but also because it is an internationally agreed precondition for effective banking supervision in the Basel Committee's (1997) *Core Principles for Effective Banking Supervision*. This is an international standard by which each country's financial system is judged during Financial Assessment Programs administered by the IMF and World Bank. Precondition 4 states: 'Sufficiently flexible powers are necessary in order to effect an efficient resolution of problem banks. Where problems are remediable, supervisors will normally seek to identify and implement solutions that fully address their concerns; where they are not, the prompt and orderly exit of institutions that are no longer able to meet supervisory requirements is a necessary part of an efficient financial system. ... The supervisory agency should be responsible for, or assist in, the orderly exit of problem banks.'

59 We are indebted to Dr Christos Gortsos for emphasizing this point.

60 For example, Core Principle 22 states: 'Banking supervisors must have at their disposal adequate supervisory measures to bring about timely corrective action when banks fail to meet prudential requirements. ... Supervisors should have the authority not only to restrict the current activities of the bank but also withhold approval for new activities or acquisitions. They should have the authority to restrict or suspend dividends or other payments to shareholders as well as to restrict asset transfers and a bank's purchase of its own shares.'

that are essential for the functioning of the financial system so that holders of longer-term derivative instruments may have greater incentive to monitor and discipline SIFIs.

4.2 Resolution planning

Since the integration of resolution planning with regulation and supervision is the keystone of our approach, we will begin with a description of a well-crafted resolution plan. We believe this tool is at least as important to systemic stability as the disaster recovery and business continuity plan that is now required of most large institutions. But the resolution plan must be carefully defined and, because SIFIs typically have complex international corporate structures, the plan must also be carefully reviewed by the college of supervisors formed to oversee the SIFI.[61] Although there will undoubtedly be considerable experimentation as members of the G-20 fulfill their pledge to develop such plans, the FSB should make efforts to establish best practices as soon as possible, not only to minimize compliance costs for SIFIs, but also to ensure that the resolution plans yield comparable, useful results for each SIFI as a whole.

The resolution plan should begin with the assumption that the SIFI is insolvent under the regulatory definition of insolvency. This definition should be standardized across countries because, as we have seen in Chapter 3, differing insolvency standards can lead to disorderly insolvencies or massive, improvised bailouts. In our view, the plan should be a joint undertaking of the institution, its board of directors, and the principal supervisors. Although clearly the supervisors must have decisive control, it is equally important that the resolution plan be perceived as a fundamental part of good corporate governance.[62] The plan should contain several elements.

First, the SIFI must map its lines of business into the corporate entities that must undergo some sort of resolution process in the event of insolvency. Each of these separate entities and its location must be justified to the board of the SIFI and, ultimately, to the primary supervisors for each of the different lines of

61 Within the last year 'internationally-consistent firm-specific contingency and resolution plans' have been endorsed by the Group of Twenty (2009), experimented with by the FSA as recovery and resolution plans (known popularly as living wills), introduced by the US Treasury to Congress as rapid resolution plans and proposed in the Dodd Bill as funeral plans. The FSB Principles for Cross-Border Cooperation on Crisis Management of April 2009 commit national authorities from relevant home and host country jurisdictions to ensure that firms develop adequate resolution plans. The resolution plans will include both plans to be prepared in the first instance by each firm, to reduce its risk-exposures and make its structure more effective in a 'going concern' scenario, and wind-down plans, to be prepared by the authorities, in a 'gone concern' scenario (FSB, 2009c). The FDIC (2010) has just issued a notice of proposed rulemaking regarding 'Special Reporting, Analysis and Contingent Resolution Plans at Certain Large Insured Depository Institutions'. Although the concept has been broadly endorsed, little has been written about what the details of such a plan should include. Exceptions are to be found in Avgouleas et al. (2010), Huertas (2010) and Herring (2009b, 2010). This section draws heavily from Herring (2010).

62 Ron Feldman (2010) has argued that the planning must be driven by supervisors, not firms. While we agree that supervisors must have the final word, we think that much can be gained by maintaining a dialogue between the firm, its board and the authorities. We entirely agree with his point that to be effective, resolution plans must lead to changes in the operations of financial institutions and supervisors before a crisis hits.

business and to the college of supervisors established for the SIFI. Fragmentation of lines of business across numerous legal entities will be difficult to justify to the board and the authorities because it would impede any attempt to salvage going-concern value from a line of business if it cannot be easily separated from the rest of the group and sold.[63] The resolution procedures must be described for each entity, including an estimate of how long they will take to complete.

The dialogue between the SIFI and its primary supervisor will inevitably be contentious at first because it will represent a dramatic change from past practice[64] and because it will cause the SIFI to focus on possibilities it would rather not contemplate.[65] As Lord Turner (Giles et al., 2009), chairman of the Financial Services Authority in Britain, has noted, 'In the past, authorities around the world have tended to be tolerant of the proliferation of complex legal structures designed to maximize regulatory and tax arbitrage. Now we may have to demand clarity of legal structure.'[66]

Second, the SIFI must identify key interconnections across affiliates, such as cross-guarantees, stand-by lines of credit, contractual commitments or loans that link the fate of one affiliate to that of another. The plan should also identify operational interdependencies such as IT, service agreements, staffing allocations, human resource and related support systems, trading and custody systems, as well as liquidity, and risk management procedures that would impede the separation of one unit from another.

Third, the SIFI should be required to develop and maintain a virtual data room that contains information that an administrator or resolution authority would require to make an expeditious resolution of the entity. This is likely to require investment in an improved management information system that provides details such as organizational structures, loan and counterparty exposures disaggregated by borrower or counterparty, and legal entity.[67] The SIFI must also identify key information, trading and custody systems, indicating where they are located, and the essential personnel to operate them. Plans must be made to make these systems available to all entities at home or abroad during the resolution process, whether they are operated by the SIFI or outsourced to a

63 The collapse of Lehman Brothers presents a particularly good example of this problem. It had lines of business that were fragmented across numerous subsidiaries that were caught up in multiple insolvency procedures on three different continents with no prospect of reassembling the line of business even though this may have preserved substantial going-concern value.

64 Hüpkes (2009, p. 515) made the point clearly in an article titled 'Complicity in complexity: what to do about the "too-big-to-fail problem",' in which she argues that policy-makers need to give more attention to how the complexity of an institution's legal structure affects the resolution process. She explains that the size of an institution is not the crux of the matter. 'Rather it is the complexity of large financial institutions that makes rapid and orderly wind-downs virtually impossible.'

65 The very rumour that a SIFI was making a resolution plan might set off a run in the absence of a general legal requirement that all SIFIs must do so. The legal obligation will enable the SIFI to do something it should be doing as a matter of good governance, without fear of undermining its reputation.

66 This notion has generated a considerable amount of controversy in Britain, with bankers generally taking the view that the supervisory authorities have no business monitoring their tax avoidance strategies. Alistair Darling, Chancellor of the Exchequer, has tartly responded (Giles et al., 2009) 'I do worry when an organization is structured for tax purposes rather than for the efficiency of its business and the strength of its business.'

67 This too is likely to be a contentious point as demonstrated by the years it has taken the FDIC to gain authority to require insured banks to identify insured deposits to facilitate rapid payouts. Banks successfully resisted for a number of years claiming that it would be an overwhelming technological challenge.

third party. As a practical matter, this may require that backup IT operations be segregated in a separate subsidiary that could continue to function if the rest of the firm were to be resolved.

Fourth, the SIFI must identify any activities or units it regards as systemically important, and demonstrate how they could continue to operate during a resolution process. This will usually require that they be separately incorporated and made bankruptcy-remote so that they could easily be detached from the group if necessary in order to keep the systemically important function operating while other parts of the group are resolved.[68] Arrangements should also be in place to make a rapid transfer of customer accounts to another institution in the event of resolution.

Fifth, the SIFI must consider how its actions may affect exchanges, clearing houses, custodians, and other systemically important elements of the infrastructure. Ideally it should identify how it can disconnect from these highly automated systems without creating serious knock-on effects. This will require cooperation with these systemically important parts of the infrastructure. A particularly good example of a successful effort of this sort was the CHIPS (Clearing House Interbank Payment System) initiative enabling its bank participants and key central banks to withstand the simultaneous failure of its four largest participants.

Sixth, the SIFI must identify the procedures it would follow during resolution. This report should be quite detailed including, at a minimum, a list of bankruptcy attorneys and administrators who might be called upon, individuals who would be responsible for press releases and various notifications to counterparties and regulators, and a good faith estimate of the time it would take to resolve each separately chartered entity.

Seventh, the resolution plan should be reviewed at least annually and updated if the institution executes a substantial merger or a restructuring introduces additional complexity.

The managers of the SIFI must demonstrate to their board of directors that the resolution plan is complete and feasible. Boards should recognize that oversight of resolution plans is as much their responsibility as oversight of business continuity plans. Indeed, when the SIFI approaches insolvency, the board's fiduciary duty becomes one of maximizing the bankruptcy estate than can be passed on to creditors.[69] If the board finds the plan is excessively complex or time consuming, it has a duty to require management to simplify the corporate structure of the firm, invest in more powerful IT systems or reduce the scope of its activities so that it can be resolved in a reasonable amount of time.[70] This process may also have a useful side benefit. Considerable research in cognitive psychology shows

68 Hüpkes (2005) wrote about this in the context of global financial institutions, much like the SIFIs that are the focus of this chapter.

69 The absence of a credible plan would be presumptive evidence of a failure to carry out this fiduciary duty.

70 Precisely what is 'a reasonable amount of time' will likely change as the approach is implemented. The ultimate goal ought to be a plan that can be implemented over a weekend, but earlier iterations will clearly take much longer. Some have advocated the need for a twilight ('cotton wool') period between intervention and the decision to start liquidation to allow resolution to proceed more smoothly.

that decision-makers are likely to be more risk averse when they are forced to confront worst case scenarios even if they consider them unlikely to happen.[71]

Next, the primary supervisor[72] must evaluate the resolution plan in cooperation with both any other domestic supervisors of business in which the firm may be active and the college of supervisors established for each SIFI. This group must certify that the plan is feasible, and the estimated time for the resolution is plausible and acceptable. In addition, it must ensure that all systemically important activities have been identified and properly insulated, so that they could be spun off to another firm in the event of insolvency.[73] If the primary supervisor and the college of supervisors find the plan is not feasible or would take an unacceptable amount of time to execute, it should have the power to compel the SIFI to propose alternative options.

The SIFI might propose alternatives such as simplifying its corporate structure, improving its IT infrastructure, spinning off activities or placing a line of business in an affiliate with no financial connections to any other affiliates and financed completely by equity.[74]

The supervisory authorities, however, must have substantially greater resources than currently, and power to compel action if the SIFI does not propose an acceptable alternative. If they lack such power, no meaningful action is likely to be taken, and the entire exercise will become a senseless and costly ticking of boxes. It may even prove counterproductive to the extent that it encourages market participants to believe that a problem has been solved when in fact it has not. The temptation to cut corners will be severe because the process will be enormously costly for both SIFIs and the authorities. Yet these costs will surely be small relative to the very large support – direct loans, asset purchases, collateral swaps, guarantees, asset insurance and direct equity injections – provided by American and European governments to their financial systems during the crisis.

Since many financial firms have become much too complex to take through any kind of resolution procedure in a reasonable amount of time, it seems naive to expect these firms to give up willingly the complexity that virtually assures them access to subsidies, a safety net, and a competitive advantage over other smaller, less complex institutions and so it is important that the process of resolution planning produces demonstrable improvements in the resolvability of these institutions. It may be necessary to appoint an independent commission to ensure that progress continues to be made.

Alternatively, Andrew Kuritzkes (2010) has suggested that a periodic tax of $1 million be levied on each subsidiary of a SIFI. The tax would be deferred for five

71 See Guttentag and Herring (1984) and the references cited therein.

72 In countries with a unified regulatory system, this is clear. In others, like the United States, it may not be unless the entity is a Bank Holding Company or a Financial Services Holding Company. Clearly this is one of the first problems to be resolved if there is ambiguity about who has overall responsibility for an institution – e.g. AIG – or whether the primary supervisor is competent to carry out its duties – e.g. Lehman Brothers.

73 Hüpkes has emphasized this point repeatedly. See, for example, Hüpkes (2005).

74 One might question how these equity investments should be treated in computing consolidated minimum capital requirements. We would argue that the equity investment should count fully because the purpose of imposing the equity requirement on these bits of the infrastructure, including the systemically important pieces, is to make them easy to detach from the failing institution. They should be relatively easy to sell because they are often systemically important parts of the infrastructure.

years, with the first collection in 2015 to incentivize firms to simplify their legal structures. The tax would be recollected at five-year intervals thereafter. Based on current legal structures, the costs to international financial conglomerates would be significant, ranging from $134 million to $2.6 billion for the top thirty financial conglomerates (per Table 1.2). The tax could be justified by the negative externalities associated with cross-border activity, legal complexity, and regulatory forum shopping. Others have suggested that capital requirements be calibrated to create similar incentives to simplify corporate structures, but capital requirements are already burdened with a number of objectives and have proven remarkably ineffectual in deterring risk-taking (e.g., see Figure 1.6).

Imposing constraints on the size or structure of firms has traditionally been justified on grounds of competition policy, not as a way of enhancing financial stability. But what was once unthinkable is now being widely discussed. Governor of the Bank of England, Mervyn King (2009), former Governor of the Federal Reserve Board, Alan Greenspan (McKee and Lanman, 2009) and former Secretary of State and Treasury George Shultz (2008) have all said, in effect, 'Any bank that is too big to fail is simply too big.' Greenspan (2009) has also argued in addition that banks that are too-big-to-fail interfere with the creative destruction that is essential to a dynamic economy. Perhaps, most surprisingly, Jamie Dimon (Sender, 2009), CEO of JP Morgan Chase, has endorsed a resolution mechanism that would wipe out shareholders and impose losses on creditors but protect the financial system when a SIFI fails: 'We think everything should be allowed to fail ... but we need a resolution mechanism so that the system isn't destroyed. To dismantle a bank in a way that doesn't damage the system should be doable. It's better than being too big to fail.'[75]

During the process of evaluating resolution plans, the primary supervisor and the college of supervisors[76] will gain an understanding of the regulations and tax provisions which provide SIFIs with incentives to adopt such complex corporate structures. It may be excessively optimistic to believe that these insights will help inform future regulatory, accounting and tax reforms, but it would be useful, nonetheless, to highlight some of the unintended consequences of regulatory actions in the hope that it might influence future reforms at the margin.

In addition, if a SIFI is involved in more than one line of business, the supervisors who oversee each of the important lines of business should be required to simulate a resolution each year under varying stress conditions. In

75 The EU has a mechanism for taking account of competition policy in the case of a failing SIFI that receives state support. Former European Commissioner for Competition Neelie Kroes has required that Commerzbank, ING, the Royal Bank of Scotland, and Lloyds downsize to compensate for the anti-competitive effects of the subsidies they have received. The EU Competition Commissioner can force banks to take a range of actions, including mandates to 'sell billions of euros of assets, close branches, cut balance sheets drastically, restrict payments to investors, executives and staff, and focus more narrowly on retail banking' (Reuters, 2009). The United States lacks any mechanism for considering such issues except in the merger approval process (which is often given short shrift in the case of a shot-gun merger). And although the EU action is taken after the extension of a bailout, it seems preferable to the frequent US pattern of subsidizing the merger of a very large bank with another even larger bank with scant regard for competitive effects. See further Dewatripont et al. (2010).

76 If not actually integrated with the supervisory authority, the resolution authority should be represented at these discussions. They will have the greatest expertise regarding how to implement an ordinary resolution.

this process, each supervisor must develop modes of cooperation with the others or make clear its intention to ring-fence the SIFI's operations within its domain. Unless supervisors within a single country can agree on how to resolve a SIFI, there is little hope of making progress in the much more complex international arena.

The primary supervisor must also conduct a similar exercise with the international college of supervisors and simulate a resolution annually under varying stress conditions. This will have the same virtues as the domestic exercise, and here too the supervisors will need to develop modes of cooperation or make clear their intent to ring-fence the portion they control. This will enable the other key supervisors to anticipate what might happen and make appropriate preparations. Although these commitments will not be legally binding, the supervisors' personal integrity will be on the line, so there will be a strong incentive to be candid.

The potential benefits from developing resolution plans are substantial. First, the process should reduce moral hazard by making it clear to creditors and counterparties that a SIFI can be resolved in such a way that it may impose losses on them without catastrophic consequences for the rest of the financial system. An indication that this might have a powerful effect can be inferred from Moody's reaction (Croft and Jenkins, 2009) to the 'living will' proposal in the UK. It warned the British authorities that such an approach 'would remove the necessity to support banks as banks would no longer be too interconnected or complex to fail. This could potentially result in rating downgrades where ratings currently incorporate a high degree of government support.' Of course, this benefit will be realized only to the extent that market participants believe a workable resolution plan exists and will be used. Equally importantly, they must believe firms that are not required to have resolution plans are credibly excluded from bailouts.

Second, gaining approval of the resolution plan will cause SIFIs to simplify their corporate structures and make preparations so that less of the bankruptcy estate is consumed by a frantic, last-minute attempt to formulate and execute a resolution plan. These amounts can be quite substantial. The administrators of the Lehman bankruptcy (Cairns, 2009) have estimated that at least $75 billion was wasted because of the lack of any preparation for bankruptcy.

Third, developing the plan may cause SIFIs to reduce their risk exposures because of greater awareness by the board of directors, more thorough analysis by supervisors, and greater discipline by creditors and counterparties.

Fourth, it will level the playing field between SIFIs and smaller, less complex institutions so that profits and market share flow to institutions that provide the best services most efficiently rather than to institutions that benefit from the subsidy of an implicit guarantee.

Of course, resolution plans have both private and social costs in addition to the above benefits. Compliance costs will certainly increase significantly for SIFIs (and for supervisors, making it all the more important to provide them with adequate resources). But some of the upgrades in IT systems required should enable them to manage their businesses more effectively, as well as facilitate

a resolution.[77] Resolution plans may also reduce the efficiency with which the SIFI can deploy its capital and liquidity, but often these efficiencies have proven illusory in a crisis, when they are most needed. To the extent that capital and liquidity will be ring-fenced by regulators of other lines of the conglomerate's business (who believe their main duty is to protect the customers of the SIFI in their regulatory domain), they will be unwilling (or perhaps legally unable) to upstream capital or liquidity to a faltering parent.[78] Finally, a resolution plan may increase capital requirements and tax payments and lower profits to the extent that corporate simplification requires the elimination of entities used to engage in regulatory arbitrage and tax avoidance. But this is a private cost, not a social cost.

With regard to social costs, there is a danger that resolution plans could limit potential economies of scale and scope. But there is little evidence in the academic literature that economies of scale and scope outweigh the evident diseconomies of scale and scope.[79] In any event, technology-intensive activities, which appear to offer genuine scale economies in some lines of business because of their heavy fixed costs, can be ring-fenced and operated as separate units from which firms of all sizes could benefit, much like the evolution of automated teller machines which are now a shared network, but began as proprietary systems. By reducing leverage, resolution plans may increase the costs of intermediation. But since excessive leverage is heavily implicated as a cause of the recent crisis, this may actually be a benefit rather than a cost.

4.3 Providing an adequate capital buffer: the role of contingent capital instruments[80]

The resolution plan is triggered by breaching a regulatory insolvency standard that must be set considerably higher than zero economic net worth if there is any hope of minimizing losses. In addition, a suitable requirement for contingent capital will create strong incentives for a faltering firm to make every effort to achieve a private solution before it reaches the regulatory insolvency point and must be resolved. As noted, Pillar 2 of Basel II comes very close to requiring a prompt corrective action standard, but, in fact, very few countries have adopted prompt corrective action triggers, much less a common definition of insolvency.

77 In a comment to one of the co-authors, Robert Eisenbeis has pointed out that just as the preparations for Y2K enabled a number of banks to deal more effectively with the shock of 9/11, this improvement in IT systems may have unexpected benefits.

78 In this sense, the Basel Committee's long-time emphasis on consolidated regulation of minimum capital requirements may be deeply misleading. Similarly, the ratings agencies clearly misjudged the ability of AIG to upstream excess capital from their multiple insurance businesses to aid the holding company or a faltering affiliate.

79 See, for example, Berger and Mester (1997). Although there are numerous empirical studies that attempt to quantify economies of scale, all are subject to criticism because of the paucity of relevant data. This is, of course, particularly true for enormous banks. But it does seem clear that scale economies cannot be the main driving force behind the creation of trillion dollar banks. A more robust and perhaps more relevant empirical regularity is that the compensation of senior executives tends to increase proportionately with scale (Frydman and Saks, 2007).

80 Much of the material in this section is based on Calomiris and Herring (2010).

This is a crucial inconsistency that must be resolved if there is to be any hope of meaningful coordination in resolution policy. Moreover, in the absence of binding *ex ante* agreements to share the burden in loss, it is essential that each country take all possible measures to prevent or, at least, minimize, loss that extends beyond those compensated to bear the risk of loss.

In what follows, we develop an approach for employing contingent capital requirements as a means of credibly bolstering a SIFI's equity capital, encouraging market discipline over the SIFI's behavior, and minimizing the probability that bank resolution would be necessary. We proceed as follows: First, we explain the logic of requiring that SIFIs issue contingent capital in the form of subordinated debt instruments that convert into equity when issuers suffer a sufficient loss of value. (See Box 4.1 for a summary of the historical rationale for incorporating some kind of subordinated debt in the capital structure.) Second, we discuss the difficult issues of setting an appropriate trigger for conversion, the terms and amount of conversion. Third, we construct a simple specific example with realistic parameter values, showing how contingent capital requirements would be set, in an integrated framework that includes a minimum common equity requirement, a contingent capital requirement, prompt corrective action, and a resolution plan as the SIFI approaches the regulatory insolvency point. In addition, we show how contingent capital would operate over the business cycle, and we also show that the possibility of conversion would incentivize voluntary additional issues of equity capital and help the SIFI to avoid insolvency.

4.3.1 Market discipline and the advantages of contingent capital over straight subordinated debt

Several experts have recommended requiring subordinated debt as part of minimum capital requirements or, more recently, using credit default swap (CDS) spreads as regulatory tools. But others have voiced concerns that while subordinated debt is available to buffer losses in a bankrupt concern, it does nothing to provide capital to a going concern. Moreover, using CDS or subordinated debt yields as regulatory tools could incentivize market agents to game the system by directly or indirectly buying debt or selling CDS insurance to affect their own observed market spreads. Furthermore, some are concerned that competing firms might seek strategic advantage over a competitor by orchestrating a rise in its CDS spread or subordinated debt yield. In particular, D'Souza et al. (2009) have argued against market-based triggers because they are subject to manipulation. That concern suggests that any market-based trigger used by regulators should be based on large movements in prices over a long period of time, and also on pricing in deep markets.

Research by Flannery (2005), Kashyap et al. (2008), D'Souza et al. (2009), Huertas (2009), Duffie (2010), and Hart and Zingales (2010) has highlighted the potential value, however, of providing some form of contingent equity capital infusion for banks via either conversion of existing debt, insurance contracts, or

Box 4.1 The rationale for junior debt as a component of minimum capital requirements

Why would it make sense to require that some form of capital take the form of a debt instrument? Why not require that all capital take the form of equity? Some research has argued that a purely common equity requirement would be suboptimal because high leverage improves bank performance (Kashyap et al., 2008). But the more common argument is that debt can be superior to equity for some purposes. There is a long tradition in the theory of capital regulation suggesting that some form of credibly unprotected subordinated debt would be useful to include as part of a bank's capital requirement because of its role as a disciplinary device.

The primary motivation behind the subordinated debt idea (Horvitz, 1983; Calomiris, 1999; Shadow Financial Regulatory Committee, 2000) is that requiring a bank to issue a minimum amount of unprotected debt publicizes market perceptions of default risk which could inform bank supervisors about the condition of a bank, and make supervisors more likely to act rather than forbear from disciplining banks (since the signal is public). Junior debt yields are particularly useful as indicators to policy-makers since the FDIC is essentially in a junior debt position with respect to the bank (senior to equity, but junior to deposits); thus, observing sub debt yields provides a helpful indicator of market perceptions of the risk borne by the FDIC. If supervisors are able to detect risk in a timely fashion, bank failures will be less likely because: (1) banks will have to react to supervisors' concerns by limiting their risks and raising their equity capital once they suffer losses that increase their default risk on debt; (2) banks that are unable to prevent continuing deterioration in their condition will be subject to credible prompt corrective action (PCA) to prevent them from becoming deeply insolvent.

Indeed, the advocates of sub debt requirements, therefore, traditionally have seen requiring sub debt as a complement to PCA. The problem with PCA – which envisions rule-based interventions by regulators (triggered by indicators of weakening bank condition) to require that banks increase capital and reduce risk prior to becoming insolvent – has been that intervention is not sufficiently prompt to permit any effective corrective action to be taken. Many US banks, in theory subject to the PCA guidelines introduced under the Federal Deposit Insurance Corporation Improvement Act (FDICIA) in 1991, have become deeply insolvent prior to triggering any intervention based on book value-related measures of bank health. A sub debt requirement would strengthen the effectiveness of PCA, in theory, by providing information about weakening bank conditions that would allow PCA to occur earlier, before a bank became insolvent.

The literature on sub debt requirements has evolved over the past decade. In response to the mandate within the Gramm-Leach-Bliley Act of 1999 that the Fed and the Treasury study the efficacy of a sub debt requirement, a Federal Reserve Board study reviewing and extending the empirical literature broadly concluded that sub debt could play a useful role as a signal of risk, although no action was taken to require sub debt as part of

Box 4.1 (contd.)

capital requirements.[81] The development of the CDS market, and recent research showing that CDS yields contain important information about bank risk not otherwise available to supervisors (Segoviano and Goodhart, 2009) has added further to interest in finding ways to harness the information content of sub debt for regulatory purposes. Other observers, however, have noted that actual sub debt yields and CDS spreads were quite low during the financial boom of 2005–2007, indicating that they would not have provided a timely signal of increased bank risk in 2006 and early 2007. On the other hand, advocates of sub debt requirements have noted that outstanding bank sub debt in 2006 and 2007 was not credibly unprotected, and in fact, was bailed out during the crisis. In that sense, the failure of sub debt to signal problems could simply reflect correct expectations by market participants that the debts they were holding were not effectively at risk.

81 The Fed concluded that more research was needed.

some other source. The US Treasury, in its August 2009 White Paper on financial reform, argued that a minimum amount of contingent capital should be required as part of regulatory capital requirements. And the subject is under study by the Basel Committee on Banking Supervision. Requiring a minimum amount of contingent capital certificates (CCCs) or contingent convertibles (CoCos) – subordinated debt instruments that convert automatically into equity in adverse states of the world, and prior to reaching the regulatory insolvency intervention point – would have several advantages relative to traditional sub debt.[82]

First, making subordinated debt convert into equity prior to bank insolvency eliminates the potential, politically charged issue of deciding whether to impose losses on debt holders after intervention; since the subordinated debt has already converted to equity and will share in the losses suffered by equity holders, the issue is removed from consideration.

Second, because sub debt has converted to equity before insolvency, debt holders cannot withdraw their funds at their maturity dates, which itself might trigger an insolvency event, although they can sell their equity in the secondary market.

Third, because CoCos would credibly remain in the bank and suffer losses in insolvency states, *ex ante*, the prices of CoCos will accurately reflect their true risks.

Fourth, in the event conversion is triggered, CoCos will provide a better buffer against losses to depositors, counterparties and senior debtors, than subordinated debt, since they will cease to accrue interest once they convert.

82 Two issues of Contingent Capital – one by Rabo Bank (a cooperative) and the other by Lloyds – have proven to be significantly more expensive than subordinated debt. But it is important to note that these issues present a very different incentive to the managers than what is contemplated in this proposal. In the case of Rabo Bank, there are no shareholders to be diluted, and in the case of Lloyds, the amount of contingent capital and the trigger do not provide sufficient motivation for managers to issue equity preemptively to avoid setting off the conversion trigger. The issuance of these bonds during the crisis probably increased their cost.

Fifth, and perhaps most importantly, as emphasized by D'Souza et al. (2009) and Huertas (2009), CoCos will incentivize bank management to voluntarily issue common equity or sell lines of business or assets to preempt triggering conversion in order to prevent the dilution of common stock that would occur if conversion were to take place. This is an important insight. Under D'Souza et al. (2009) simulations, if a modest CoCo requirement had been in place in 2006, no SIFIs would have become insolvent in 2008–2009. Also, no institution would have had its CoCos converted; all institutions that got close to triggering their CoCos' conversion would have voluntarily chosen to raise sufficient equity ahead of conversion to prevent conversion.

Of course, if the institution waits too long, it may find that equity markets are closed to it. That is why a SIFI is likely to launch new issues or sell lines of business or assets long before it approaches the CoCo conversion point. There may, of course, be occasions when they are simply unable to issue new equity or sell assets at any acceptable price and the conversion is triggered. That would be unfortunate for the existing shareholders, but it automatically recapitalizes the SIFI at the expense of shareholders and holders of contingent capital, rather than the taxpayers.

D'Souza et al. (2009) emphasize that this may be an important advantage of CoCos from two perspectives: First, it implies that the contingent equity capital implied by a CoCo is larger than the amount of the actual securities subject to conversion, since banks will voluntarily raise additional equity capital to avoid conversion. Second, the strong incentives on management to avoid conversion mean that they are likely to trade more like fixed income instruments than ordinary convertibles, which is more likely to appeal to institutional investors, who tend to prefer low-risk debt instruments. As D'Souza et al. (2009) show, because of the strong incentives for CoCo issuers to avoid conversion, CoCos would almost never convert, and thus would have yields quite close to traditional subordinated debt, but that depends in large measure on the incentives of the shareholders to avoid dilution. In Huertas' colourful phrase: 'To the common shareholder contingent capital holds out the prospect of death by dilution and it can be anticipated that shareholders would task management to undertake the necessary measures to avoid dilution' (2009, p. 5).

This last observation is especially important from the standpoint of minimizing the social costs associated with the resolution of SIFIs. Because resolution is costly, difficult to coordinate across borders, and potentially disruptive to the financial system, a capital requirement that is, in essence, a prepackaged recapitalization, that substantially reduces the frequency and depth of insolvency would be highly desirable. The incentives for voluntary, equity capital-raising or asset sales that are inherent in CoCos are, therefore, especially beneficial.

There are four key challenges to designing a useful CoCo requirement:

(1) Devising a credible trigger for conversion of CoCos into equity.
(2) Determining the appropriate amount of CoCos relative to other balance sheet items.
(3) Devising rules for CoCos, and more broadly for all types of regulatory capital, that would minimize the pro-cyclicality of capital requirements

(that is, the tendency of risk-based capital requirements to accentuate risk-taking in booms and exacerbate credit crunches during economic downturns).

(4) Integrating CoCo triggers with intervention triggers associated with PCA.

As Charles Goodhart (2010) has warned, if these parameters are not set carefully, CoCos may precipitate a death spiral when they are converted.

4.3.2 Setting a trigger

How should the trigger for conversion of CoCos be set? How should it vary over the business cycle, if at all? And how should the triggering mechanism for PCA be coordinated with the triggering of CoCo conversion? As D'Souza et al. (2009) point out, a desirable CoCo trigger must be accurate, timely, and comprehensive in its valuation of the issuing firm. And the trigger should be defined so that it can be implemented in a predictable way, so that CoCo holders can price the risks inherent in the instrument at the time of its offering. This latter point has been emphasized by the ratings agencies that refuse to rate CoCos in which the conversion is contingent upon the decision of a regulator or bank management.

Some proposals for contingent capital (e.g., D'Souza et al., 2009; Hart and Zingales, 2010) assume that book values of the institution's equity relative to its assets, based on accounting reports and/or examinations by supervisors, would be used as a conversion trigger for contingent capital. The central problem with using book value as a trigger is that book value is an accounting concept, and thus subject to manipulation and a lagging indicator. The Japanese banking system was insolvent for a decade while still satisfying its minimum book value capital requirements under the Basel standards. Indeed, the central purpose of employing non-equity capital in the first place, as noted above, is to bring market opinions into the process of regulating banks. The problem of using book values as triggers is not just one of managerial dishonesty.[83] Regulators and supervisors have shown time and again that they are hesitant to opine negatively about SIFIs in public. Such 'forbearance' leads to protracted delays in recognizing problems. That capital loss recognition problem is at the heart of the failure of PCA to fulfil the high hopes that the FDICIA would avoid costly bank failures.

What market-based measures could be employed as the trigger? The two obvious candidates are CDS spreads and stock price movements. CDS markets seem less desirable for the purpose of deriving triggers for several reasons. First, the markets are not deep enough, and thus may be prone to manipulation. Second, the pricing of risk is not constant over time; an observed spread at one point of the business cycle, under one set of market conditions, can be indicative of a higher level of risk than that same spread observed at another time under a different set of business conditions.

Equity values, if used properly, would provide the best source of information on which to base triggers. Indeed, some of the best-known cases of the failures of

83 And the complicity of accounting firms in window-dressing transactions as shown in the Lehman Brothers case.

large firms that 'surprised' some rating agencies or regulators were signalled long in advance of their failure by *severe and persistent declines in the aggregate market value of their equity*. KMV's rating of Enron's debt was the only one that correctly predicted a severe probability of default. The reason for its success was that the KMV model was based on the Black-Scholes approach to measuring default risk as a function of leverage (measured using market values) and asset risk (also derived from observed stock price volatility). Similarly, market value information about Lehman provided an early warning of its problems. Valukas (2010) shows that Lehman's market-to-book ratio fell from about 0.9 in June 2008 to 0.4 in July 2008, long before its September 2008 failure. The combined value of the equity and the outstanding debt at Lehman was slipping over time during the Spring and Summer of 2008, and that combined value was actually less than the face value of its liabilities on several occasions in July and August of 2008. A Lehman CoCo triggered by a substantial and protracted market decline in the equity value of Lehman would have produced conversion of debt into equity long before insolvency.

More importantly, as D'Souza et al. (2009) emphasize, the existence of a credibly triggered CoCo would have incentivized all large financial firms to voluntarily raise equity capital in large amounts before hitting the CoCo trigger. D'Souza et al. (2009) argue that even under the assumption of a 15% decline in share prices in reaction to an announcement of an equity offering, the dilution effects on stockholders would be much less from an equity offering than from a triggered conversion, provided that it is sufficiently large and on sufficiently favourable terms to the holder of the CoCo. In other words, managers who are maximizing the value of shareholders' claims in the firm will always have a strong incentive to prevent CoCos from triggering by preemptively issuing equity into the market or selling assets or lines of business, *so long as the dilution effect of the CoCo conversion is sufficiently large*.

We emphasize that declining equity values are only reliable as rough measures of a SIFI's health if they are persistent and severe, and even then, they offer only a rough indication of the firm's financial health. Fortunately, that indication is good enough to serve as an effective trigger for CoCos.

Would a trigger based on a substantial cumulative decline in the market value of the firm be desirable based on the criteria of predictability – timeliness, comprehensiveness and accuracy? Clearly, it is a comprehensive measure of firm value (in fact, it is the comprehensive measure of value). Because SIFI market values are continuously observable in deeply traded equity markets – markets that continued to trade actively even during the depth of the financial crisis – a trigger based on equity valuation will be timely and predictable.

Will it also be accurate? Yes, so long as the demands placed on the measure are not excessive. Equity prices are not perfectly reliable, and they are particularly unreliable in detecting small valuation changes over short periods of time. They may also be subject to manipulation. But for the purpose of constructing a credible, predictable, comprehensive, and reasonably accurate measure of large swings in the market value of a SIFI, the market value of the firm is the only real

possibility. So long as the user does not seek to achieve false precision, equity is reliable.

For example, suppose a trigger were defined as follows: The CoCo will convert from debt to equity if the market value of the SIFI's equity declines by more than 40% over the period of one month. This trigger would provide a reasonably accurate measure of a substantial decline in the value of the firm over a long period of time; no SIFI could reasonably argue that a long-term 40% decline in its equity was the product of market manipulation or irrational shareholder behavior.

4.3.3 The right amount of CoCos

Because the efficacy of CoCos as preventative devices depends crucially on their dilutive effects on equity holders, it is important that CoCos be issued in sufficient quantity. We would propose that the minimum required amount of CoCos be set at 10% of the 'quasi market value' of the firm (defined hereinafter as the sum of the market value of equity plus the face value of debt).[84]

We would also recommend a simplification of capital requirements that would mandate a book equity capital requirement set as 12% of the book value of assets. Note that in those nations in which conversion would become a real possibility, based on the 40% cumulative decline trigger, a 10% CoCo issuing requirement would imply a huge dilution of equity holders upon conversion. That would ensure the voluntary issuance of equity to preempt conversion.

4.3.4 Varying CoCos over the cycle?

Many policy-makers and academics have argued in favour of cyclical variation in capital standards. That topic is beyond the scope of this chapter, but suffice it to say that by fixing the minimum proportion of CoCos relative to the quasi-market value of the firm, our approach would cause firms to raise capital during booms, when they can do so most cheaply and when it will constrain growth, and allow firms to reduce outstanding CoCos somewhat if they experience cyclical declines in their debt or the market value of their equity.

4.3.5 Integrating CoCos with PCA

Because the trigger for CoCo conversion would occur while the SIFI is still demonstrably solvent, and because preemptive equity issues prior to hitting the trigger would result in further increases in equity, it is arguable that the CoCo requirement would make insolvency extremely unlikely. Nevertheless, unusually severe shocks do occasionally happen and, thus, it is still important to have on hand an effective PCA intervention regime and an effective system of resolution to go with it.

For the same reasons that a cumulative decline in the quasi-market value of the firm would serve as the best trigger for CoCo conversion, it would also

84 This measure is chosen because of its ease of observation on a continuous basis.

serve as the best trigger for PCA. If the CoCo conversion trigger occurred at the 40% cumulative decline point, then we would suggest a PCA trigger at the 80% cumulative decline point.

4.3.6 An example of how CoCos would work

Figure 4.2 illustrates how our proposed CoCo triggering would work. As the quasi-market value of the firm falls, approaching the trigger, a firm like A (line A) might issue equity (or sell assets) to avoid hitting the trigger. This might, in fact, enhance the virtually moribund market for corporate control of regulated financial institutions. If for some reason, a firm B is unable or unwilling to do so (line B), the trigger is breached, and the CoCo converts. If a firm C is unable to use the additional time to accomplish a restructuring or recapitalization, its value would continue to decline until PCA is triggered (line C).

Figure 4.3 considers the use of a decline in cumulative market value of equity (MVE) as a trigger from the standpoint of the experience of the 12 SIFIs that experienced deep problems during the 2008 financial collapse. Figure 4.3a plots the MVE of the six troubled US SIFIs, and Figure 4.3b plots the MVE of the six European-based SIFIs. March 2007 levels of MVE were at or near peak levels for all 12 firms, and we index the MVE to 100 for all firms in March 2007. As Figure 4.3a shows, if a 60% cumulative decline trigger for CoCos had been in place before the crisis, three of the six troubled SIFIs would have hit CoCo triggers by December 2007, two more would have hit the trigger by March 2008, and the final SIFI would have hit the trigger by June 2008. In particular, Lehman Brothers would have hit the trigger a full six months before it declared bankruptcy as would AIG before it was bailed out.

Market reactions in Europe were a bit slower, but still highly informative. RBS and UBS would have hit the CoCo trigger by January 2008. Lloyds and Dexia would have hit the trigger by June 2008 and ING by September. Since most of these institutions were very close to the trigger point at least a few months before

Figure 4.2 How a cumulative market cap trigger might work

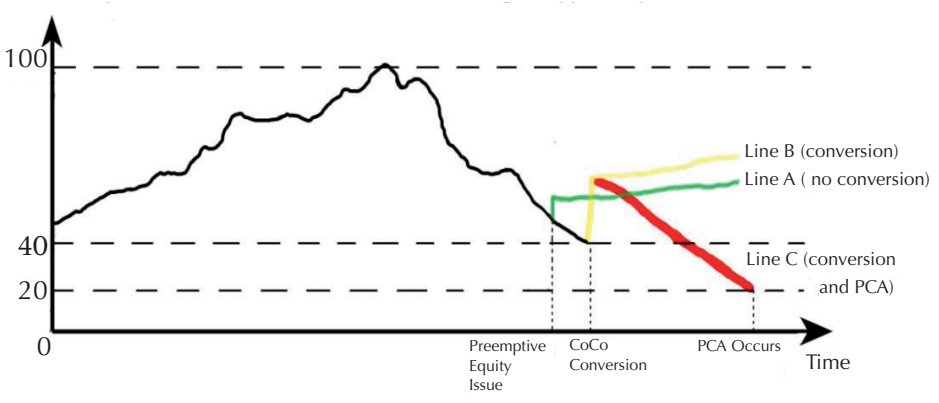
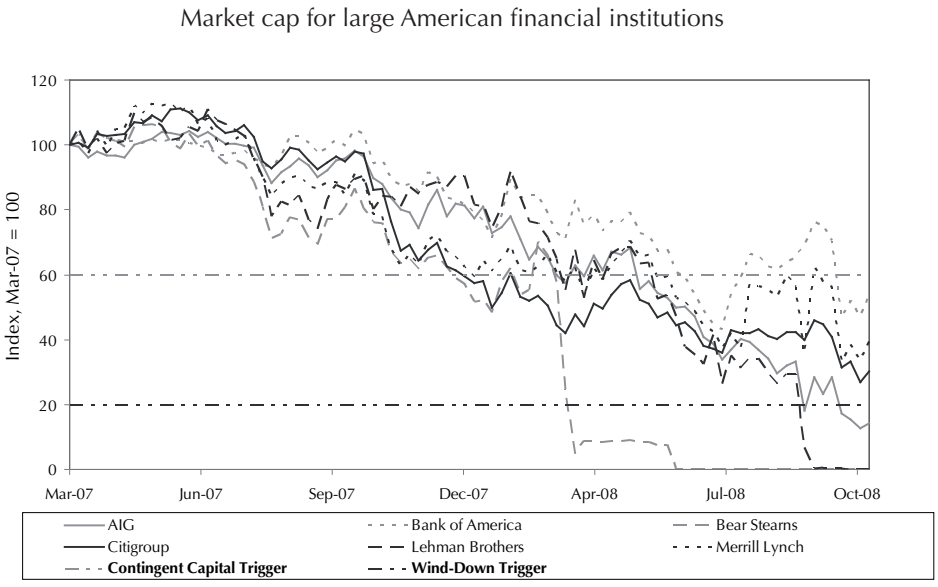
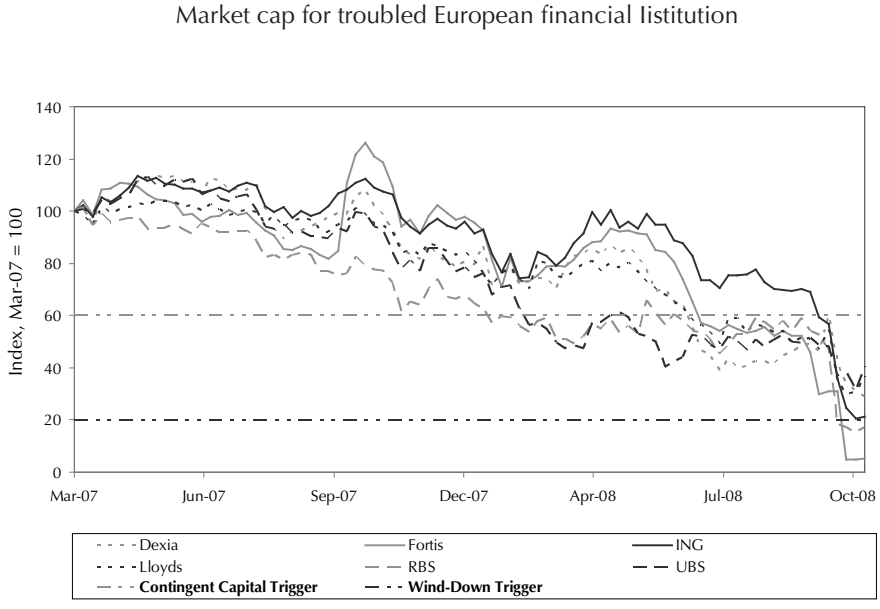


Figure 4.3 The CoCo and PCA triggers for (a) six troubled US SIFIs and (b) six troubled European institutions





they hit the trigger, it is likely that many would have issued equity or sold assets before they reached the conversion point.

We conclude that a trigger based on the cumulative decline of the MVE might have been an effective device for preventing the collapse of all of these troubled SIFIs during the 2008–2009 crisis. Moreover, each of these institutions would have faced strong incentives preemptively to issue equity or sell assets to avoid triggering their CoCos months earlier. And the supervisors could not have claimed to be taken by surprise at the sudden collapse of these firms.

4.4 The resolution process

Typically the contingent capital requirement will induce the SIFI to restore its capital position and enable it to continue operating without official intervention. If, nonetheless, a subsequent shock causes it to cross the conversion line and PCA actions fail to restore it to health, it will hit the regulatory insolvency trigger. At that point the resolution process must begin. The regulatory insolvency trigger should be calibrated at a level high enough above economic net worth so that the resolution could be completed without recourse to other funds, except perhaps to finance the restructuring of the parts of the business that can continue as going concerns.

It is, of course, possible that despite a CoCo trigger, a well-designed set of PCA interventions, a regulatory insolvency trigger substantially above net worth and a well-constructed resolution plan, the SIFI's own resources will not be sufficient to pay off all creditors and counterparties. This is, of course, a scenario that the college of supervisors should have simulated so that no supervisor should be surprised by the actions taken by the others. In some cases the home country may choose to inject funds to minimize the spillovers, but there must be a strong, verifiable justification for doing so since a properly executed resolution plan will constrain most damaging spillovers.[85] In some cases where two supervisors have strongly overlapping interests, there may be an agreement to share losses. But undoubtedly, in many cases, when it becomes clear there are significant losses to be allocated, some supervisors will choose to ring-fence the assets they can control.

Several questions remain open with regard to the best resolution process. The experience of 2007–2009 has shown that, as presently constituted, neither the FDIC acting as resolution authority nor the federal bankruptcy court have been able to resolve SIFIs without substantial spillovers (in the case of the bankruptcy court) or substantial costs to other banks (in the case of the FDIC) and taxpayers (when the Fed and Treasury become involved, as they inevitably have been in the case of SIFIs). Reform must create a means to transfer the control of assets and operations of a failed institution in an orderly way, while ensuring that shareholders and creditors of the failing firm suffer appropriate losses. This will

85 The desire to protect certain creditors or counterparties should not be regarded as an appropriate expenditure of taxpayer funds since it is likely to increase moral hazard and make future crises more frequent and deeper.

ensure that the resolution avoids significant disruptions to third parties, protects taxpayers from bailout costs, and restores market discipline to firms that might otherwise have been regarded as too big, too opaque or too complex to fail. Clearly no existing resolution agency or bankruptcy court is up to the task. But there is an active debate between those who prefer an improved resolution agency and those who favour an accelerated bankruptcy process. What follows is a summary of the pros and cons of each alternative.

4.4.1 The expedited bankruptcy option

Speed is crucial if disruptions are to be minimized. Yet in most countries, bankruptcy procedures apply a stay to all claims on the firm. This procedure is intended to protect the status quo and to enable the bankruptcy administrator to identify and realize maximum value for the firm's assets (which may involve selling part or all of the firm as a going concern) and allocate the proceeds to creditors equitably. All of this takes a substantial amount of time and legal expense. In the United States, which has relatively speedy bankruptcy procedures, the average time for a non-bank firm to emerge from Chapter 11 reorganization proceedings is 17.2 months and for Chapter 7 proceedings, which apply to liquidations, from two to four years.[86] But time is of the essence in dealing with a failing financial firm for four reasons.

First, SIFIs are often funded in wholesale markets in which participants may lend funds on a very short-term basis because they may need to make use of the funds the following day. Freezing these balances would be sure to have knock-on effects in the form of funding problems for other SIFIs.

Second, a financial firm has portfolios of interconnected legal contracts, many of which are traded 24 hours a day and repriced from one trade to the next. A default will trigger consequences that will not only cause losses and penalties for the failing institution, but also it will cause changes in its net exposures or in that of its counterparties. If the failing firm is unable to continue trading to hedge its exposures after bankruptcy, the value of its assets may decline. Aggressive, dynamic management of the portfolio may be necessary to preserve asset values. Indeed, a stay may cause losses not only to creditors of the failing firm, but also to counterparties who are unable to liquidate, transfer or rehedge their positions. This increases the probability that the failing firm will cause additional failures.

Third, confidence is a crucial input in the production of financial services. If clients and counterparties cannot be reassured that the firm will be able to perform on contracts as promised, the firm's business will simply disappear. Quick action is needed if there is to be any opportunity to harvest going-concern value from the firm. A financial firm cannot continue operation as a gone concern.

Fourth, the skills of the people who run the business are another crucial input into the production of financial services. If employees are faced with uncertain prospects over an extended period, they will leave for other jobs, taking firm-

86 This was true over the period 1982–5 (Group of Thirty, 1998, p. 139) in the United States. The liquidator of the four UK subsidiaries of Lehman Brothers has predicted that the process will take at least 10 years.

specific expertise with them. This too will undermine efforts to realize going-concern value from the sale or reorganization of parts of the firm.

Thus, the delays inherent in standard bankruptcy procedures may undercut efforts to preserve asset values for distribution to creditors of the failed firm. In addition, they may increase the damage to counterparties and creditors of the failed firm, increasing the likelihood of systemic consequences. Moreover, the bankruptcy courts have no obligation to consider the systemic risk implications of their actions. Their focus is to restructure the parts of the firm that can be maintained as a going concern and to make an equitable distribution of the assets of the bankruptcy estate to the creditors according to the priorities established in various contracts.

Critics of the process also complain that the management that led the firm into bankruptcy generally remains in control and that various participants may engage in venue shopping and attempt to delay the bankruptcy proceeding with the result that much of the bankruptcy estate is consumed in substantial legal costs.

4.4.2 The enhanced resolution agency option

The United States has long recognized that separate procedures should apply to banks. The FDIC has been given the objectives of ensuring that depositors have prompt access to insured deposits (and, to the extent possible, to other funds as well) and to ensure that the systemic threat of a failure is contained.[87] The FDIC has a broad range of powers to repudiate contracts and transfer positions to other banks as well as options for dealing with a bank failure[88] including liquidation, arranging a purchase and assumption transaction with another institution, establishing a conservatorship, providing open bank assistance or creating a 'bridge bank'.

This last option is the technique most likely to be applied to a SIFI (Bovenzi, 2002). A bridge bank is a temporary national bank organized by the FDIC to take over and maintain banking services for the customers of a failed bank.[89] It is designed to bridge the gap between the failure of the bank and the ultimate resolution, which is intended to happen as speedily as a suitable buyer can be found.

Despite these powers, the FDIC has been virtually powerless to deal with the failing US banks that could be called SIFIs, because this would have required cooperation with bankruptcy courts and with other regulators that have oversight of parts of the group that comprise the SIFI. This degree of cooperation is simply without precedent. Indeed, state insurance supervisors and the Securities Investor Protection Corporation have expressed their unwillingness to cede their powers

87 See Kaufman and Seelig (2002) for an excellent analysis of the importance of maintaining the liquidity of bank deposits to minimize the spillover damage from bank failures.

88 The FDIC is required by law to choose the method of resolution of the insured depository institution that is least costly to it (although there is a complicated procedure for creating a systemic risk exception). Resolution by the FDIC is further constrained by the Domestic Depositor Preference Act of 1993, which requires that all uninsured domestic depositors be repaid before any depositor at a foreign branch.

89 The Japanese Deposit Insurance Corporation is also authorized to set up a bridge bank to deal with a bank failure with no immediate prospect of another institution acquiring the failed bank.

to the FDIC. Instead they insist on guarding the clients and customers they are required to protect. Moreover, there is no established mode of cooperation between the FDIC and bankruptcy courts.

Those in the United States who would like to expand the powers of the FDIC to become a resolution agency capable of dealing with SIFIs, want to create an agency that will be able to shape many aspects of the resolution process, including the timing of closures and the choice of reorganization, liquidation or a pre-packaged resolution. They would also like this new agency to have power to wipe out shareholders (except for residual value) and to allocate losses or protection from losses across and within creditor classes with the flexibility to maintain an orderly resolution.

In addition, they want the agency to have the ability to maintain critical, systemically important services and to select management while the SIFI is in the resolution, reorganization or bridge institution phase. Moreover, they would like the agency to have the ability to claw back funds that had been inappropriately transferred before the failure (which could of course include funds transferred internationally) and to avoid any second guessing by the courts. They would also like the agency to have a pool of funds – collected from the SIFIs, not taxpayers – to cover losses not allocated to depositors or other creditors deemed necessary to prevent systemic risk. Finally, they recognize the necessity of coordinating with other foreign jurisdictions that may be affected by their intervention. This would be very different from the current FDIC in terms of the scope of its domestic and foreign powers.[90]

By contrast, those who favour an expedited bankruptcy process tend to believe that this use of the legal system will minimize moral hazard, by ensuring that payment priorities are respected. They believe that it will be difficult to bail out uninsured creditors if the process is transparent and impartial, although they are generally willing to give standing to the government to make the case for considering systemic spillovers and for guaranteeing DIP financing or subsidizing a resolution, if necessary. Moreover, they tend to believe that certainty with regard to the default outcome – recourse to the bankruptcy courts – will tend to encourage prepackaged resolutions and strategic sales of assets as well as exert market discipline on SIFIs. Generally they believe that Chapter 11 can help maintain competition and protect existing relationships.[91]

As a practical matter, given the demonstrated difficulties in achieving a coordinated resolution of an internationally active financial firm, there is considerable merit in seeing which approach can be more easily harmonized internationally. Are general bankruptcy concepts and priorities more alike in the core countries? Or would it be easier to devise resolution agencies with comparable powers? Unfortunately, we currently lack the data to answer the question with any certainty, but it seems an important subject for international bodies like the

90 These ideas can be found in the Frank Bill that passed the House of Representatives and the Dodd Bill that was released to the floor of the Senate in late May. Kroener (2010) and Cohen and Goldstein (2009) also make strong arguments for expanding the powers of the FDIC to deal with SIFIs.

91 See Ayotte and Skeel (2010), Jackson (2010), Jackson and Skeel (2010) and Bliss and Kaufman (2010) for suggestions about how to make the bankruptcy process more effective for dealing with SIFIs and reasons to prefer a speedy bankruptcy process to expanded resolution agency powers.

FSB to investigate. Compatible resolution processes will certainly not assure that all coordination problems will be handled properly, but it is certainly a step in the right direction.

4.4.3 The acid test: would this integrated system have helped reduce the damage from the two largest failures – AIG and Lehman Brothers?

Although counterfactuals are speculative by definition, there are at least seven reasons to believe that such a system would have been effective. First, both AIG and Lehman Brothers would have been identified as SIFIs and, because of their vulnerability to a shock, would have been identified for close monitoring. Second, the information produced in preparing the resolution plan would not only have alerted regulators to their precarious position, but also would have caused the corporations to simplify the legal structures of their operations. Third, the necessity of the board to approve the resolution plan might have reduced the propensity to take risk. Fourth, the issuance of CoCos and the knowledge that a viable resolution plan existed for each institution would have enhanced market discipline and limited risk taking.

Fifth, both firms crossed the CoCo trigger 6–8 months before their demise. Since Lehman was heavily owned by its managers and employees the prospect of dilution would have surely concentrated their minds on raising new equity, while they still had access to equity markets or on selling lines of business or assets. Even if they had hit the conversion trigger, however, the automatic recapitalization would have given them more time to find a private solution to their problems, which might have involved a merger, a restructuring, an additional recapitalization or a change in management. At a minimum, it would have warned the supervisors and resolution authorities of impending trouble so that there would have been no necessity to engage in desperate measures over a sleepless weekend. Breaching the PCA trigger would have conserved liquidity by restricting dividends, share buybacks and bonuses.

Sixth, the primary supervisor and the college of supervisors would have understood the challenges they faced in a resolution. They would have understood the processes that would need to be followed and they would have known which authorities would be likely to ring-fence the assets in their domain and which would have been willing to pool assets in a general settlement. Finally, if the worst happened, authorities would have had a clear plan to follow to minimize spillovers and maximize the bankruptcy estate for creditors. Of all of these benefits, perhaps the most important would have been to simplify the corporate structure, ensure that systemically important functions would continue to operate and execute a predictable, orderly resolution.

4.5 Summary

For all countries, there is much scope to develop more effective measures for reducing the probability and magnitude of the failure of a global institution, and for resolving their operations. All countries need to construct a robust national supervisory and resolution system that minimizes the probability that the failure of a SIFI generates spillovers that threaten financial stability. The system must make sure that losses from failure fall only on shareholders and creditors who have been paid to take the risk. The ideal system begins with a competent supervisory authority that has access to a wide range of information, some of it derived from resolution plans. This will enable it to perform triage and focus its attention on the institutions that are most likely to disrupt the financial system. Supervision needs to be reinforced, however, by strong market discipline from three sources.

First, each SIFI should have contingent capital, triggered by market indicators that will automatically recapitalize a firm that encounters difficulty. The requirement for such contingent capital should be calibrated so that if the conversion happens, shareholders will be severely diluted. This will ensure that owners and managers will make every effort to find a private solution to the SIFI's problems before mandatory conversion is triggered. If nonetheless a conversion is triggered, there will be time to undertake a restructuring.

Second, if the SIFI's condition continues to worsen it will be subject to PCA measures (comparable to those that any bank would apply to a borrower that is nearing default). This should make the incentives even stronger for SIFI's owners and managers to find a private solution to the problems.

Third, if the SIFI nonetheless hits regulatory insolvency (which must be substantially above zero economic net worth, book value insolvency or illiquidity),[92] then it is subject to resolution. The plan for resolution would be negotiated beforehand with the SIFI's management, its board and international college of supervisors. Its design would ensure that the SIFI can be dismantled without interrupting the provision of any systemically important services or creating any other significant spillovers. The resolution plan would be reviewed each year and subject to stress simulations by the college of supervisors. It would make clear to the market that no firm is indispensable and that whatever essential functions it performs can continue to be provided. This will help to combat the increase in moral hazard resulting from the bailouts conducted by advanced countries over the past three years.

92 Indeed, an essential ingredient for closer cooperation among countries will be a common definition of regulatory insolvency.

5 Resolution in an International Context

We begin this chapter by describing various model approaches of resolution practices for SIFIs on an international basis. We discuss three model approaches: (1) a universal approach; (2) a territorial approach; and (3) what can be called a modified universal approach. We will then analyse how these models address the challenges laid out in Chapter 2 regarding cross-border resolution ('the trilemma'). While these models are not mutually exclusive and can, in fact, be combined in several ways, there is a value in considering them separately: each model has its own objectives, internal consistency requirements, and specific costs and benefits. This discussion will lay the ground for the next section, which will review the feasibility of utilizing these models for various groups of countries.

For some groups of countries, the universal approach may be feasible, although even for these countries, it will require some significant improvements, notably in burden sharing arrangements. Because the European Union (EU), and the European Economic and Monetary Union (EMU) specifically, is leading the world in financial integration efforts, it has been forced to confront the issue of *ex ante* burden sharing more fully than other countries, so it can provide some lessons and insights.

To be sure, a universal approach is not imminent globally. Most nations are not willing to relinquish the degree of national sovereignty required for true universality. Furthermore, a global approach could be undesirable if it undermines incentives for effective supervision, and then may actually increase the size of burdens to be shared.

We continue the chapter, therefore, with an assessment of what improvements are possible and what is likely to be the most realistic approach for the majority of countries to address the trilemma. That will turn out to be a modified universal approach for cross-border resolutions. Besides calling for more harmonized resolution schemes, this last section presents new proposals for improving the efficiency of global financial markets, while enhancing their stability and respecting the sovereignty of individual countries.

5.1 Main resolution approaches: concepts

Table 5.1 summarizes the three model approaches for resolution on an international basis.

Table 5.1 Overview of various models and their essential elements

Model Essential elements	Universalism	Territoriality	Modified universalism
Legal and other rules governing distribution	All assets globally are shared equitably among creditors according to priorities of home country.	Assets can be ring-fenced so that they are first available for resolution of local claims with any excess remitted to other jurisdictions.	Host country can decide to ring-fence, but can also choose to cooperate, including remitting assets to home country.
Control of the resolution process	Home country controls resolution of SIFI and entities (branches and (most) subsidiaries). Host countries cannot pursue local resolution within their jurisdictions to the extent that materially affects the value of the SIFI as a group.	Home country controls only the resolution of parent and domestic branches and subsidiaries. Host countries mandated or are able to pursue local resolutions.	Home country controls resolution of SIFI and all its branches. Host country can decide to cooperate as regards subsidiaries.
Legal /judicial and other processes	Local rules are consistent with universalism (e.g., no deposit preferences, laws allow other jurisdictions to pursue resolution). Can require piercing of corporate veil for group interests.	Legal rules can vary, but may create inequalities of treatment between domestic and foreign creditors.	Some convergence in rules and processes (otherwise limited scope for cooperation). E.g. corporate bankruptcy (UNCITRAL).

Source: Brierley (2010), Hüpkes (2010), Tucker (2010).

5.1.1 The universal approach

Under this model, cross-border SIFIs would be subject to a single common process for resolution, including bankruptcy. The SIFIs would be chartered by their home country regulator or supervisor, with home country defined as the country in which the SIFI is headquartered. The home country regulator would be in charge of supervision in the standard ways, including through remedial actions.

If a bankruptcy of the SIFI occurs, recoveries of any and all world-wide assets would be available for distribution to stakeholders according to the home country's set of priorities.[93] All creditors of the same class, wherever located, would be treated equally, pursuant to the same home country rules governing the ranking of creditor classes, that is, no distinction would be made in the treatment of claims regarding the jurisdiction in which assets or liabilities are located. Thus, the resolution could focus on maximizing value globally and would not be distracted by the costly and time-consuming disentangling of multiple intra-group relationships and claims.

For the universal approach to work, all national rules for resolution and insolvency as well as associated processes would have to recognize the universality principle.[94] This means that countries would recognize the extra-territorial effect of proceedings initiated abroad. Depositor preferences and ring-fencing assets would be ruled out, and no one would be able to bring suit in the host country once a bankruptcy is filed in the home country.

The resolution itself could be undertaken through specialized court procedures or through the resolution authority or supervisor in the home country (as discussed in Chapter 4). The presumption is that a resolution authority takes the lead in the process. Under this model, the home country regulator would control the SIFI resolution process for all of the SIFI's entities at home and abroad. It is also assumed that the home country organizes a rescue and bears its costs.

There can be several problems with the home country regulator controlling the resolution process, however. Perhaps most importantly, the home country may not fully take the interests of other countries into account when intervening or resolving. The home country regulator is, after all, only responsible to the home country taxpayers and may not necessarily provide support for host country entities when there is limited impact on the home country. Indeed, home country taxpayers may object to assisting foreign creditors, particularly if the causes of the crisis relate to events outside their jurisdiction (e.g., consider a large subsidiary going bankrupt because the local government defaults on its obligations). Furthermore, the financing and potential costs could exceed the

93 This does not preclude the bankruptcy of subsidiaries on a local basis as long as that does not affect the SIFI as a group on a material basis. Obviously, this can involve a large degree of judgment, but the point is that the resolution is not limited to home activities and all branches, but does need to consider subsidiaries as they can be material to the SIFI as a whole.

94 Under universality, other national rules for resolution and insolvency (in terms of triggers, repayment priorities, treatment of inter-affiliate claims, right of set-off, time to repay liquid claims) or the efficiency of judicial systems would not need to be similar. Actually, in theory, there might a benefit to some competition among legal systems. Financial institutions could choose their HQ location according to what they consider the most attractive legal and judicial system. Furthermore, they even choose to have their claims follow a certain legal system, even when their HQ location remains somewhere else (see Wallison, 2010). The key is that once a resolution of the SIFI is triggered, worldwide assets are available for the resolution.

home country's capacity and fiscal resources ('too big to save'); Iceland is a good example. Also, the home authorities may lack the capacity and resources to detect problems arising in foreign jurisdictions that may threaten a firm's viability.

Meanwhile, host countries may be reluctant to rely on home country authorities for regulation, nor will they want to defer to them for resolution if this implies that the host country's creditors will be treated less favourably than they would be in a territorial proceeding. They may also be concerned that as foreign creditors they would receive less favourable treatment than similarly situated domestic creditors in the home jurisdiction (Group of Ten Contact Group, 2002). This reluctance would be heightened in cases where the local operations of the foreign entity are of systemic importance. The operation as a single entity may also make it more difficult to carry out a resolution that seeks to separate and continue operating critical, systemically important functions when other non-essential businesses are wound down (Hüpkes, 2005).

Consequently, under the universal model, there will be a need for predetermined policies or agreements regarding the sharing of burdens if a SIFI needs to be resolved. This is clear for one of the more typical resolution events – when temporary bridge financing is needed. Burden sharing requires clarifying who is responsible for organizing and providing this financing while being exposed to potential losses. (Note that the specific amounts to be provided can still be determined on a case-by-case basis.)

Given the size of a typical SIFI, such financing needs could be large and the regulator or other party would need to have access to fiscal backup from various governments. Since losses may arise, the arrangement also needs to specify *ex ante* how these losses will be allocated. Furthermore, any agreement would have to be consistent with the application on a cross-border basis of national deposit insurance/guarantee schemes and 'resolution' funds.

Various models for organizing this financing and burden-sharing will be presented later. But the key to avoiding coordination issues is to specify how these matters are to be handled *ex ante* rather than to improvise *ex post* – as has generally happened in the recent financial crisis. This *ex ante* agreement can offer the additional benefit: the countries involved have greater incentives to make sure that each supervisor makes an adequate investment in order to minimize the possibility that a SIFI would get into difficulties because the financing and final costs would be shared by all.

Balanced against this advantage is the risk of free-riding by some supervisors since the burden sharing is pooled. As a general proposition, however, having clarity on the resources potentially at risk increases accountability and fosters incentives to assign responsibilities more clearly. This can enhance incentives to critically evaluate home and host country regulation and supervision, increase cooperation, including better information sharing, and reduce overall risks and costs.

The SIFI's organizational structure that fits most naturally with this universal approach is a *single entity*, that is, a SIFI incorporated in one jurisdiction and operating a global network composed of branch offices. Its integration facilitates dealing with stress because it would permit liquidity to flow freely from one

location to another. Moreover, the home country authorities license, supervise and regulate the global business of the financial firm; that means the home central bank is responsible for providing liquidity assistance and the home resolution authority would take the lead in resolving it down if necessary.

5.1.2 The territoriality approach

Under this model, there would be no presumption of sharing of assets internationally in case any parts of the SIFI were to become insolvent. Each unit of a SIFI would be resolved according to local laws in a process that would consider only local assets. The organizational structure that fits most neatly with this paradigm is the *stand-alone subsidiary* model where each subsidiary is also functionally independent. This structure makes institutions easily resolvable under local laws because they are operating in each jurisdiction through separately incorporated entities and do not depend on other entities in the group for critical functions.

The entities would be licensed, regulated and supervised by local authorities, which would also assume sole responsibility for resolution in a crisis. To fully insulate the entity from stress affecting other affiliates, each entity would need to operate its business on a stand-alone basis with full operational and financial independence.[95] A stand-alone subsidiary would thus be separately capitalized and maintain its own liquidity. Such self-sufficiency could help insulate individual components of the firm from shocks and facilitate separability so that a failing financial group could be resolved more easily by selling its sound subsidiaries to other market participants.

This model does address some issues associated with cross-border financial turmoil and financial crises. If firewalls between an international financial institution's subsidiaries are assured by a holding company structure, direct financial spillovers in case of solvency problems could be limited. The approach could be complemented by other institutional arrangements – besides requiring critical functions to be always available to all entities within the group, such as requiring greater use of centralized clearing and settlement in international banking and capital market transactions.

In some respects, however, the subsidiary model can lead to perverse actions on the part of regulators, supervisors, financial markets participants, and the business themselves. These may involve the exercise of regulatory powers to ensure that there are sufficient assets in the jurisdiction to cover domestic liabilities in the event of failure (e.g., asset pledge requirements) and adequate powers to ring-fence assets in case of failure, which may drive early intervention and lead, ironically, to a 'regulators' run on the bank'. It could mean limitations imposed on intra-group transactions, including transfers of assets, to prevent contagion and protect creditors of a given legal entity.

95 Any remaining connections among subsidiaries, including stockholding in subsidiaries, could give rise to conflict if they were resolved in separate proceedings governed by different legal regimes and administered by different national authorities. If taken to the extreme, this means that it could not rely on a foreign parent's or affiliate's treasury functions, funding, cross-guarantees, back-office and IT systems, agency agreements, brokerage or custody services.

While this approach has some attraction from a narrow stability point of view, spillovers may still arise. For example, the insolvency of a subsidiary of a global financial institution that operates under the same name as its parent could affect the ability of the rest to the group to attract funds, even though there are no direct financial spillovers. Furthermore, the separation can come at a cost when managing a crisis. The SIFI's ability to shift funds from one affiliate to another, for example, would be very restricted, which could also affect the group's ability to cope with severe stress. Being unable to move assets freely across the group for legal reasons could lead to 'trapped liquidity' and cause unnecessary insolvency in some parts of the group as they become strapped for cash even though other parts of the group may be quite liquid.

More generally, the model comes with large operational costs to the SIFIs. Completely self-sufficient national operations negate most of the benefits from group structures in terms of cost-efficiency and economies of scale and scope. This structure makes it difficult to use capital and liquidity efficiently within the group or gain the benefits of geographical diversification. What is the point of creating an international group if it must be composed of entirely separate entities? Why not simply make investments in entities located in different countries?

These two stylized cases, *single entity* versus *stand-alone subsidiary*, illustrate the *interactions between structure and the allocation of losses*. It is clear that the manners in which financial firms operate and organize themselves, the ways they are regulated and resolved in a crisis, and the ways the losses and costs of resolution are allocated are all closely interrelated. Such issues as the legal form of cross-border operations (branch or subsidiary, with, in this internet era, possibly no physical presence), internal organization (decentralization or integration; organization along geographical lines or lines of business), and other aspects of the manner in which the business is conducted, determine what laws and what regulatory regimes will apply and which authorities are charged with their application and enforcement. Changing any one of these factors may alter the recoveries that creditors could expect to obtain in a resolution. Moreover, shifting liabilities and losses by imposing or changing requirements relating to structure and operations will affect the determination of the applicable legal regimes, and that, in turn, will determine distributional priorities. It will also affect the incentives of market participants, who may choose to relocate or to structure their operations differently.

5.1.3 Modified universal

Under this model, cooperation is possible between jurisdictions with compatible resolution schemes. Modified universalism would give host countries the right, but not the obligation, to bring local resolutions against local parts of a SIFI, while the home country addresses the overall resolution of the SIFI. Subject to certain conditions, the host country could also remit all local assets to home country resolution authority for global sharing. This is somewhat akin to

industrial sector insolvency laws, where 'ancillary proceedings' are subservient to the 'main proceeding'.

The modified universal model obviously involves some compromises and some specific conditions in order to work. One key condition is equitable treatment of a bank's creditors at all its entities at home and abroad. It would also be more effective if the national rules for resolution and insolvency would be similar in terms of such things as triggers, repayment priorities, treatment of inter-affiliate claims, and rights of set-offs because this would reduce conflicts.[96] But all these rules needs not imply universality. Indeed, the approach has been implemented by 'territorial' countries, such as the United States, for non-financial corporations.

Modified universal does not require *ex ante* agreement on burden-sharing principles, but it does require that much greater emphasis be placed on measures to minimize the likelihood and size of any burdens arising. Mutual recognition of supervisory and resolution regimes and broad harmonization of supervisory and resolution regimes would obviously be helpful (see European Commission, 2009a, 2009b). And preferably there is a good deal of sharing of information and cooperation between supervisory and resolution authorities, with key players trusting each other, and with such tools as common systemic risk assessments in place to facilitate rapid action under time pressures.

5.2 The trilemma, trends and trade-offs of various approaches

5.2.1 The models and the trilemma

We can compare the three models against the overall conceptual framework for cross-border resolution (the *financial trilemma*) laid out in Chapter 2. The financial trilemma stated that the three policy objectives – maintaining global financial stability, fostering cross-border financial integration, and preserving national resolution authority – do not easily fit together. Any two of the three objectives can be combined with relative ease, but it is difficult to achieve all three.

It will be obvious that the first two reform models are corner solutions. Under the universal approach all global assets are shared equitably, and financial integration is facilitated as financial institutions can operate cross-border without impediment. When this approach is combined with burden sharing between countries, the incentives for better coordination in supervision and resolution are strengthened as well. In terms of the financial trilemma, national sovereignty is of course partly given up.

Under the territorial approach, assets are first available for resolution of local claims, that is, ring-fenced. There is no need for international burden sharing

96 Achieving this would require harmonization in many additional judicial processes, including the recognition by the host court of evidence collected under foreign court; clarity on the role of ancillary decisions; foreign assistance for an insolvency proceeding taking place in the home; foreign representative's access to courts of the home; recognition of foreign proceedings; cross-border cooperation; and coordination of concurrent proceedings. Many of these have been reviewed in the context of the UNCITRAL model law on cross-border insolvency (1997).

or coordination, as each country manages the resolution of its own part of a cross-border group. Financial institutions will organize themselves as stand-alone entities, and markets will so require, and will not be able to easily move capital and liquidity to its most efficient use. Territoriality gives up on the cross-border integration dimension of the financial trilemma, but preserves national sovereignty.

Modified universalism is an intermediate approach which addresses each of the three elements of the financial trilemma partly. While not giving up national sovereignty fully, those countries which choose a modified universal approach need to adopt improved and converged resolution rules, better resolution plans, and an enhanced set of rules governing cross-border resolutions. At the same time, financial integration is facilitated and financial stability is enhanced.

5.2.2 Trends in universality versus territoriality

Until the last decade or so, the territoriality principle was the most prevalent. But in response to increased international financial integration, some movement towards universalism has been made. There are a number of examples of these efforts in the EU (including the EU Credit Institutions Reorganisation and Winding-Up Directive (2001); see also European Commission, 2007a, 2007b, the European Insolvency Regulation 2000). There are also examples at the global level for non-financial corporations (the UNCITRAL Model Law 1997, later modified). Moreover, there has also been some progress towards universality at national level in the United States through Chapter 15 of the US Bankruptcy Code adopted in 2005 (modified) and in the United Kingdom with the 2009 Special Resolution Regime (SRR).

Nevertheless, the push for territoriality remains strong, and the recent financial crisis has, if anything, reinforced this view among policy-makers, regulators and supervisors. In some cases, host country authorities may lack confidence in home authorities' supervisory and resolution regimes and may therefore be reluctant to agree to universality.

This has been a concern in the United States, for example, following the problems at BCCI. Here depositors in the United States were at risk as home country supervision fell short, necessitating the ring-fencing of assets in the United States. More recently, this has also been a concern of some EU countries (e.g., the United Kingdom and the Netherlands), following the problems with Icelandic banks (see Chapter 3). The Icelandic authorities did not apply equal treatment to domestic and foreign depositors. Conversely, territoriality can create some discipline as it encourages early intervention and accountability by host authorities.

5.2.3 Trade-offs in universality versus territoriality

Obviously, territoriality is consistent with the fiscal independence of nation states. This can make territoriality seem preferable in some cases. For example, a home country may lack the financing or fiscal resources to support its financial

institutions in case of turmoil, which will make host countries reluctant to agree to universality. Moreover, territoriality does not require the complications of agreeing on *ex ante* burden sharing agreements. In a crisis, the approach has some special appeal because speed becomes essential and because burden sharing and other conflicts of interest between home and host country authorities are inevitably heightened in a crisis.

There are costs, however. Obviously the territorial approach undermines cooperative solutions at the system level – since individual authorities may not take global financial stability into account. And also at the individual financial institution level – since preservation of going-concern value can be undermined. In times of turmoil, it can trigger grabs for assets by both creditors and authorities. When applied by some key countries (as in the forms of the US or Australian national depositor preference laws), it can undermine home country resolutions that are based on equitable treatment of world-wide creditors. And at the level of the individual financial institutions, it can complicate restructurings (e.g., in the application of carve-outs/exemptions across borders, set-off rights or enforcement of collateral) and may destroy value.

In its extreme form, a system of nationally segmented financial institutions would be a large step backward from the current trend towards greater international financial integration. Moreover, the requirement to establish multiple stand-alone units could increase the cost of providing cross-border financial services by preventing synergy gains arising from economies of scale and scope. For example, most SIFIs manage their liquidity across various jurisdictions in a centralized manner, especially when sharing the same currency. But under this model, liquidity would be managed on a country-by-country basis. Also, capital market activities at many international financial institutions are located in a small number of centres, even though they involve financial exposures to multiple countries.

Thus, territoriality does not present an attractive solution to international coordination issues. In fact, it gives up on internationalization and globalization. The financial crisis has already led to increased financial nationalism. Formalizing this further by encouraging separate subsidiaries could represent a serious set-back to transnational financial integration. In the longer run as well, there is a risk that this model undermines the political support for more open financial systems and deters necessary improvements to the international financial architecture.

5.3 Applying the universal approach

Currently, the universal approach is clearly not feasible on a global basis. To be fully consistent, the universal model would require an entity that could regulate and supervise most SIFIs. This regulator would need to be complemented by a lender-of-last-resort liquidity facility and an international deposit insurance and recapitalization fund similar to those funds in a domestic context. This is unlikely to happen for many reasons. Moreover, centralization could also create

new risks. General experience with international governance in other arenas is sobering enough to be sceptical.

At the same time, some elements of a universal approach are achievable in the medium term. The WTO shows that it is possible to develop an effective international arbitrator in specific settings. While not suited to the fast decision-making needed in financial crises, the discipline from a WTO-like process could be useful in establishing regulations and resolution procedures. Similarly, recent actions by regional competition agencies with respect to financial services demonstrate that regulators can be more effective in enforcement when further removed from the industry (European Commission, 2008; and Dewatripont et al., 2010).

Regardless of its merits though, a global financial regulator is unlikely to materialize in the near future. The experiences of the EU and EMU suggest that, even after achieving very close financial and economic integration, adopting a common, single regulatory and supervisory authority is very difficult from a political point of view.

Nonetheless, there is scope for considering the universal approach among those countries that already have a high level of economic and financial integration. Indeed, in an integrated area like the EU *ex ante* burden sharing is already a critical issue. Recently this need for burden sharing has been exemplified, in a different way – by the financial problems facing Greece. And, as noted, the EU has been making progress in reforming and harmonizing its national institutional frameworks by adopting a number of directives promoting universality in banking (e.g., European Commission, 2001).[97]

Still, how can a group of countries like the EU or an even more integrated group like the EMU establish a universality model? Even if there is a willingness to take this approach, it cannot be adopted overnight because it would require substantial changes in existing contracts, financial institutions and markets.[98]

One feasible transitional approach might be to establish a separate regime for large, internationally active financial institutions, with elements of both coercion and voluntarism. Under the 'European Bank Charter' (EBC), proposed some time ago by Cihák and Decressin (2007), large cross-border institutions would be chartered and regulated by a single supervisor (see also Decressin et al., 2007). This supervisor could be a separate new institution or part of a regional institution, such as the European Banking Authority (EBA) that is being established.[99]

97 Current policy discussions in the EU are moving towards *ex ante* preparations for *ex post* burden sharing. These preparations can take place in the newly created cross-border stability groups established for each cross-border bank in the EU. The supervisors, central banks and ministries of finance of the relevant countries, in which a cross-border bank is located, are part of these cross-border stability groups.

98 One possibility is a Supranational Model, where sovereign nations cede the necessary powers and resources to an international supervisory authority. Although there has been some discussion of this model in the context of the EU Economic and Monetary Union, where countries have already ceded one important aspect of sovereignty – control of the money supply – to the European Central Bank, such proposals have yet to come to conclusions because of concerns about how to share costs should support become necessary.

99 There could also be other regional based charters. Furthermore, using existing national structures is feasible too. Cumming and Eisenbeis (2010), for example, propose a simplified structure for the United States that could form the basis for an international approach.

This body would license and supervise the EBC financial institutions. The arsenal of remedial actions available to it would include those normally available to deal with weak financial institutions. Resolution functions could be part of this supervisor, or they could be separately assigned to a newly created European Resolution Authority (Fonteyne et al., 2010). There would need to be a burden sharing mechanism to address the problem that coordination is both hard to agree on and very difficult to enforce *ex post*, especially when speedy action is needed to contain and resolve a crisis.

A common supervisor would assure coordination, and if intervention were to be necessary, the supervisor's powers would be backed by sufficient resources to make it credible. Goodhart and Schoenmaker (2006, 2009) have proposed various approaches to organize this burden sharing *ex ante* (see Box 5.1 for some examples of models).[100] In addition, a debtor in possession (DIP) financing model could be considered.

In exchange for being required to participate – or, alternatively, subjecting themselves to this regime, the EBC SIFIs could operate in the sponsoring countries without any further permissions, regulations or need for reporting and compliance (except for country-specific requirements, such as macro-prudential requirements to mitigate country-specific booms or systemic risks). EBC SIFIs would only need to report to one supervisor since its branches and subsidiaries would be treated the same for regulatory purposes. As a result, they would avoid many compliance and administrative costs.

The possibility of an orderly resolution, with burden-sharing rules agreed upon in advance, could be a source of strength, especially for a large SIFI from a small country with limited financial and fiscal resources. Of course, this possibility of government support needs to be well circumscribed to avoid moral hazard.

The model could start small, involving perhaps only a limited set of EU countries, with other countries invited to join in later on (see, for example, Hertig et al., 2010).[101] This approach cannot be too flexible or countries would be tempted to exit opportunistically. This means there would need to be some sanctions for exit, besides loss of reputation. The model could continue to differentiate among types of financial institutions on the basis of such attributes as size of international activities so that small banks remain regulated nationally). An additional advantage of an international supervisor is that the distance to the regulated entities would increase, thereby reducing the undue influence that comes from being too close to those being regulated as well as the general political pressures that are prevalent in the financial sector.

100 Countries not part of the *ex ante* burden-sharing arrangement yet potentially affected by the resolution of a cross-border institution would presumably be treated in a similar way as without this burden-sharing agreement in place. This could put the core countries at a disadvantage, however, if, for example, the excluded country ring-fenced local assets and applied other preferences, or if the benefits from the burden sharing largely spilled over to the excluded country. This would suggest that for this arrangement to be effective, at a minimum, a group of countries with major SIFIs and international operations need to sign on and that some system of sticks and carrots would have to be in place in order to get important outliers to participate over time.

101 Hertig et al. (2010) propose a choice based model under which individual Member States have the option to delegate prudential supervision of their largest banks to a supranational entity (e.g., the European Banking Authority or the European Central Bank), while still retaining the right to reassume such a role at a later date.

Box 5.1 Models for organizing the financing of cross-border resolutions

Broadly speaking, two models are possible: an *ex ante* agreement to share financing and burdens among resolution agencies in accordance with certain rules *in general* for all institutions; or specific agreements to do so in a certain way for *individual* institutions. The two can, of course, be combined. And both can be backed up by a specific mechanism in the form of a resolution fund, with contributions from the financial services industry.

Under the *general* approach, a binding, *ex ante* arrangement would determine how participating countries would divide the funding requirements associated with such activities as bridge financing, recapitalization, temporary nationalization, and the purchases of non-performing assets as well as how to allocate any eventual final burden of losses. The arrangement could be bilateral, regional or even global. The sharing arrangement could be negotiated on the basis of a range of metrics or keys chosen in relation to the relative overall benefits of the mechanism. For example, since the objective is to mitigate the impact of any failure on the wider financial system, a key might be the size of a country's financial system. Since another aim is mitigating the effects of a SIFI failure on the real economy, a nation's GDP, which reflects the size of a country's economy, might also serve as a key.[102]

If the need arises, financing for a cross-border resolution could be raised under this mechanism. For example, it would be possible to issue bonds guaranteed by the countries participating in the resolution. These could be used for such purposes as recapitalizing the failing SIFI or purchasing some of its assets. After various equity and asset stakes have been resold, any residual financing costs and losses on the interventions would be paid on a pro-rata basis.

In the second *specific* mechanism, countries would also share the financing and any final costs, but different from the general fund approach, governments would need to pre-commit according to the fixed key burden of a specific SIFI needing intervention. The sharing rule would need to reflect the expected benefits of a possible rescue of the specific SIFI. The key in this instance could be related to the assets of the problem SIFI in the various countries.[103] As in the first mechanism, there is a need for a backstop.

This model could be complemented by an *international resolution fund* that is built up *ex ante*. Such a resolution fund could collect fees from financial institutions and/or from the sponsoring countries. The resolution fund would also need to have access to callable capital from its shareholders, who would be the governments sponsoring the fund. The fund would give the supervisor the ability to address weak financial institutions more

102 In the euro area the key used to allocate seigniorage (ECB profits) could be used. See also Weder di Mauro (2010) for a discussion of how taxes to correct for externalities could be linked to resolution funds.

103 Total assets (or liabilities) could be a good proxy for the real and contagious effects of failure of a bank. On the real side, the availability of credit will be disrupted in case of a failure and assets (including loans) reflect the credit capacity of a bank. The contagious impact is (partly) related to the size of a failing institution in the interbank and other funding markets and total liabilities may therefore be a good proxy.

Box 5.1 (contd.)

independently of individual countries' support, which is sometimes difficult to secure in times of crisis. Coordination problems would be reduced since all actions would be centrally administered, and resolution would be based on what is best on an international basis. Alternatively, a mechanism could allow for coordination among national funds (several countries are in the process of creating national funds), through some governance structure.

5.4 Most countries will opt for the intermediate approach[104]

Most countries are likely to opt for the intermediate approach, in which they will accept some differences in judicial and regulatory systems, including incomplete universality, and preserve sovereignty by limiting *ex ante* burden-sharing mechanisms. Thus, in the resolution of a SIFI, they must confront a constellation of assets and liabilities whose allocation across jurisdictions at the moment of failure will determine the payouts creditors can expect and the degree of success a resolution might have in preserving value and avoiding spillovers.

As theory makes clear (Chapter 2) and experience shows (Chapter 3), this will make it challenging to meet our three principal objectives: promoting efficiency in the operation of the global financial market; maintaining global financial stability; and respecting the sovereignty of individual countries. The best that can be achieved without universality and *ex ante* burden-sharing mechanisms is to seek a better trade-off among these three objectives through better cooperation.

In an effort to build on the current international financial architecture, the starting-point must be the current home/host country principles developed by the Basel Committee on Banking Supervision. The principle specifies that home countries supervise the branches of their banks in foreign countries. Host country supervisors have some responsibilities for branches as well, but their role is largely to provide information together with lender-of-last-resort facilities and possibly local deposit insurance. Meanwhile, subsidiaries are primarily under the oversight of the host country, consistent with their separate licence and legal independence.

This is a well-established model, going back to 1975, formalized in 1983 (Basel Committee, 1983, 2003; see also Jackson, 2006), and refined in many ways. It is also backed up by numerous bilateral Memoranda of Understanding (MoUs) specifying the coordination of supervisory efforts, including the exchange of information. The home/host principle is also embedded in regional arrangements, such as in the various EU financial directives.

More recently, MoUs have been expanded to include rules guiding cross-border crisis management, and the range of signatories has been expanded beyond supervisors to include central banks and ministries of finance. The establishment of colleges of supervisors for large international banks as well as the establishment

104 This section draws heavily on Hüpkes (2010).

of crisis management groups (called 'cross-border stability groups' within the EU), combined with better information sharing will also help reduce conflict of interests.

Even with these improvements, however, this model is unlikely to achieve efficient outcomes, especially when foreign-owned entities are large in the host market. It can have severe limitations, as some of the case studies in Chapter 3 have shown. The existing Concordat is focused on the adequacy of supervisory arrangements while resolution arrangements are completely neglected. Yet it is essential to integrate resolution policy with supervision and regulation.

This is a significant shortcoming. Contingency planning must form an integral part of the supervisory process. The way in which an institution's operations in any given jurisdiction will be handled in a crisis can quickly erode the value of the firm's global operations and result in large losses that have to be borne by creditors or taxpayers in other jurisdictions. While MoUs could, in principle, remedy these shortcomings, they are voluntary cooperation arrangements.[105] And the lack of *ex ante* agreements means that it may be very difficult to raise the necessary funds for an efficient resolution in a crisis. Since both legal backing and incentives are missing or insufficient, they do not actually guarantee actions and often break down in times of distress. Moreover, there are no incentives for relevant authorities to consider the broader cross-border spillovers from a narrowly focused national resolution – apart from the risk that a deteriorating international financial environment may end up affecting the national economy.

What is a way forward under this intermediate model? An approach with three, complementary pillars is called for. One pillar is to *improve the structure of SIFIs* and *enhance the ability to resolve them* in an orderly fashion in case of weaknesses. A second pillar is to create *greater convergence in national rules*, including those covering contingent capital, regulatory insolvency triggers and resolution approaches. The third pillar is to negotiate a *new Concordat* to improve crisis management arrangements between home and host countries, and, in the absence of a legally binding burden sharing agreement, provide better incentives for collaboration in supervision and resolution.

5.4.1 Improve structure and resolution

The need to plan for the *resolution* of any SIFI arises even if there are changes in laws or improvement in burden sharing. In practice, major financial institutions are global and their operations span numerous jurisdictions. But as long as regulatory approaches are essentially territorial in nature and seek to resolve institutions on the basis of where they are located rather than their activities or functions, it will be difficult to achieve effective value-preserving resolution and to maintain essential business operations.

105 The last article of a MoU typically specifies that the arrangements in the MoU are not legally binding. See, e.g., the recently concluded MoU between the FDIC and the Bank of England of 10 January 2010, which provides: 'This MOU does not create any legally binding obligations, confer any rights, or supersede domestic laws. … this MOU does not limit an Authority to taking solely those measures described herein in fulfillment of its Resolution functions.'

Nonetheless, many improvements in the planning for resolution are feasible. The closer cooperation that may emerge from interactions among the colleges of supervisors may lead some authorities to make advance commitments to some kind of assistance, even if other authorities may prefer to continue ring-fencing assets in their jurisdictions. Such plans could also help identify and reduce the risks of cross-border spillovers.

5.4.2 More common rules

The second pillar is to make regulatory frameworks and practices more uniform in order to reduce frictions and also reduce the need for actions to be coordinated *ex post* (see also Basel Committee, 2010). This would involve convergence in a number of areas, including the modalities for prompt corrective action, the treatment of creditors and the recognition of collateral across legal jurisdictions. Importantly, countries would have to amend their laws in a manner that would allow, but not require them to cooperate with other jurisdictions in resolutions. Other areas to be made more compatible include lender of last resort and deposit insurance facilities. Many efforts to achieve greater compatibility are underway, such as the Basel and FSB processes, but standards have yet to cover resolution.[106] Moreover, mechanisms for assessing actual policy implementation (such as the IMF/World Bank FSAPs) would need reinforcement to help reduce differences in practices.

More uniform systems can make it more likely that authorities will take consistent actions, with fewer conflicts *ex post* (and *ex ante*). Indeed, as some have argued in the context of the EU, common principles-based means of intervention would help overcome many coordination issues (Mayes et al., 2007).[107] Those countries that have sufficiently aligned resolution frameworks could then find a more common base for coordinating principles, standards and procedures – and eventually actions, related to cross-border resolution. More uniformity will also benefit financial institutions since fewer differences make for lower compliance burdens.

Even assuming convergence gravitates toward the best standards, and not to the lowest common denominator, it will not necessarily lead to the first best solution. And even full convergence in rules and practices does not guarantee international financial stability; it alone does not guarantee the cooperative action necessary to deal with international externalities in a crisis as set out in Chapter 2. The issues involved with these two models – full integration and intermediate approach – are summarized in Table 5.2.

106 The only international guidance is IMF (2009e). It does not, however, have the same standing as the Basel Committee's and other standards: 'It is primarily intended to inform the work of the staffs of the International Monetary Fund (IMF) and World Bank, and to provide guidance to their member countries.'

107 See also Nieto and Wall (2006a, 2006b) and Nieto and Schinasi (2008).

Table 5.2 Overview of two reform models: full integration and intermediate approach

Reform model	Full integration	Intermediate approach: Three Pillars		
Essential elements	(for selected regions or closely integrated countries)	Simplify structure and ease resolution of SIFIs	Better and more harmonized rules	Better cooperation (new *Concordat*)
Legal and other rules (governing supervision, distribution, entry, etc.)	All assets within group are available for all creditors according to priorities of home country (universalism). Centralized regulation and supervision, etc	Require resolution plans to simplify structure and ease resolution.	Significant convergence in rules and processes to avoid conflict of interests on goals. All countries to have special resolution regimes.	Countries' laws to allow authorities to cooperate with other jurisdictions. Countries to align and agree to coordinate procedures for resolution. Strengthen role of home country for SIFI (group-wide).
Responsibilities, process	Resolution closely coordinated or centralized. Common resolution of SIFI and all its entities (branches and subsidiaries). Differences in countries' interests of little concern.	Regular (yearly reviews) of resolution plans. Regulatory college may require further simplification or better information systems, etc.	Contingent capital requirements to motivate private sector solutions and reduce distress in market-based way. Structure early intervention and PCA to reduce government discretion to forbear.	Host country can decide not to admit financial institutions or control forms of local presence if home does not meet certain core standards of resolution design and procedures, financial stability, including agreement to burden sharing.
Implications for burden sharing, common interests	*Ex ante* mechanisms in place (e.g., key to allocate burden fiscal or resolution funds (with SIFI contributions and fiscal backup)). Assures common interests	May cause some authorities to precommit to support, but others to ring-fence. Clarify areas of conflict of interests.	Better rules/processes reduce need for burden sharing. More common rules reduce conflict of interests, thus less to coordinate cross-border.	Each country its own, but may agree on a process for burden sharing if alignment of interests is sufficient. Should accept a mandate to consider global not just local systemic interests.
Impact on cooperation among supervisors	Burden sharing to coordinate incentives. But raises questions of regulatory governance. Sanctions to exit.	Much needed, but largely left voluntary, depending largely on overlapping interests.	Presumably easier, but depends on perceived common interests in cooperation.	Can be agreed ex ante. Market access sanctions to help clarify. Likely still ad hoc, ex post, improvised actions.

5.4.3 A new *Concordat*[108]

This proposal takes its inspiration from the WTO mechanisms designed to promote internationalization while protecting legitimate national interests (Hüpkes, 2010). It would introduce a new or revised *Concordat* that makes market access – the ability of foreign financial institutions to enter markets and operate on the same basis as domestic financial institutions – subject to the existence of effective resolution arrangements in both home and host countries.

Under this model, each jurisdiction would adopt clear and common standards governing market access. These standards would be objective and internationally agreed, and they would provide criteria for determining whether a foreign financial firm would be permitted to enter a local market in any way other than as a stand-alone entity.[109] Criteria would relate to such attributes as the presence of effective supervisory and information-sharing arrangements; the systemic nature of the firm's operations, its structure, resolvability, and access to liquidity facilities; the existence of credible resolution processes that ensure the equal treatment of creditors; the existence of credible recovery and resolution plans; and, possibly, the presence of a contractual pre-packaged restructuring of liabilities, that ensures the necessary certainty and predictability as regards the way any losses are imposed on creditors.

These criteria would also need to ensure that the relevant jurisdiction had made a credible commitment to assume full responsibility for effective resolution. Indeed, in the recent crisis it was often the home country that assumed the responsibility for rescuing an institution. Whatever arrangement is specified, every jurisdiction needs to be assured that a firm can be resolved without catastrophic consequences and in a manner that preserves critical functions.

If these conditions are not satisfied, the new *Concordat* would permit each jurisdiction to impose higher capital or liquidity surcharges or a greater degree of self-sufficiency to make sure that it could resolve the local operations in a separate local resolution procedure. In the extreme case, the home country could require the affiliates of banks in other jurisdictions to operate on a stand-alone basis if it was not assured that the host country would cooperate.

Clarifying ultimate responsibility would strengthen the incentives of the home country to exercise effective consolidated supervision in order to avoid financial distress. If powers are not aligned, effective supervision and resolution will not follow. Only if the home country's resolution powers are aligned with its supervisory powers will the home country have an incentive to supervise effectively and cooperate and coordinate actions with host countries. Alignment would encourage cooperation as well as the exchange of information among countries.

This 'carrot and stick' approach based on market access may prove a pragmatic way to foster necessary reforms of national resolution frameworks and promote 'resolvability' by encouraging convergences of national resolution regimes towards agreed minimum standards. On the other hand, as trade negotiations

108 This proposal was first made in Hüpkes (2010).

109 Any additional market access (or entry) restrictions may be in conflict with agreements already made under the 1997 Financial Services Agreement of the GATS, which will need to be taken into account.

have demonstrated, such an approach can be a dangerous tool that risks engendering greater discrimination and fragmentation. Striking the right balance will be difficult. The critical step will be to obtain agreement among a limited number of key countries and build outward from there.

5.5 Summary

While necessary, improved national early intervention and resolution policies, even when harmonized, will likely not suffice in addressing all the problems of cross-border financial institutions. There will remain coordination issues among nations, in terms of cooperation on regulation and supervision during normal times, and on burden sharing during times of stress and regarding specific financial failures. There are alternative reform models, focusing on the core issue identified by the trilemma: the resolution of SIFIs on an international basis. It lays out three conceptual approaches: (1) a *universal* approach; (2) a *territorial* approach; and (3) a *modified universal* approach. Each of these models addresses the trilemma challenge, but in different ways.

While the three models are not mutually exclusive and can be combined in some ways, it is useful to consider them separately since each model has its own objectives, internal consistency requirements, and some specific benefits and costs. The *territorial* approach is a very restricted model. It is not well suited to address the challenges posed by the current state of international financial integration as it limits the ability of financial institutions to optimally deploy capital and liquidity and creates inefficiencies. And in times of financial turmoil, it can create runs for assets and a race to the bottom as countries ring-fence their systems. It is thus a step backward and gives up in many ways on integrated financial markets. The report rejects it therefore.

The report next analyses the other two models and shows the best-suited models will vary by country. For some groups of countries more closely integrated, the universal approach may be both more feasible and more necessary. Specifically, the European Economic and Monetary Union (EMU), and more broadly the European Union (EU), is leading in financial integration efforts. It has also confronted the issue of difference in rules and burden sharing earlier and more dramatically than other countries. For the EU, the universal approach is therefore more attractive.

This does not mean that the universal approach can work for the EU as is. Serious institutional reforms are needed in many countries, especially to improve resolution, with rules and practices also to be harmonized more. Even then, many coordination problems will remain unless *ex ante* models for burden sharing are adopted. The report presents some burden-sharing models, some of which can be adopted on a voluntary basis and phased in over time. These reforms will not only help avoid the *ex post* lack of coordination when dealing with weak cross-border financial institutions, but also overcome the limited incentives for supervisory cooperation.

Globally, the report recognizes that a universal approach is not imminent. Most nations are simply not willing to give up the necessary degree of national sovereignty. Furthermore, a global approach could be undesirable if it undermines incentives for effective supervision and may then actually increase the size of burdens to be shared. For these countries, the most realistic approach, within the framework of established national sovereignty, will be a modified universal approach. Improvements are needed for this approach to work, especially in three areas: improved and converged national rules, especially regarding resolution; better resolution plans and simpler structures for SIFIs; and an enhanced set of rules governing cross-border resolutions.

A new *Concordat* would strengthen the intermediate approach. It would build on the existing home-host Basel concordat for supervision but would harmonize resolution (the end game) with supervision. This international agreement would be a framework for supervisors to agree on the responsibilities for common executed resolution, or, failing satisfactory agreements, to be able to impose restrictions on the entry or operations of foreign financial institutions in their respective markets. This new *Concordat* would provide a sticks and carrots approach to improving the efficiency of global financial markets, including through improving the incentives for collaboration among supervisors, while enhancing their stability and respecting the sovereignty of individual countries.

Appendix to Chapter 3

Kimberly Anne Summe

It is too soon to write the definitive account of Lehman Brothers' bankruptcy. While many thoughtful papers and reports have been published in the aftermath of the largest bankruptcy filing in history, the bankruptcy proceedings themselves will run their course through the United States, the United Kingdom and dozens of other jurisdictions for the next decade or more.[110]

But what we do know today is that derivatives, despite being routinely pilloried by casual market observers, were not responsible for the failure of Lehman Brothers. Rather, Lehman Brothers failed because it was massively over-exposed to the commercial real estate market and related products such as leveraged loans.[111] AIG, on the other hand, faltered in large part because it could not meet its collateral obligations relating to its $1.8 trillion notional derivatives book,[112] which included leveraged exposure to mortgages, especially credit default swaps written against sub-prime mortgages, in one of its subsidiaries, AIG Financial Products.[113]

Nevertheless, the collapse of Lehman Brothers presents a compelling case study of how derivatives were valued and terminated upon bankruptcy. Lehman Brothers' multi-jurisdictional business model, a model common to almost all major financial institutions, has remained unchanged in many respects since Lehman Brothers' bankruptcy in September 2008. With respect to Lehman Brothers, the investment bank conducted the majority of its global derivatives business in two legal entities: one was a Delaware corporation called Lehman Brothers Special Financing (LBSF) and the other was a UK unlimited company called Lehman Brothers International (Europe) (LBIE). This division was

110 The bankruptcy filing of Enron Corporation on 2 December 2001 still had bankruptcy courts tied up in 2008 when Lehman Brothers filed for bankruptcy. With assets ten times the size of Enron Corporation, Lehman Brothers' bankruptcy proceedings are assured to surpass the duration of Enron's.

111 Valukas (2010, Vol. 1, p. 62). It should be noted that the oft-maligned credit default swaps on asset backed securities (primarily residential and commercial mortgages) at Lehman Brothers had a notional value of $4.90 billion as of 31 August 2008, which, after the effects of collateral and netting, would have been a much smaller figure and representative of less than 1% of Lehman Brothers' balance sheet. Valukas (2009, p. 582).

112 Teitelbaum and Son (2009). See also AIG (2009), which cites the derivatives book as $1.6 trillion notional while other reports cite the figure between $1.6 and $2. trillion notional.

113 It is interesting to note that by the end of 2008, the Federal Reserve reported that AIG had borrowed almost $128 billion from the US government, but the majority of those funds were directed at enabling AIG to continue to fund its activities, rather than shoring up losses in AIG's derivatives portfolio (International Swaps and Derivatives Association, 2009, p. 2).

not unusual and mirrors the fact that the United Kingdom, prior to Lehman Brothers' bankruptcy, enjoyed an estimated 43% share of the global derivatives market, while the United States' share was estimated to be 24%, with France and Germany combined representing 11% and Japan representing 4% (Jones, 2009, p. 6). Given that most derivatives trading occurs in the United Kingdom and the United States, this paper will examine the bankruptcy regimes applicable to over-the-counter (OTC) derivatives in those two jurisdictions, with the Lehman Brothers' bankruptcy as a backdrop to such analysis. Legislative proposals that have developed in the aftermath of the economic crisis that began in earnest after Lehman Brothers' bankruptcy filing will also be discussed.

A.1 The UK bankruptcy regime for entities engaged in derivatives

The United Kingdom has a 468-year history of statute-based insolvency law, resting on the basic principle that the entirety of a debtor's assets should be divided *pari passu* among the debtor's creditors (HM Treasury, 2009). In general, the statutory regime aims to produce fair results for creditors of the debtor, making no distinction between domestic and foreign creditors.

Like the United States, which has an insolvency regime that liquidates or reorganizes a failed entity, the United Kingdom offers a similar legal structure. Just as several of Lehman Brothers' key entities filed for Chapter 11 bankruptcy in the United States, in the United Kingdom 19 Lehman entities were placed into 'administration', a cousin to Chapter 11 proceedings.[114] The administration is governed by the Insolvency Act 1986. The court then appoints an administrator who is tasked with acting in the interests of all creditors in an effort to rescue the failed entity. What that means practically is that the administrator in a UK proceeding must act in such as way as to maximize the recovery of creditors as a whole. All creditors of the failed entity must be treated in the same manner and no group is preferred to another – a concept truly 'foreign' to the approach taken in the United States. In addition, during the reorganization period, the administrator in the UK proceeding typically manages the failed entity and any liquidity needs are required to be met by existing creditors. Debtor-in-possession financing is not available in the United Kingdom as it is in the United States.

In contrast to the United States, the United Kingdom historically did not develop a specialized bankruptcy regime applicable to financial institutions or lines of business germane to financial institutions. Rather, failing financial institutions were handled through the same bankruptcy process applicable to a wide range of corporate entities. Following the failure of several UK banks in 2008, though, Parliament concluded that the lack of a specialized bankruptcy regime had negatively impacted the markets and thus adopted the UK Banking Act 2009, which is discussed in greater detail in Section A.4.1 below.

114 www.pwc.co.uk. Note that PriceWaterhouseCoopers was appointed as Administrator for all 19 Lehman Brothers UK-based entities.

In addition to the UK body of insolvency law, the EU's Insolvency Regulation (the 'Regulation') became effective in May 2002.[115] The primary objective of the Regulation was to establish a common framework for insolvency proceedings in the EU.[116] This was done primarily to dissuade forum shopping and prevent assets from being transferred from one Member State to another in order to obtain a more favourable decision to the debtor.

With respect to OTC derivative transactions, these transaction types do not receive specific statutory treatment under English insolvency law. However, practitioners agree that upon the insolvency of an English counterparty to an OTC derivative transaction, the non-defaulting party would be permitted to elect an early termination date for the portfolio of derivative transactions pursuant to the ISDA Master Agreement (the governing contract for OTC derivatives transactions). Upon such early termination date, the obligations of the parties to those derivative transactions would cease.

A.2 The administration of LBIE

LBIE, regulated by the Financial Services Authority, was placed into administration early on the morning of 15 September 2008. LBIE transacted between one-third and one-half of Lehman Brothers' $30 trillion notional global derivatives book. LBIE also engaged in trading other financial instruments such as futures and extended margin to the firm's prime brokerage customers. This latter aspect of LBIE's business resulted in outrage among Lehman Brothers' prime brokerage clients as assets were tied up for months before being released in the aftermath of the bankruptcy.

When LBIE was taken into administration, the administrator reported that there were over 4300 counterparties, representing a total of 84,000 derivative transactions, documented in 13,409 Master Agreements such as the ISDA Master Agreement (EU, 2009, p. 37).[117] Roughly 2800 of those counterparties owed money to LBIE at the time of its bankruptcy filing while the balances of 1500 counterparties were creditors of the estate (EU, 2009, p. 12). The administrator reported that one year after LBIE's bankruptcy, 95%, or roughly 80,000 out of 84,000 derivative transactions with LBIE, had been terminated (EU, 2009, p. 13).

The administrators prioritized the settlement of derivative transactions and focused on settling derivative transactions with the greatest exposure and/or the greatest number of derivative transactions with a single counterparty. This resulted in achievements such as settlement on LBIE's second largest derivatives portfolio, with over 1000 transactions, resulting in a net $500,000,000 being

115 European Commission (2000). European Union (2009, p. 12).

116 Denmark is excluded from the Insolvency Regulation.

117 It is interesting to note that LBSF, the principal US entity for trading derivatives had over 900,000 derivative transactions documented in over 6000 ISDA Master Agreements, while LBIE, the principal UK entity for trading derivatives, had 84,000 derivative transactions documented in 13,409 ISDA Master Agreements. While detailed information is not publicly available, it may be that the transactions done with LBSF encompassed a broader range of transaction types than those executed by LBIE, accounting for the discrepancy in transaction numbers. However, as noted in Section A.2, the UK derivatives book was a significant size of the overall portfolio.

realized (EU, 2009, p. 13). The administrator also reported that by the first anniversary of LBIE's bankruptcy, approximately $4.7 billion in cumulative cash collections had been obtained (EU, 2009, p. 13).

While these figures are impressive, what has been less acknowledged is the challenging technology environment in which the administrator operated. The administrator worked against a backdrop of insufficient data on trade positions, client balances and related books and records-type information, principally because that information resided with Lehman Brothers' entities in New York and LBIE and its former affiliates in New York were just that – former affiliates, with no obligation to share information and technology systems once the bankruptcies had occurred. Eventually, information-sharing protocols were reached, but it took significant resources and commitment to establish these procedures.

As is discussed in greater detail in Section A.3, the termination of derivative transactions under the ISDA Master Agreement operated exactly as designed, both for LBIE, the UK entity, as well as for LBSF, the US entity. The vast majority of counterparties followed the procedures set forth in the nearly 25-year-old agreement, and those trades for which no notice of termination were given following LBIE's bankruptcy, roughly 5% of LBIE's derivative portfolio, are likely counterparties that are out-of-the-money to LBIE.

A.3 The US bankruptcy regime for entities engaged in derivatives

In the United States, there have historically been a number of entity types that transact in OTC derivatives, including for purposes of this paper, banks, corporations, and for other types of qualified financial contracts such as repurchase transactions, broker-dealers. A summary of the insolvency regime for each of these entity types is set forth below.

A.3.1 Banks

The Federal Deposit Insurance Act (FDIA) provides that the Federal Deposit Insurance Corporation (FDIC) may operate as a conservator to preserve the value of a failing bank and return it to financial health or as a receiver in order to liquidate a failed bank. From a policy perspective, the objective was to ensure that bank insolvencies were not subject to the purview of a bankruptcy court, but rather were handled in a timelier manner by a single government agency.

Upon a bank's insolvency, the FDIC may transfer the failed bank's derivative transactions to a qualified transferee, but it must transfer the entire derivatives portfolio.[118] Furthermore, the FDIC may not transfer qualified financial contracts to a non-US institution unless the counterparty's contractual rights are enforceable to the same extent as under US law.[119] The timeframe in which the FDIC must

118 12 USC § 1821(e)(9).

119 This restriction is understandable, but could present systemic challenges if a systemically important US bank fails, and the remaining US systemically important banks, likely to be limited in number, are operating in a distressed market, making the assumption of a large derivatives portfolio perhaps

elect to transfer and provide notice is dependent upon the capacity under which it is acting. If the FDIC is acting as receiver, it must provide notice of the transfer by 5:00 pm EST on the business day after its appointment as receiver.[120] At that time, the counterparty to the failed bank may elect to terminate the derivative transactions (i.e., the non-defaulting counterparty to the failed bank could follow the termination and close out provisions in the ISDA Master Agreement). If the FDIC is acting as conservator, there is no special time limit on its right to transfer derivative transactions, and the counterparty may not terminate such transactions unless the conservator defaults to a degree that would permit termination under applicable non-insolvency law.

From available reports, it appears that in every recent case where a large US bank has become subject to a receivership proceeding, the entire derivatives portfolio and associated qualified financial transactions of the failed bank were transferred to a single bridge bank or third party acquirer.[121] When the assets of Washington Mutual Bank, the largest US bank failure to date, were sold in September 2008 to JPMorgan Chase, the FDIC transferred to JPMorgan Chase all derivative transactions to which Washington Mutual Bank was a party. Without doubt, the FDIC has achieved a solid record in effectively handling failed banks with such derivatives portfolios, but none of those bank failures to date have involved a derivatives portfolio that approaches the size of Lehman Brothers' derivatives portfolio.

A.3.2 Corporations

Under the US Bankruptcy Code, corporations and other entities within its scope can be reorganized under Chapter 11 or liquidated under Chapter 7. Section 362(a) of the US Bankruptcy Code provides that upon the filing of a bankruptcy petition under the US Bankruptcy Code, an automatic stay is applied such that secured and unsecured creditors of the debtor are prevented from making claims or taking other unilateral actions against the bankrupt entity to collect debts. Counterparties to derivative transactions (included within the broader definition of qualified financial contracts), however, are permitted to exercise immediate contractual rights to terminate transactions and to offset or net termination values, without application of the stay.

Many financial institutions have historically engaged in derivative transactions through an unregulated corporation. Lehman Brothers Special Financing, Inc. or LBSF, for example, was a Delaware corporation that engaged in the investment bank's derivatives business. As a result, when LBSF filed for bankruptcy on 3 October 2008, it was estimated that it was a counterparty to 930,000 derivatives transactions documented under 6120 ISDA Master Agreements.[122] As noted above

challenging. Of course, in such a scenario, there can be no guarantee that foreign institutions would be in any better position to do so.

120 12 USC § 1821(e)(10).

121 'Report to the Supervisors of the Major OTC Derivatives Dealers on the Proposals of Centralized CDS Clearing Solutions for the Segregation and Portability of Customer CDS Positions and Related Margin', 30 June 2009, p. 3, n. 9.

122 Lehman Brothers Holdings Inc., First Creditors Section 341 Meeting, 29 January 2009, www.lehmanbrothersestate.com, pp. 19–20.

in Section A.2, the ISDA Master Agreement allows the non-defaulting party, upon a counterparty's default (which includes voluntary and involuntary bankruptcy), the right to designate a date on which the portfolio will be valued and terminated, to terminate the transactions and to liquidate and apply any collateral.

A.3.3 Broker-dealers

Since 1978, the US Bankruptcy Code has excluded broker-dealers from Chapter 11. The rationale was that a separate scheme was needed to protect the millions of brokerage customers across the United States, and that any reorganization of a brokerage through Chapter 11 would be costly and complex. Instead, customers of failed brokerages are subject to liquidation proceedings under Chapter 7 of the US Bankruptcy Code and would share pro rata in the distribution of the failed brokerage's assets. Alternatively, the Securities Investor Protection Corporation (SIPC), created by the Securities Investor Protection Act of 1970 (SIPA),[123] could petition the bankruptcy court to appoint SIPC and allow it to administer the return of customer property. According to its website, 99% of customers covered by SIPA have been made whole in the over 400 failed brokerage cases handled during the past 38 years.[124] When Lehman Brothers Inc., the broker-dealer arm of Lehman Brothers, filed for insolvency, SIPC transferred approximately 630,000 customer accounts representing over $142 billion of assets, mainly to the brokerage arm of Barclays Bank, Barclays Capital Inc., as approved by the bankruptcy court.[125] The protections of SIPA are explicitly focused on offering protection to individual brokerage customers and as such, statutory protections do not extend to derivatives, repurchase transactions, futures and securities lending counterparties.

A.3.4 The rationale for differentiated treatment for derivatives in a US bankruptcy proceeding

For the past 22 years, an increasing number of financial instruments have been protected from the application of the automatic stay and other powers under the US Bankruptcy Code.[126] Under US bankruptcy law, once an entity has filed for bankruptcy, there is a stay, or freeze, imposed on all payments into or out of the failed entity. Certain financial contracts, however, are exempt from the application of the automatic stay, and those include derivative transactions. As a result, counterparties to derivative transactions are generally permitted to enforce

123 15 USC § 78 aaa *et seq*.

124 See www.sipc.org under 'Our 38-Year Track Record for Investors'.

125 See the statement of Stephen P. Harbeck, President and Chief Executive Officer of SIPC, before the Committee on Financial Services, the United States House of Representatives, 5 January 2009.

126 See Bankruptcy Reform Act of 1978, Pub. L. No. 95-598 (adding 11 USC §§ 362(b)(6) and 548(d)(2)(B)). In 1989, the qualified financial contract provisions were adopted as part of the Financial Institutions Reform Recovery and Enforcement Act (FIRREA). FIRREA amended the Federal Deposit Insurance Act (FDIA) provisions for US bank insolvency. The US Bankruptcy Code has been amended periodically to conform to the definitional provisions included in the other statutes. Generally, after the 2005 amendments to the US Bankruptcy Code and FDIA, the scope of transactions covered are the same among the statutes, except that the FDIA includes some mortgage-related transaction types that are not included under the US Bankruptcy Code.

default and termination provisions in their contracts without the need for relief from the automatic stay. In addition to the exercise of termination rights under the contractual terms applying to those derivative transactions, the debtor's counterparties may also liquidate collateral that has been pledged by the debtor.

The long-stated rationale of the regulatory and financial community for protecting qualified financial contracts has been to mitigate the systemic risk arising from cascading bankruptcies of other entities. By providing a safe harbour from the application of certain provisions of the US Bankruptcy Code or the FDIA to these contracts, the delays assumed to be inherent in the bankruptcy process would be avoided and counterparties could reduce the losses that would otherwise result from the degradation of collateral pledged by the debtor.[127] Because qualified financial contracts would be terminated and netted quickly, financial market participants would be stabilized through the release of liquidity necessary to settle their obligations. As the FDIC stated in 2005:

> 'This is particularly important in the financial markets because, unlike loans or other financial contracts, the value of derivatives are based on fluctuating market values. If a counterparty is placed into bankruptcy or receivership, the stay on the termination of the contract and the liquidation of collateral could create escalating losses due to changes in market prices. As a result, the ability for the non-defaulting party to terminate the contract and net exposures quickly can be crucial to limit the losses to the non-defaulting party because such contracts can change quickly in value due to market fluctuations.' (Krimminger, 2005)

Systemic risk concerns were the articulated reason for regulatory action taken in 1998 following the losses experienced by the prominent hedge fund, Long-Term Capital Management. Losses resulting from the Russian Rouble crisis earlier that year occurred at a time when the fund had $1.4 trillion of notional value of off-balance sheet derivatives positions with 75 counterparties.[128] Then President of the Federal Reserve Bank of New York, William McDonough, stated that the 'abrupt and disorderly close-out of LTCM's positions would pose unacceptable risks to the American economy' (McDonough, 1998). Rather than terminate the derivative contracts, as the fund's counterparties would have been permitted to do under the specified protections afforded to swap counterparties, many of the fund's largest counterparties, at the urging of the Federal Reserve, infused the fund with $3.6 billion in capital so that counterparties then had time to unwind their derivatives positions in an orderly fashion. The rationale for such action was that if the fund, a Delaware company (with offshore affiliates), had been allowed to file under Chapter 11, counterparties of the failed fund would have rushed to close-out their transactions and to liquidate any collateral on hand.[129] Slower counterparties would have seen the value of their collateral diminish and found the replacement of hedged transactions meaningfully more challenging.

127 President's Working Group on Financial Markets, 'Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management', (April 1999), p. 20.

128 Value as of 31 August 1998 according to Long-Term Capital Management's balance sheet.

129 While Long-Term Capital Management was organized as a Delaware corporation, trades were managed in the Long-Term Capital Portfolio, L.P., a partnership organized in the Cayman Islands.

Once Long-Term Capital Management was successfully resolved, the regulators remained more concerned about systemic risk arising from limitations on termination than those arising from a precipitous termination. The President's Working Group on Financial Markets[130] published a series of recommendations in 2000 in an effort to improve the close-out netting regime for qualified financial contracts under the US Bankruptcy Code. The President's Working Group (2000, p. 29) noted that its recommendations were designed to 'enhance market stability, limit counterparty exposure and … preserve market stability in the event of a failure of a financial institution'.

The effort to improve the close-out netting regime continued for the next several years, culminating in the expansion of protected 'qualified financial contracts' in the Bankruptcy Abuse Prevention and Consumer Protection Act 2005.[131] The Act harmonized most provisions relating to the insolvency of banks, broker-dealers, investment banks and companies while expanding the transaction types covered by the safe harbour and extending such protections to a larger array of non-financial companies. Master netting contracts were also included in the safe harbour under the Act on the basis that the more counterparties that were able to net down their exposures free of Chapter 11 constraints, the less exposed they and the markets would be to the failure of a major participant. Liquidation of collateral was also included within the safe harbour, allowing a non-defaulting counterparty to liquidate any collateral posted by the defaulting party without application of the automatic stay.

While regulators and financial market participants have historically focused on rippling bankruptcies if the automatic stay were applied to qualified financial contracts, academics cite an additional rationale for the safe harbour. These scholars argue that because derivatives are not asset specific, they should not be subject to an automatic stay, which by its nature is designed to be specific in its safeguarding of assets. Thus, economic efficiency and value preservation are increased for contracts that are not subject to the application of the automatic stay (Edwards and Morrison, 2005).

The acute problem for policy-makers is that once a bank is in distress, its cash liquidity is threatened, its stock price is plummeting[132] and no other market participants will extend credit or transact with the failing bank. Liquidity management is no longer about how much cash is on hand, but rather it is singularly focused on how much access to cash you have. The application of an automatic stay, while appearing to preserve the value of the 'assets' of the failing entity, may be illusory as it relates to derivatives since derivative transactions and the collateral associated with those transactions are not really assets in the

130 The President's Working Group, formed in 1988, consists of the Board of Governors of the Federal Reserve System, the Securities and Exchange Commission, the Commodity Futures Trading Commission and the Secretary of the Treasury (or respective designees).

131 Congress has expanded the transaction types entitled to special treatment over time. Commodity and forward contracts were initially considered qualified financial contracts in 1978, and as financial instruments developed, Congress expanded the safe harbours in 1982, 1984, 1990 and 2005. The Financial Netting Improvements Act of 2006 further strengthened netting (Pub. L. No. 109-390, 120 Stat.2693).

132 Lehman Brothers' stock price fell by 90% on Friday, 12 September 2008.

traditional sense and the preservation of value may rapidly change, particularly in a distressed market.

As noted above, the Congressional rationale for protecting qualified financial contracts from the automatic stay was to avoid systemic risk. The legislative history is clear that Congress's desire was to prevent a cascade of bankruptcies by protecting qualified financial contracts and respecting the underlying agreement between counterparties to terminate those transactions. Did any of Lehman Brother's derivatives counterparties file for bankruptcy in the aftermath of Lehman's insolvency? None are reported, so ostensibly Congress's objective in preventing further bankruptcies was met. To date, Congress and the Obama Administration have not been able to link or have not thought about how to link their argument of interconnectedness and cascading bankruptcies with the fact that no one else failed post-Lehman Brothers. However, when measured against the stability of the financial system more broadly, it is hard to confirm that systemic risk was avoided when Lehman Brothers became insolvent. The challenge is pinning Lehman Brothers' collapse on its derivatives book or more broadly, its insolvency, as being directly responsible for the exacerbation of global financial instability.

Protection for qualified financial contracts is a critical ballast in the close-out netting regime that a wide range of entities, from governments to financial institutions to corporations, rely upon when entering into these contracts. A counterparty to a defaulting entity, such as a counterparty that voluntarily or involuntarily files for bankruptcy, is permitted to terminate its portfolio of obligations and determine a single net payable or receivable. Close-out netting thereby reduces credit exposure and as the Bank for International Settlements (BIS) has noted, the netting benefit, measured as the difference between gross mark-to-market and credit exposure after netting, is over 85% (BIS, 2009a, p. 5, Table 1). If one considers the foreign exchange market, a $48.775 trillion notional market (BIS, 2009b, Table 19), and one that represents less than 10% of the overall global OTC derivatives market, the application of netting reduces that figure to $6 trillion.[133]

The weakening of the netting regime by carving out certain qualified financial contracts from the safe harbour would inject chaos into the financial system and undermine the legal certainty that has operated to reduce risk exposures for decades. It is possible, however, that the introduction of a very short time frame, such as the FDIC's current one-day delay after a receiver is appointed for a failed bank, for delaying the termination of qualified financial contracts, would not significantly interfere with the stability needed for financial markets to operate with legal and operational certainty.

A.3.5 The bankruptcy of LBSF

LBSF, the principal US legal entity through which derivative transactions were executed, did not cause Lehman Brothers to fail. Rather, Lehman Brothers failed because of a sharp lack of liquidity, excessive leverage and poor management

133 Manning et al. (2010). Note that the authors cite a lower figure of $42 trillion for this market.

choices relating to its commercial real estate, mortgage and leveraged loans business – areas the US Bankruptcy Code does not regulate. It is also known that the derivatives market did not grind to a halt after Lehman Brothers' bankruptcy filing. Rather, the global markets continued to trade quite actively,[134] leading some to criticize the sizeable profits earned by leading banks.[135] In addition, while it was widely estimated in the lead-up to the October 2008 credit default swap auction for bonds referencing Lehman Brothers that close to $400 billion in payments could be required, in fact only $6 billion in net settlement payments were ultimately needed.[136]

Lehman Brothers' bankruptcy did not result in uncertainty as it related to the termination of its derivatives portfolio either. Five weeks after the Chapter 11 filing of several Lehman entities that engaged in derivatives, including LBSF, approximately 740,000 out of 930,000 derivative transactions – 80% of LBSF's derivatives portfolio – had been terminated pursuant to the provisions in the ISDA Master Agreement or other documentation. Three and a half months after Lehman Brothers' bankruptcy, out of the 190,000 derivative transactions that had not been terminated at that point in time, only 30,000 transactions remained unterminated.[137] In other words, only 3% of all derivative transactions outstanding at the time of LBSF's Chapter 11 filing were unresolved roughly 120 days later. Since that time, it is reported that that figure has been reduced even further. Many of the remaining derivative transactions involve disputes over valuation of more exotic trades, such as credit default swaps on collateralized debt obligations (representing a very small percentage of the overall derivatives portfolio) or involve out-of-the-money counterparties who refuse to perform under the contract and have not yet terminated the contract. The Lehman Brothers estate has decided to begin pursuing these latter counterparties through litigation, winning a victory in a recent case.[138]

Removing derivatives from the safe harbour may fail to acknowledge the reality of market participants' actions prior to Lehman Brothers' bankruptcy filing. Not everyone reacted to the impending failure of Lehman Brothers as if they knew it was actually imminent. In fact, many market participants continued to believe that either an acquirer would step forward or the government would assist the troubled firm as it had Bear Stearns. Prominent news publications focused on the Korean Development Bank's interest in acquiring a stake in Lehman Brothers and consequently, Lehman Brothers' stock traded sharply up at discrete points in late August. As late as 2 September 2008, the Korean Development Bank was on record confirming that it was in discussions with Lehman Brothers. By Wednesday, 10 September, however, just four days before its bankruptcy filing,

134 One need only witness the trade volume for credit default swaps in the quarter following Lehman Brothers' insolvency (see the Depository Trust & Clearing Corporation's weekly reports on credit default swap trading volume at www.dtcc.com).

135 Harper et al. (2009), noting that the estimated combined revenue from fixed income trading (derivatives and bonds) for Bank of America, Citibank, Goldman, Sachs, J.P. Morgan Chase and Morgan Stanley for the first two quarters of 2009 is $35 billion.

136 Senior bondholders were not as lucky, losing an estimated $101 billion (Jones, 2009, p. 8).

137 Debtors' Motion for an Order Approving Consensual Assumption and Assignment of Prepetition Derivatives Contracts, Lehman Brothers Holdings Inc., et al., No. 08-13555 (US Banker. Ct., SDNY, 16 January 2009).

138 *Re Lehman Brothers Holdings Inc.*, Case No. 08-13555 (JMP), Banker. SDNY (15 September 2009).

the Korean Development Bank ceased discussions, Lehman reported its second consecutive quarterly loss, clients finally began to comprehend that maybe the impossible would become the possible and new business ground to a halt.

Certainly, billions of dollars were lost as a result of Lehman Brothers' bankruptcy filing, impacting the firm's unsecured creditors such as holders of its bonds and commercial paper, and shareholders, 30% of whom were Lehman employees.[139] With respect to LBSF's derivatives portfolio, the numbers prove interesting. Alvarez & Marsal, appointed by the US Bankruptcy Court to manage the Lehman Brothers estate, noted in its 'State of the Estate' report that a remarkable enhancement to the value of various Lehman businesses was achieved just over three months after the holding company's Chapter 11 filing. Two billion in cumulative cash collections were received (Alvarez & Marsal, 2009, p. 17). LBSF, the Lehman entity primarily engaged in derivatives transactions, increased its cash position from $7 million on 14 September 2008 to $925 million by 2 January 2009 (Alvarez & Marsal, 2009, p. 6). Other Lehman entities that periodically engaged in derivatives transactions also saw growth in their cash position. For example, Lehman Brothers Derivatives Products was an AAA rated derivative product company that served as a credit counterparty for OTC derivative transactions between highly rated external counterparties and LBSF. Lehman Brothers Derivatives Products had $297 million in cash on 14 September 2008, and by 2 January 2009, it had increased its cash holdings to $347 million. Lehman Commercial Paper more than doubled its cash position in three months.

With these facts in mind, then, the legal certainty afforded to the termination of these contracts, both from the well-understood provisions of the ISDA Master Agreement and the safe harbour provisions of the US Bankruptcy Code, should not be under-estimated.

A.4 Current legislative proposals in the United Kingdom, European Union and the United States

Legislative proposals have been flying off the shelves in Europe and the United States for the past 18 months, offering inadequate time to assess the causes and interconnections of the economic crisis we are just emerging from, as well as time to contemplate the best way forward. But time waits for no one, and legislators are compelled to reach agreement on financial industry reform. In particular, the debate in the United Kingdom and the United States has largely centred on two topics: first, whether and if so, how, to create a resolution regime for critically important institutions; and second, how to regulate and increase transparency for OTC derivatives.

A.4.1 Special resolution regime in the United Kingdom

In the United Kingdom, a special resolution regime has been proposed that would apply to UK-incorporated banks and building societies, as well as foreign

139 These employee-owned shares included restricted stock awards.

branches of UK-incorporated banks. The proposed special resolution regime would not apply, however, to UK-regulated affiliates of US-based institutions such as Goldman, Sachs or Morgan Stanley, among others.

Following the Bank of England's nationalization of Northern Rock and Bradford and Bingley, the fifth and eighth largest mortgage lenders in the United Kingdom, the insolvency of the Icelandic internet bank, Icesave, and Lehman Brothers' insolvency, Parliament enacted a series of statutes to address the insolvency of financial institutions. Initially, in February 2008, the Banking (Special Provisions) Act 2008 (BSPA) became effective and gave the UK Treasury broad authority to issue orders relating to UK deposit-taking institutions. The objective of the BSPA was to maintain the stability of the financial system where the Treasury determined there was a serious threat to such stability, as well as to ensure taxpayer monies were not used to 'bail out' such institutions. Accordingly, under the BSPA, the Treasury's powers included the ability to order the transfer of property, rights and liabilities of a UK bank as well as the ability to dissolve the bank. Of note is that the BSPA did not alter the enforceability of close-out netting, and indeed, statements were made by various regulators at the time of the importance of protecting close-out netting, and such sentiments were included in a clause in the BSPA.

The Treasury's powers under the BSPA ceased on 21 February 2009. On the same day, the Banking Act 2009 came into effect. The Banking Act established a special resolution regime that requires a triumvirate of regulators – the Bank of England, Treasury and the Financial Services Authority – to determine the appropriate course of action for handling a failing bank. In other words, the initiation of the insolvency process is undertaken by the courts, but the resolution of the failing bank is left to the regulatory triumvirate. The regulators have three options at their disposal: (1) transfer all or a portion of the bank to a private sector purchaser; (2) transfer all or a portion of the bank to a bridge bank organized specifically to assume the assets and liabilities of the insolvent bank; or (3) transfer all or a portion of the bank into temporary public sector ownership. The objective is to preserve as much of the failing bank's business as possible. In the United States the FDIC serves much the same role as the UK regulatory triumvirate.

Interestingly, the Banking Act applies only to banks and while some banks engage in derivatives trading through the bank itself, such as Barclays Bank plc, not all entities do – witness LBIE and its continuing counterparts, Citigroup Global Markets Limited, Goldman Sachs International, Merrill Lynch International and Morgan Stanley & Co. International plc, each of which transact in derivatives – and those are just the US affiliates that operate in London. Thus, while the Banking Act will capture large financial institutions such as Barclays Bank plc that transact its derivatives business out of the bank, the new regime does not affect many of the largest derivatives counterparties that operate a portion of their OTC derivatives business in London. Nevertheless, The Banking Act 2009 (Restriction of Partial Property Transfers) Order 2009,[140] subsequently amended, [141]rovided explicit protection for netting arrangements for UK banks.

140 SI 2009 No. 322.
141 SI 2009 No. 1826.

The United Kingdom, and Europe in general, has a more complicated philosophical debate than other jurisdictions when it comes to insolvency regimes. A jurisdiction may, for example, allow the home bankruptcy court to control an insolvency proceeding of the locally headquartered institution and its local affiliates and in effect ring-fence or wall off the failed entity's local assets for the good of local creditors. Alternatively, the home bankruptcy court could control the resolution of the locally headquartered institution and its branches outside of the home jurisdiction, permitting assets to be returned to the home jurisdiction if needed.

Prior to the economic crisis, a sort of unitary approach to cross-border insolvency developed, as exemplified by the passage of the EU Insolvency Regulation, the EU Credit Institutions Reorganization and Winding-Up Directive, UNCITRAL's Model Law and even Chapter 15 of the 2005 Bankruptcy Act in the United States. But that relatively new approach was quickly called into question following the insolvency of Lehman Brothers' European investment bank, LBIE, and the insolvencies of three Icelandic banks, and a more territorial approach has returned. Advocates of this territorial view on insolvency argue that the home regulator, for example the Financial Services Authority, with regulatory authority for Barclays Bank plc, is more likely to intervene at an earlier stage in the affairs of a failing institution than non-UK regulators responsible for local affiliated entities. As always, political sentiment is to the fore, and given the strains in Europe as of late, particularly with respect to the Greek Sovereign debt crisis, EU Member States' current mood seems to be to maintain some financial independence.

The problem with the territorial approach to insolvency is that it creates a race for assets of a failed entity and ignores the possible preservation of value that may be achieved if resolution occurs in a coordinated, cross-border manner. In addition, the territorial approach may consider less highly concerns about global stability and prefer to act in a short-term, local mindset. In the end, it is not yet clear what approach to cross-border insolvency will result. Any effort to transition more effectively to a harmonized approach will require significant work on underlying local insolvency laws, mutual respect and recognition of local insolvency procedures and processes, equitable treatment of creditors regardless of location, agreement on systemic risk criteria and the need to coordinate and act decisively when needed. The challenge is global, as studies indicate that in certain jurisdictions like the United States and Japan, the banking system tends to be more locally focused, whereas in other jurisdictions, like the United Kingdom, the banking systems are more internationally focused.[142]

A.4.2 Systemic risk resolution in the United States

The United States does not have a single bankruptcy or regulatory regime that would permit the unified resolution of diverse financial groups such as Lehman Brothers. Many point to this fragmented approach as being partly responsible for the chaos that ensued from the Lehman Brothers' bankruptcy, where the FDIA,

142 See, for example, J.P. Morgan (2010, p. 6).

Chapters 7 and 11 of the US Bankruptcy Code, SIPA, state insurance law and foreign laws applied to various bankrupt Lehman entities.

On 15 March 2010, the Chairman of the US Senate Banking Committee, Senator Christopher Dodd, released a new proposal for financial industry reform. Entitled the 'Restoring American Financial Stability Act of 2010' (hereafter the Senate Proposal), it passed the Senate Banking Committee by a straight party line vote on 22 March 2010 and is now being debated by the full Senate. The Senate Proposal shares many features with the financial reform Bill that passed the US House of Representatives in December 2009, entitled the 'Wall Street Reform and Consumer Protection Act' (hereafter the House Bill).

The House Bill and the Senate Proposal would both establish a Financial Services Oversight Council to monitor systemic risk. The Council would be tasked with identifying financial companies and activities that should be subject to heightened prudential requirements, monitoring of the financial system and facilitation of information sharing among the various regulators. The Council would designate certain financial institutions that are deemed to present a systemic threat to financial stability as 'systemically important'. The House Bill and the Senate Proposal direct the Council to consider factors in its deliberations such as leverage, assets to liabilities, off-balance sheet exposure, interconnections with other entities and the entity's importance to businesses and households, among other factors.

The House Bill and the Senate Proposal each model its insolvency approach to financial companies deemed systemically important on the resolution authority that applies to insured depository institutions under the FDIA. Under the House Bill, the FDIC would be appointed as a receiver after a systemic risk determination is made by the Secretary of the Treasury, provided that the subject entity is in default or in danger of default and its failure would have serious adverse effects on the financial stability or economic conditions in the United States. Under the Senate Proposal, a similar approach is taken. The Secretary of the Treasury, the FDIC and the Board of Governors of the Federal Reserve must all agree to place the financial company into an orderly liquidation process, and a panel of three Federally appointed bankruptcy judges would need to approve the triumvirate's decision within 24 hours.

What does seem clear is that the entities most likely to be considered systemically important are the largest banks. The Office of the Comptroller of the Currency (OCC) reports that as of the fourth quarter 2009, the largest derivatives dealers in the United States are JPMorgan Chase and Bank of America – each of whom conduct their derivatives business out of their respective banks.[143] According to the OCC, 84% of all derivatives trading by banks is in interest rate swaps, perhaps the most 'plain vanilla' of derivative products; for the global market more generally, the figure is approximately two-thirds. What is not clear is whether other entities such as exchanges, clearing houses, other financial companies, investment advisers or others are capable of being deemed systemically important. While some argue that possible candidates for systemic

143 OCC (2009). Note that Goldman, Sachs' and Morgan Stanley's conversion to bank holding companies has resulted in a continuing migration of derivatives trades from the investment bank to the bank.

importance should not be identified, this author contends that the failure to do so, or even to set clear criteria, will result in the market making its own judgments about what entity is or is not systemically important. As was shown in the case of Lehman Brothers, sometimes the market and the regulatory community do not always agree on systemic importance in advance of a default, leading to disastrous results.

A.5 Regulation of OTC derivatives in the United Kingdom, European Union and the United States

In general, the various regulatory proposals put forward to date share certain common features regardless of their origins. In the European Union, legislative proposals contain the same broad themes as those in the United States, as outlined below. Mandatory central clearing, increased reporting to trade repositories and greater transparency are the salient strands in the policy debate. One wrinkle is that the European Commission would like to force market participants to use a European-based central counterparty to clear credit default swaps on European-reference entities and indices. Many market observers would disagree, arguing that this type of jingoism will impede harmonized regulatory frameworks and disadvantage European-based central counterparties.

In the United States, the House Bill imposes mandatory centralized clearing for swaps that a derivative clearing organization would accept for clearing and the US Commodity Futures Trading Commission (CFTC) or the Securities and Exchange Commission (SEC) has determined are required to be cleared. Clearing for swaps would not be required if one of the counterparties is not a 'swap dealer' or a 'major swap participant' and such counterparty is using swaps to hedge or to mitigate commercial risk – a fairly broad exemption given the challenge associated with defining hedging versus other activity such as speculation.

The House Bill targets 'swap dealers', a term which includes dealers who regularly engage in the purchase and resale of swaps to customers in the ordinary course of its business. This would capture all of the major financial institutions that are active in derivatives trading. A 'major swap participant' is not a swap dealer, but nevertheless maintains a substantial net position in swaps, excluding positions used for hedging or mitigating risk or whose outstanding swaps create substantial net counterparty exposure among the aggregate of its counterparties that could expose those counterparties to significant credit losses. This definition is likely designed to capture very large investment advisers or insurance companies that are actively engaged in derivatives trading. The entities covered by these definitions will be required to adhere to special capital requirements and enhanced reporting into trade repositories or regulatory authorities.

As of the date of this writing, the legislative efforts in the United States regarding derivatives are not finalized and amendments are likely.

A.6 Conclusion

Practically everyone agrees that financial reform is needed, in particular focusing on the insolvency process for systemically important entities and increasing transparency with respect to certain aspects of the derivatives market. Policy-makers would be advised to consider, though, the differences that exist in the role their domestic banks play in their home jurisdictions and abroad. According to a research report published in February 2010 by J.P. Morgan, the size of a bank becomes a concern when it has the potential to lose a high percentage of its home jurisdiction's gross domestic product. J.P. Morgan (2010) argues that this is a more significant issue for Europe than the United States and, accordingly, government bailouts may create moral hazards.

While US banks are a relatively small percentage of the US's gross domestic product, UK banks such as Barclays Bank plc, HSBC, Royal Bank of Scotland and Standard Chartered have most of their assets outside of the UK, with only between one-third and one-half of their assets located in their home jurisdiction – a testament to the global empire that the United Kingdom once was. The same is true for Credit Suisse, Deutsche Bank and UBS (J.P. Morgan, 2010, p. 6). The J.P. Morgan report adds that 7 of the top 25 largest banks have assets greater than their home country's gross domestic product (2010, p. 7).

Not surprisingly, regulators have historically been locally focused, with the exception of some of the European Union's more recent initiatives discussed in Section A.4.1 above, and intervene only when there is concern about the safety of local bank deposits. However, the interconnectivity of a particular bank to other systemically important entities, or fear of weakening domestic markets spreading globally can serve as a powerful incentive for domestic regulators to collaborate with other regulators.

The time for improved coordination of cross-border bankruptcies is now. Contemporary financial institutions of likely systemic importance operate with a bewildering number of affiliated entities in dozens of jurisdictions. For example, Bank of America has 2321 legal entities, Deutsche Bank has 2250, and even AIG had over 4000 legal entities.[144] Policy-makers should prioritize the coordination of resolution efforts of failing institutions and develop mechanisms to identify those failing institutions far earlier than has been the case to date. In addition, policy-makers must acknowledge that systemically important financial companies may unravel within a matter of days, so that clarity of action and process in a compressed, and likely aggravated market environment, is ensured.

In addition to making policy choices that are designed with legal certainty and speed in mind, it is also important that operational challenges are considered. OTC derivatives are one of the most critical contracts that systemically important financial companies engage in, and the operational infrastructure for these aspects of their businesses are some of the most over-worked and vulnerable. For example, the Valukas Report indicated that Lehman Brothers had 2600 software

144 J.P. Morgan (2010, p. 40, Table 29). The AIG estimate is from Loomis (2009).

systems and applications, most of which were unconnected from one another.[145] Managing complex derivatives portfolios or handling the failure of an entity that maintains an enormous structure of legal entities operating in multiple jurisdictions demands better technological support and infrastructure.

In the end, it is hoped that policy-makers will study the causes of the economic crisis of the past several years and enact far-sighted financial reform focused on the weaknesses of the system, including the patchwork of insolvency laws, and avoid the temptation for easy, populist solutions.

145 Report of Anton R. Valukas, Examiner, to the United States Bankruptcy Court Southern District of New York, 11 March 2009, p. 33.

Discussion

Session 1: Presentation of the Geneva Report (Chapters 1-3)

Andrew Kuritzkes, *Partner-Head of Northern American Public Policy, Oliver Wyman*

Mr. Kuritzkes emphasized that failures of SIFIs are here to stay and proposed an externality tax as a way to deal with the complexity of systemic institutions.

Andrew Kuritzkes stressed that a bank failure is not "someone else's" problem, it affects everyone. He agreed that that the difficulties in unwinding SIFIs are a major contributor to systemic risk because the lack of a coordinating framework amplifies uncertainty, spreads contagion, and leads to ad-hoc bailouts. He also recognized the importance of focusing on the end-game because a credible resolution mechanism is a prerequisite for market discipline: the "too big too fail" problem cannot be solved if the market believes that a SIFI cannot be successfully unwound.

To show that the failure of major market players is an element that will be always present, he observed that during the past 20 years, we saw a failure (i.e. either a direct bankruptcy, a conservatorship, or a government intervention) of 26 institutions that ranked among the hundred largest by assets (16 out of those cases occurred in 2008). This implied annualized failure rate is 1.3%. Moreover, some well-known failures were not included in the list either because the institutions were either too small (Northern Rock) or are what he called "walking wounded" (Citibank or Bank of America). The bottom line is that if the system can not be made failure-safe, it needs to be made safer for failure.

Andrew Kuritzkes next commented on the complexity of SIFIs. He presented the corporate structure of AIG and claimed that no one, not even Hank Greenberg (former chairman and CEO of AIG), could have possibly understood it. An important implication is that the creditors did not understand which assets were backing which liabilities, making a bankruptcy a lottery. If complexity is such a problem in resolving SIFIs, policy-makers should not tolerate it. To solve this problem, he proposed imposing an externality tax directly on corporate complexity. This could take the form of a fee of $1million per subsidiary imposed on institutions above a certain size threshold. Collecting the tax for the first time in five years would give an incentive to simplify the corporate structure in the meantime. Then, it would be recollected at five-year intervals. The amount of

$1million is significant for large conglomerates but still affordable as it amounts on average to 6 basis points of assets over a period of five years. Andrew Kuritzkes thought that the tax is justified by the externalities of cross-border activity, legal complexity and regulatory forum-shopping.

Cedric Tille, *Professor of International Economics, the Graduate Institute of International and Development Studies*
Cedric Tille offered participants an academic view of the problem of SIFIs and their resolution. He argued for starting coordination on a regional level and presented advantages and possible complications of such a solution.

Cedric Tille noted that the key difficulty is to agree on who will be paying the bill in the case of a crisis. Because of the costs of coordination and of transferring sovereignty, he suggested to start coordination on a small scale. In a region where a supra-national entity, the EU, is already in place, coordination should be much easier to achieve than between the EU and the US. But, of course, coordination solely at the EU level raises several questions. Would there be a problem of an uneven playing field? Would European banks competitiveness be diminished vis-a-vis British and American banks? Cedric Tille argues that the contrary might be true: the presence of a clear resolution mechanism could make European banks actually more competitive.

He then asked what would happen when a coordination mechanism has been implemented and a crisis comes. For example, what happens if the proposed college of regulators disagrees with US authorities? The risk is that US authority actions regarding a European bank could be seen in Europe as a US protectionist measure. This shows that regional colleges of regulators are insufficient and must be supplemented or replaced with an international body, at least at the EU-US level. However Cedric Tille was pessimistic about chances of getting US Congress approval for such an arrangement. An alternative would be a college with only an advisory role but having regulators with no real power is pointless.

Cedric Tille also attracted attention to the case of small countries with SIFIs too big to save. In that case, in the event that such SIFI needs to be unwound, the big countries would have to pay a large part of the bill. As a result, they would dominate the college of regulators. This means that large banks from small countries would be effectively regulated by the large countries.

Finally, he suggested that if it is too challenging to limit national sovereignty, we should also focus on the other two parts of the trilemma. The current situation, no financial stability, is the least desirable outcome. A better situation, he argued, would be to consider limiting cross-border activities of SIFIs. Although in theory, financial integration is beneficial, there is little empirical evidence to support it (apart from benefits of FDI in developing countries). As a result, the benefits from financial integration are disputable and the costs are very high.

Jean-Pierre Landau, *Deputy Governor, Banque de France*
Jean-Pierre Landau raised four issues. First, he challenged the concept of trilemma, then he asked if systemic risk really comes from the existence of systemic

institutions, third he wondered whether a resolution regime for SIFIs is the best way to address systemic risk and, finally, he looked at the question of liquidity.

Regarding the trilemma proposed by the authors, Jean-Pierre Landau doubted that the pre-eminence of national authorities in the regulatory field really was a problem. He argued that it was hard to find evidence that national regulation was a factor of financial instability during the past crisis. His reading of the case studies was that in the end, the national authorities always somehow managed to find a solution. In his view the case studies contradict the conclusions of the authors. However, agreeing that this might not be a permanent regime, he saw the trilemma as a vision of the future more than an explanation of the past. The real problem, according to Mr. Landau, is complexity. Reacting to Andrew Kuritkzes' proposition of a complexity tax, Jean-Pierre Landau worried that that the tax would have to be very heavy to counterweigh current incentives, such as tax arbitrage, that make complexity attractive.

Jean-Pierre Landau then asked whether the link between systemic risk and systemic institutions was clearly established. He reminded the audience of the difficulties in defining a SIFI solely on the basis of size or interconnectedness. He argued that the key problem is the existence of multiple equilibria in financial markets: good equilibria with no panic and no systemic institution and bad equilibria when panic spread and suddenly every institution is found to be systemic. What are systemically important are situations, not institutions. SIFIs must be dealt with, of course, but primarily to avoid moral hazard. Indeed, during the crisis, blanket guarantees were awarded by governments to the financial system as a whole to deal with the panic.

Jean-Pierre Landau agreed that harmonization of resolution regimes is very important. However, in his view, it will take a lot of time to achieve this goal. He claimed that we should not focus on capital levels but on capital structure, with the aim of knowing *ex ante* who is going to pay, and how bondholders and equity holders will be treated in a case of a failure. In that respect, a clear capital structure incentivizes institutions not to misbehave and Jean-Pierre Landau argued that harmonizing capital structure is more easily achievable than harmonizing resolution regimes. In the same vein, he mentioned the issue of central counterparties for derivatives markets. Regulators agree that CCPs would decrease systemic risk and the private sector disagrees. This is becoming a test of the ability of regulators to change the current situation.

Finally, Jean-Pierre Landau suggested that, within the trilemma, he sees a friction between financial regulation and the liquidity management. National regulators will not tolerate any more the global management of liquidity and capital in international institutions. Since liquidity is denominated in very few currencies, national authorities will try to ring-fence liquidity in subsidiaries at the national level. He proposed an alternative trilemma, between the banking system as we know it, the need of national authorities to control their liquidity situation and the fact that there is only a limited number of currencies in international finance.

Alain Robert, *Vice-Chairman of Wealth Management & Swiss Bank, UBS*
Alain Robert offered the participants a practitioner's perspective. He commented on the finalities of regulation, on systemic activities, wind-down plans and scalability.

He noted a convergence of expectations and feelings between bankers and policy-makers and stressed the duty to make sure that a crisis like this one does not happen again. Institutions need to look back at their business models, activities, and strategies to make sure that they operate on an extremely professional and responsible basis.

He agreed that there is a clear need for more qualitative and quantitative regulation. However, he warned, that we cannot expect regulation to solve everything. Sympathetic to the problem of defining a SIFI, he argued that more emphasis should be put on the links between business models and related complexity level. He thought that the number of subsidiaries as such is not very instructive. What matters is rather the number of systemically important subsidiaries. He linked the stability of the financial system to substitution risk, connectivity and mainly to wholesale activities. He reminded the audience that the financial system is built to fulfill the need for very specific services. As a result, he warned that when we try to address the systemic risk of SIFIs, we need to consider how their clients will find substitute solutions and the possibility that risk can be simply transferred somewhere else, where people are less competent to deal with it. Instead of diminishing the risk, regulation could hide it.

On the issue of wind-downs, Alain Robert agreed that there is a need for clarification, but that could be more about understanding than about actual execution. We do not know what will be the next stress scenario, so we should focus on prevention and on understanding the system and its components. Noting that SIFIs are a small number of institutions, he called upon tight cooperation between regulators and SIFIs to promote a better understanding of business models and therefore of *ex ante* scenarios.

Finally, Alain Robert focused on scalability. He agreed with the report that we are still at an early stage of understanding the kind of impact that these measures might have on the real economy. There is a need to identify the impact that regulation will have on strategy and on the ability to deliver financial services to clients. In the past, the industry was driven by concentration, driven by globalization, scalability and knowledge subject to increasing returns of scale. If domestic financial institutions are not allowed to develop this knowledge and related connections, they will have to rely on foreign providers, which might bring vulnerability to the home market.

The bottom line is that, for regulation to be successful, we have to understand the system and the impact of the regulation on it. This calls for close discussions between the regulators and the institutions.

Session 2: General Discussion

Dino Kos, *Managing Director, Portales Partners, LLC*
Dino Kos reacted to the notion of a trilemma. He asked for a more precise definition of financial stability and wanted to see a clear link between transfer of sovereignty and global stability. He asked why coordination as such should give us more stability than the ad hoc approach that was applied so far. He also asked how supervisors should be thinking about cross-border exposures when planning the next version of the Basel regime.

Thomas Jordan, *Vice-Chairman of the Governing Board, Swiss National Bank*
Thomas Jordan asked the authors whether the aim should be liquidation or reorganization. Depending on the capital structure, should we not aim at getting bondholders to accept losses and head for a quick resolution? Responding to Andrew Kuritzkes' proposal of a complexity tax, he indicated that current discussions in Switzerland on new regulation of SIFIs were looking at capital requirements that differ according to the complexity of legal structures.

Alexander Swoboda, *Professor of Economics Emeritus, the Graduate Institute of International and Development Studies*
Alexander Swoboda questioned whether, in the spirit of the trilemma, it is possible to choose not to have cross-border banking. Noting that, pretty much like capital mobility, it is impossible to prohibit cross-border banking, he thought that the maximum that can be done is prudential regulation. That is why we should focus on other ways to achieving market discipline, such as efficient resolution.

Claudio Borio, *Deputy Head Monetary and Economic Department, Director of Research and Statistics, Bank of International Settlement*
Claudio Borio stressed that the authors should be careful in the definition of cross-border activities. In the BIS statistics that the authors are using, exposure, including cross-border banking in the strict sense, is given, is consolidated, including subsidiaries and branches. He also noted that the authors are equating absence of cross-border banking with no financial integration but he pointed out the example of Spanish banks that operate in Mexico via subsidiaries and with independent financing; they enter the statistics as cross-border banking. He also encouraged the authors to address the costs of subsidiarization in terms of financial integration.

Dirk Schoenmaker, *Dean, Duisenberg School of Finance*
Dirk Schoenmaker explained the link between coordination and stability in the trilemma, using monetary policy coordination as an example. In the uncoordinated case, in the EMS, the Bundesbank always decided on the optimal interest rate for Germany and others had to follow. On the contrary, in the ECB all participants are at the table. The key point is that the governors are not allowed to fight for their domestic interests, but have to consider the outlook for

the Euro area as a whole. Hence, the solution at a higher level is relatively better than the partial solution.

Responding to Jean-Pierre Landau's remarks on the relative success of national authorities in resolving SIFIs during the past crisis, Dirk Schoenmaker noted that only in three out of the six cases presented, national governments solved the problem successfully. In the case of Lehman Brothers, in the USA the resolution was Fed-financed and orderly. In contrast, in the UK, authorities found out too late that they were in charge and, as a result, the resolution was very messy. If the regulators worked together and informed each other, the Bank of England could have provided help. In other cases, it remains to be seen that the solutions that were implemented was the least costly one.

In the case of subsidiarization, Dirk Schoenmaker argued that the key problem is segmented liquidity and capital management. Separating liquidity funding and capital in each jurisdiction is costly for the banks. Instead of a single bank, we see a string of banks that accidentally have the same name.

Concerning the recurring question whether for cross-border banking in Europe the relevant space is the EU or the Euro area, Dirk Schoenmaker argued that since this is not a currency issue, the relevant space should be the single market.

Stijn Claessens, *Research Department, IMF*
Stijn Claessens agreed with Cedric Tille that the premise that cross-border banking is beneficial is just based on theory. However, in advanced economies, he claimed that there are clear benefits from risk-sharing among more integrated countries, even though integration can become a disadvantage at crisis time. Anyway, even though the empirical evidence is mixed, cross-border banking is a reality.

He agreed with Alexander Swoboda's remark that regulating cross-border banking would be very difficult to achieve in practice. Given the difficulty of regulating the cross-border banking, the trilemma question is whether national sovereignty needs to be sacrificed. He suggested that the solution should probably be different in different countries.

Finally, Stijn Claessens acknowledged the problems with the BIS data, but he argued the authors also have some data on presence in foreign market, which is correlated with cross-border banking. To clarify his previous statement, Claudio Borio said that the BIS data also contains loans provided locally by subsidiaries and branches of foreign banks. In this sense, there will always be financial integration in the data even if there is subsidiarization. Stijn Claessens agreed and added that banks prefer more integrated financial markets because it makes it easier for them to channel liquidity in the case of a crisis. An opportunity cost of the current system is that local authorities prefer to ring-fence liquidity, as stated by Jean-Pierre Landau.

Richard Herring, *Jacob Safra Professor of International Banking, Professor of Finance, the Wharton School, University of Pennsylvania*
Richard Herring addressed Thomas Jordan's question whether liquidation is a desirable outcome. If the incentives are set correctly, management will make tough decisions before it comes to that end point. The key part of the resolution

scheme is to identify systemic activities and make them easily transferable to another institution to avoid disruption.

While the trilemma predicts under-provision of bailouts, Richard Herring's view of the real word is different: the US government bailed out every single depository institution, even including a tiny bank in Washington, DC with an office in the Caribbean. Lehman was an exception because it was not a depository institution in the US and they lacked the tools to bail it out in the absence of a willing acquirer. They did manage to persuade a large group of banks to provide the necessary subsidy for Barclays to take it over, but the UK authorities did not approve of circumventing shareholders' approval. The reason for destabilization was that every bailout episode was improvised over a weekend without any clear rules designed *ex ante*. He further stressed that a large part of AIG bailout money went to foreign banks. Thus the current situation is more about over-provision of bailouts and moral hazard on a massive scale, which both exacerbate the likelihood of more and bigger crises in the future. So long as creditors and counterparties can count on being sheltered from loss, we cannot expect them to impose discipline on SIFIs.

Christos Gortsos, *Professor, Panteion University of Athens*
Christos Gortsos reminded the authors of a legal issue concerning subsidiarization: European law guarantees freedom of establishment. Therefore, subsidiarization could not be easily implemented in the European context.

Charles Goodhart, *Norman Sosnow Professor of Banking and Finance, London School of Economics*
Charles Goodhart warned against the tendency to putting too much weight to the immediate past. He did not dispute the fact that a vast majority of cross-border banking is carried out by 30 or 40 systemic institution and that they are the main source of externalities. However, in spite of absence of cross-border financial intermediaries in the world financial scene in 1929, we experienced a massive systemic transfer of losses from one country to another.
He then argued that cutting down bank size and geographical spreading would not necessarily limit spillovers. A large number of small banks can still be systemic as a herd.

He noted that regulation tends to force all financial firms to behave in the same way. It reduces diversity and thus it also reduces the safety of the financial system and exacerbates the systemic problems. He suggested that the authors should avoid giving the impression that if we deal with the small number of systemic institutions, there will be no financial crises any more.

Richard Herring, *Jacob Safra Professor of International Banking, Professor of Finance, the Wharton School, University of Pennsylvania*
Richard Herring responded that the banking crises of the 1930s has been much deeper than the current one and yet no effort at regulatory harmonization had even been contemplated. Agreeing that it is not a good idea to impose the same model on all banks, he pointed that the rules proposed in the Report would keep

the diversity of choice and only require everyone to have a well-prepared wind-down plan.

Ignazio Visco, *Deputy Director General, Member of the Governing Board, Banca d'Italia*
Noting widespread agreement that the SIFIs are not the only source of systemic risk in the financial system, Ignazio Visco wanted the Report to pay more attention to the other sources of systemic risk.

Lars Nyberg, *Deputy Governor, Sveriges Riksbank*
Lars Nyberg supported the view that a resolution framework is an issue that is very important and that has been given too little attention so far (e.g. in the de Larosiere report). While everyone focuses on supervision and regulation, more attention should be paid to the design of a clear resolution mechanism since it would affect behavior of banks and supervisors before it comes to a bankruptcy. He brought the participants' attention to the European Memorandum of Understanding on Crisis Management that was signed before the crisis but was not used by anyone later on. The reason was that there were no proper incentives in place.

Amlan Roy, *Director, Fixed Income Research Department, Credit Suisse*
Amlan Roy first disagreed with defining systemic institutions by structure. The macroeconomic literature on beliefs, herd behavior and self-fulfilling crises implies that even a small institution can become systemic and trigger contagion, a point made earlier by Jean-Pierre Landau. He then observed that designing incentive schemes boils down to mechanism design. In the presence of conflicting objectives and incomplete contracts, renegotiation is unavoidable. As Alain Robert mentioned previously, this implies that it will very hard to lay out what will happen in the end period without knowing the incentives and objectives of all those involved. Dirk Schoenmaker agreed.

Vit Barta, *Advisor to Vice-Governor, Czech National Bank*
Vit Barta was not sure whether the report established a clear link between systemic institutions and the crisis. He missed the link between the reasons of the crisis and the existence and importance of SIFIs. The roots of the crisis are much more complex and preceded the fall of Lehman Brothers.

Andrew Cornford, *Observatoire de la Finance*
Andrew Cornford suggested that the authors should account for obstacles to agreement that prevented any progress on this field in the past. Since the past crisis changed the world, it would be nice to pinpoint its features that might have made it easier to reach an agreement.

Richard Herring, *Jacob Safra Professor of International Banking, Professor of Finance, the Wharton School, University of Pennsylvania*
Mr. Herring agreed that the origins of the crisis were much broader. Still, he pointed out that SIFIs were responsible for creation and distribution of CDO squareds and complex credit default swaps which made the system so opaque that even the leading firms were deceived. Moreover, these activities generated more than half of their profits.

Stijn Claessens, *Research Department, IMF*
Responding to Charles Goodhart's remark on lessons from the past crises, Stijn Claessens indicated that the trend towards open banking is already reverting. On the policy side, he admitted that first-best solutions are hard to achieve but ignoring the issue is the worst option. Had there been a better resolution system in place in the fall of 2008, the spread of contagion could have been prevented. Spillovers were not just driven by moral hazard but also by considerable uncertainty.

Dirk Schoenmaker, *Dean, Duisenberg School of Finance*
On the issue of subsidiarization, Dirk Schoenmaker brought up the example of New Zealand, where it was already implemented. In the EU it is not allowed. If policymakers ignore the trilemma, in order to achieve stable banking the supervisors are likely to try to implement subsidiarization in a hidden, silent way. Dirk Schoenmaker saw it already happening.

Richard Herring, *Jacob Safra Professor of International Banking, Professor of Finance, the Wharton School, University of Pennsylvania*
According to Richard Herring, it is an article of faith in the Basel agreement that regulation and supervision must be done on a consolidated basis and resolution policy has been completely ignored. When trouble occurs, however, an institution's capital and liquidity are often ring-fenced by regulatory authorities who can control the assets in their domain. Thus consolidated supervision is often deeply misleading and needs to be integrated with resolution policy to reach meaningful conclusions about capital adequacy or liquidity.

Christos Gortsos, *Professor, Panteion University of Athens*
Christos Gortsos reiterated his warning that if supervisors try to implement subsidiarization in a hidden way, any financial company can claim with the Court of Justice a violation of the European Treaty. Dirk Schoenmaker responded with the example of a Dutch insurance company that brought such a case to the Court with the help of the Commission. Even though they won the case, it was in the end too costly and they withdrew.

Ugo Panizza, *Unit Chief Globalization and Development Strategies, UNCTAD*
Ugo Panizza related the discussion on the merits of cross-border banking to a similar discussion on the topic of big banks, namely whether it makes sense to have big banks when economies of scale are exhausted at relatively small size.

Märten Ross, *Deputy Governor, Executive Board, Bank of Estonia*
Märten Ross pointed out that subsidiarization only makes sense if the results are true subsidiaries (not de facto branches). The worst case scenario would be to have subsidiaries only on paper. He added that preference for subsidiaries over branches might pose competition problems in small countries, where the larger capital requirements could narrow down the competition in the market. Dirk Schoenmaker agreed.

Dino Kos, *Managing Director, Portales Partners LLC*
Dino Kos asked Thomas Jordan whether the Swiss leverage ratios for the big banks exclude domestic business. Are they a way to decrease complexity and overseas activities that might bring risks to the taxpayer? Thomas Jordan indicated that the Swiss leverage ratio was introduced in the middle of the crisis because of concerns with credit growth and also because it is easier for the regulator to assess Swiss assets. But the current definition of the leverage ratio will be subject to change.

Anne Heritier Lachat, *Professor of Banking and Finance Law, Member of the Board, FINMA, Swiss Financial Market Supervisory Authority*
Anne Heritier Lachat agreed that in the case of resolution, a simple structure might help. From a lawyer's point of view, the biggest problem is to find the location of assets and gain access to them – in the case of Lehman Brothers, no one knew where some asset were.

Ignazio Visco, *Deputy Director General, Member of the Governing Board, Banca d'Italia*
Ignazio Visco asked whether we can keep all three components of the trilemma by limiting the size and complexity of the financial institutions. He referred to a G30 report from 1998 that dealt with systemic institution. The conclusion was that since the CEOs have limited understanding of how their institutions work, there is no way supervisors can understand it better.

Richard Herring, *Jacob Safra Professor of International Banking, Professor of Finance, the Wharton School, University of Pennsylvania*
Richard Herring drew attention to a US Senate proposal to limit the size of banks. This reflects the undue importance of language when characterizing the problem as "too-big-to fail". It is not just the size that is crucial but also institutional complexity, resolvability and existence of systemic features. The list published by the Financial Times was based on size and left out many banks with hugely important systemic role.

He agreed that another pressing issue is to make interconnections more transparent since a lot of the interventions in the US were made out of fear of not knowing possible consequences.

Monica Rubiolo, *Head Macroeconomic Support, Economic Development and Cooperation, Swiss State Secretariat for Economic Affairs (SECO)*
Monica Rubiolo expressed concerns about the medium- and long-term impact of limiting cross-border banking on growth in both developing and emerging economies where cross-border banking brings clear benefits in terms on knowledge transfer and sophistication. Stijn Claessens answered that a better resolution system would ensure that these countries would be able to continue to enjoy the benefits of cross-border banking in the future.

Ignazio Visco, *Deputy Director General, Member of the Governing Board, Banca d'Italia*
Ignazio Visco appreciated the author's approach to deal first with the second period to be able to solve the first period. This approach should be applied also to other issues, such as sovereign debt. He emphasized that all proposals have to confront substantial differences on the legal side, e.g. between the continental European and the Anglo-Saxon system. However, he disagreed with the authors on the countries that should be take part in the discussion as he thought that Asia or Latin America should be included. Richard Herring clarified that they only meant to start with core countries.

Session 3: Presentation of the Geneva Report (Chapters 4 & 5)

Robert Bliss, *Professor, Wake Forest University*
Robert Bliss first outlined political problems connected to SIFIs and next challenged the authors' view that the best way to deal with a distressed institution is liquidation.

He noted that decisions to defer to regulators in other countries are made purely for political – not prudential – reasons, a view for which he provided two examples. In the AIG case, the US did not like the European Union's Consolidated Supervision Directive for Financial Conglomerates. They convinced the EU that AIG could only be supervised by the US supervisor (Office for Thrift Supervision), which in fact did not consolidate its supervision. The second example concerns the Icelandic banks whose liabilities grew to ten times the GDP of the country. It should have been obvious that in a case of a failure, Iceland would not be able to sustain its obligations.

Robert Bliss offered as a possible solution a system of international evaluation. Ideally, this would lead to the exclusion of banks from countries with deficient regulatory systems. Another possible solution would come *ex post*. *Ex post* coordination is usually limited because loss-sharing is met with aversion by taxpayers, politicians and regulators. The result is asset positioning and the hiding of bad news, which leads to inter-affiliate transfers in anticipation of a failure. Two possible solutions are either to apply the concept of clawbacks to inter-affiliate transfers or to make inter-affiliate claims senior to external claims.

Robert Bliss admitted that he was puzzled by the rush to wind-downs and the presumption that when dealing with a distressed SIFI, liquidation is the best solution. In contrast, in corporate bankruptcy, the presumption is that that rehabilitation is the best way to preserve value. He claimed that the FDIC process is supposed to be very fast. What takes months nowadays is the process of finding a buyer. But once a buyer is found the transfer is a question of one day. The setting up of bridge banks is rare (five in last ten years). They are established when a bank has to be closed because of a run and there is no suitable buyer available. Bridge banks usually last only for a few months and are costly to manage. They should not be taken as a good idea. Liquidation can be very costly when a big institution must be sold in a bad market situation.

Liquidation also undermines market solutions. The results can be seen in the US nowadays, where no investor would inject capital into a failing institution: it is better to buy after it fails. In addition, there are no incentives to minimize losses: creditors are the ones most interested in preserving value but they are excluded from the resolution process. Also, the FDIC is a political institution. Therefore when spending other people's money (the banks', not the taxpayers'), it may have different objectives than loss minimization. Finally, liquidation will make the financial market even more concentrated and thus reduce competition and increases the systemic importance of the remaining institutions. As a result, Robert Bliss suggested we should focus on "Chapter 11-type" process where haircuts are given to creditors but the firm is kept going.

Charles Goodhart, *Norman Sosnow Professor of Banking and Finance, London School of Economics*

Charles Goodhart was in strong approval of the Report's idea to segregate key operations so that they can be kept working in case the institution is being resolved. This is a better approach, he opined, than Andrew Kuritzkes' complexity tax on subsidiaries. He also approved the suggestion that the Basel committee's focus on consolidated regulation and capital requirements may be deeply misleading because the home regulator might not be able to reach for the capital that is placed in different subsidiaries abroad.

He thought that the authors had correctly identified the problems related to cross-border resolution. One approach would be to stop cross-border banking and to enhance territoriality, effectively turning all subsidiaries into stand-alone institutions. The problem with this approach is that it goes right against the idea of European single economic area; there would be a lot of resistance to such a proposal. The alternative is universalism, a lovely in principle but one that would require a lot of legal and fiscal harmonization and *ex ante* burden-sharing agreements.

Since neither territoriality, nor universalism is achievable, the authors propose modified universalism. It would require each host country to decide whether it would treat each cross-border systemic institution in universal or territorial mode. While he thought that modified universalism was probably the best achievable solution, Charles Goodhart did not give up hopes for universalism yet. He noted that all major players are nowadays in process of introducing special resolution

regimes for their own country. This could be a window of opportunity to persuade all players to introduce the very same system, but he remained pessimistic about the likelihood of it actually happening.

Charles Goodhart asked for some evaluation of the costs of the Report's propositions. For example, conducting detailed stress-test of all cross-border financial intermediaries in all countries on a yearly basis would involve tens of thousands of additional regulators. Greater financial stability would be worth the price, he thought. He further noted that the authors did not deal with the possible twilight period between the initial intervention and the possible liquidation. He also warned that the authors should not put all their hopes into contingent convertible bonds (CoCos). There exist two market mechanisms designed to avoid going all the way to bankruptcy: double liability on equity and prompt corrective action. Both failed. Charles Goodhart thought that the CoCos are destined to fail as well. One problem is that they do not provide any liquidity when it is most needed. A simpler mechanism to achieve this would be to prevent banks from paying any dividends and later any bonuses if their market value plunges. Additionally, the authors should keep in mind that using market value brings in play market dynamics: banks could hedge their CoCos by shorting the underlying equity. Then, if one bank's CoCo would get triggered, all other banks' CoCos would get triggered simultaneously. This would result in massive value destruction for all those holding CoCos. Consequently, the question is who is going to hold them: if one financial intermediary will end up holding them, we would get back the AIG problem again. CoCos' value will go down just as value of all other assets is decreasing. This would imply big costs for banks issuing CoCos. In Charles Goodhart's view, there are simpler ways of dealing with this problem.

Thomas Huertas, *Director, Banking Sector, the Financial Services Authority*
Thomas Huertas focused on how to turn the report into practical action. The question of "too big too fail" is twice damnable. It is damned if governments do support a failing institution (in terms of moral hazard, impact on the budget etc.) but it is also damned if governments do not support it when they are expected by the market to do so. The Lehman case showed that what follows is reassessment of risk, flight to quality, and financial panic.

He approved of the report's proposal to integrate regulation, resolution and supervision. In addition he agreed with recommendations for the regulators to focus on capital quality and encourage use of contingent capital. He also supported the proposal for special resolution regimes and living wills.

The main advantage of a special bankruptcy code is to allow separation of customer funding (i.e. deposits) from investor funding, and to create an alternative to liquidation (e.g. via creation of bridge banks). This all allows continuity of key banking functions while the bank is being liquidated. He also stressed that bankruptcy of a large SIFI is very costly because it deprives businesses of working capital. As a result, despite the existence of a special bankruptcy procedure for banks in the UK, when a big SIFI (such as RBS) gets close to bankruptcy, the real choice is still between temporary public ownership and early equity injection. He did not foresee any change to this.

The UK has started to implement living wills (called recovery and resolution plan), which ensures financial continuity. The role of living wills is to provide the authorities with enough data that will allow them to make the right decision. On burden-sharing, the report suggests that the tax-payers should be prepared to pay part of the losses that the resolution of a SIFI implies. He disagreed that this is necessarily the case. A typical intervention occurs close to "business Friday", so there is time until "Monday Asia opening" to resolve the situation. If contingent capital can be converted during that time, a "pre-pack" recapitalization will be executed. On the Monday morning, what he called a "solvent wind-down" can be initialized. Then, even very complex institutions can be wound-down fairly quickly. A big advantage of a solvent wind-down is that it would give authorities time to make the right decision. The mechanics of intervention include a forced conversion of preferred stock and subordinated debt into common equity, to be triggered by a decision of a regulator. Thomas Huertas took the view that the dilution for the common shareholders would need to be severe. He thought that this proposal was likely to be approved by the Basel committee.

He found interesting the idea of a European Banking Charter. Asking whether there is anything that can be learnt from the market place, he encouraged thinking about setting up a special banking vehicle in the same fashion as a securitization vehicle. The equity would be held by national authorities and it would not bear any losses. The national authorities would effectively lease the opportunity to run the bank to a single investor that would bear first loss. When the bank would cease to meet threshold conditions, the control would resort back to the regulator that would wind it down, so there would be no formal bankruptcy procedure.

Neal Soss, *Chief Economist, Credit Suisse*

Neal Soss began his presentation by stressing that he is not speaking for banks. He supported Jean-Pierre Landau's emphasis on multiple equilibria in financial markets and the situational character of systemic risk. For instance, the observation that demand curves for capital assets are upward-sloping does not fit our view but it may well be a behavioral departure from rationality. Such departures from rationality happen often enough to be acknowledged. In sharp contrast, the rationale for efficient markets and the whole regulatory regime is a judgment that markets are efficient, i.e. that asset markets reach stable equilibrium prices. The presumption that price equals value gave rise to the idea of de-regulation and privatization and served us well for fifteen years, and then it failed us. This is why he was worried that the CoCos themselves can turn into a medium of contagion.

Robert Bliss and Thomas Huertas had implicitly asserted that it is the strike price of CoCos that is the debatable issue. Neal Soss agreed and argued that the strike price has to be set far away from anything that the markets can deliver under a stress situation. However, he worried about a cascade of market concern. CoCos are an illustrative example of our eagerness to outsource prudential supervision to market prices, thereby acting as if they represented some value. Although markets are paid better than bureaucrats, they are not always smarter.

He did not want either to jump to the conclusion that bureaucrats are smarter than market. Turning to the debate on the nature of cash, Neal Soss observed that governments thought that cash means liquid assets. This is why they use capital requirements to encourage they incentivized banks to hold public debt. But such a policy may allow countries like Greece to borrow excessively. The conclusion is that neither markets, nor governments alone can regulate banks correctly.

Neal Soss claimed that global financial crises ultimately are rooted in global macroeconomic imbalances. The current North-Atlantic crisis is part of the adjustment.

Finally, he gave an example of how supervision was done correctly, even though by an accident. In 1970s petrodollars needed to be recycled and the dollars could only be settled in the US, so branches of foreign banks went to New York to settle those transactions. They were supervised by the New York State Banking Department. One of the banks' common practices was to arbitrage on a large scale between Fed-funds and so called "clearing-house funds" that were settled a day later. This practice was stopped by the supervisors who saw that the practice was creeping into all reports and concluded that it must have been systemic. The message is that the authorities should not be passive and deferential to markets.

Session 4: General Discussion

Avinash D. Persaud, *Chairman, Intelligence Capital Limited & Investment*
Avinash Persaud expressed concern about the usefulness of CoCos. He though that holders of CoCos would have to be highly diversified, because otherwise in an event of bank failure the loss would only be transferred from the banking sector to another entity, which itself may be systemically important in the event of the bank failures. He also thought that investors would underprice CoCos during boom periods, because this is when risk is generally underpriced. When the CoCos get underpriced, banks can issue more of them, which will allow them to increase their balance sheets even further. He feared that there is no market instrument that can solve a market failure, because all market instruments are pro-cyclical. Hence, we need to find some non-market intervention instrument – not a market price.

Richard Herring, *Jacob Safra Professor of International Banking, Professor of Finance, the Wharton School, University of Pennsylvania*
Richard Herring did not agree with Avinash Persaud's criticism of CoCos. He thought that because banks will need to issue more of them when their stock price rises (during booms), they will end up with a lot more capital than they would otherwise have had, so CoCos take some of the heft out of boom. He added that if the conversion takes place at a level substantially above insolvency, the CoCo bonds' holders will not suffer losses, because they will get as much value in equity as they had in face value of bonds. He added that predictability is essential in crisis management. Part of the reason why Lehman Brothers turned

out to be so systemically important was that its bankruptcy took markets by surprise after the bailout of Bear Sterns.

Hans-Joerg Rudloff, *Chairman, Barclays Capital*
Hans-Joerg Rudloff said that other banks had expected that Lehman to run into deep trouble; however nobody expected that the US authorities would allow a disorderly liquidation. He agreed with Richard Herring that predictability is essential, saying that disorderly (forced) liquidation drags down all markets, and destroys confidence. He then praised the increase in power of national and international regulatory authorities, because orderly winding down of systemic troubled institutions prevents the crisis from spreading so quickly and deeply. He observed that despite improvements in regulation and international cooperation there will always be risk in the markets.

In response to Dirk Schoenmaker's view that it would take a lot of effort to introduce the wind-down plans ("living wills") and that banks would welcome them, Hans-Joerg Rudloff did not think that wind-down plans fully prevent crisis from happening. When a systemically important institution runs into problems and is required to wind-down, it is too late. By then, the market confidence is already gone, and a crisis can not be prevented. He added that if wind-down plans are to be introduced, they must not be prepared by banks, because the insiders do not have the distance necessary to rightly assess the situation. The wind-down plans would have to be imposed from the outside.

Richard Herring, *Jacob Safra Professor of International Banking, Professor of Finance, the Wharton School, University of Pennsylvania*
Richard Herring agreed with Hans-Joerg Rudloff's last point on the need to impose the wind-down plans from the outside, and thought that it makes a strong case for the CoCo proposal, since the conversion of bonds to equity takes place automatically at a level imposed by the regulators.

Neal Soss, *Chief Economist, Credit Suisse*
Neal Soss was skeptical about the ability to do an orderly wind-down of a complex bank. He was not sure whether it would be possible to keep the institution running during the wind-down, because as soon as the wind-down gets initiated there will be a run on the bank, wholesale funding will be withdrawn, and foreign governments might preemptively try to gain control of local subsidiaries of the troubled bank. Hans-Joerg Rudloff thought that it is possible to keep the institution running. He suggested dividing banks into independent units, because if one division runs in to trouble, it should not take with it the other healthy divisions.

Amlan Roy, *Director, Fixed Income Research Department, Credit Suisse*
Amlan Roy argued that the quality of employees crucially determines bank's ability to cope with a crisis. He gave as an example the case of HSBC, which internally focused on sorting out the over-exposure to the US sub-prime market, which allowed it to weather the crisis. He said that if a bank is well managed,

it follows on its own procedures that are similar to the regulatory procedures suggested during the conference.

Lars Nyberg, *Deputy Governor, Sveriges Riksbank*
Lars Nyberg drew some lessons from the Swedish crisis in the 1990's. He agreed on the importance of management, noting indeed that the main blame for the crisis has lied with bank managers. Describing how the Swedish government responded to the crisis, he explained that they used CoCos to support troubled banks. By setting the conversion rate very high, it became in the best interest of the managers to prevent the conversion from happening. He saw market-based CoCos are a very promising instrument, but he wanted to see some working before being fully convinced about their viability.

He stressed the need to outline how the burden of orderly bankruptcy of an internationally systemic institution would be shared. He thought international exercises of wind-downs and burden sharing are a key ingredient in preparation for future crises.

Jacques Delpla, *Conseil d'Analyse Economique*
Jacques Delpla was worried about the lack of political debate on the winding-down procedure of systemic banks. He said that if a crisis were to hit Europe now, there would be no resolution mechanism.

Sir John Gieve, *Chairman, Vocalink*
Sir John returned to the question of how radical the proposals should be. He encouraged the authors of the report to be more ambitious in proposing closer international cooperation in regulation. Stijn Claessens responded by asking whether we actually have faith in a supra-national regulatory body. Noting that the authors of the report might have different opinion on the matter, he stated his own belief that a supra-national regulator would be better isolated from national banking lobbies. Richard Herring took the opposite view. He thought that the US Congress is under a lot of pressure from the public to impose strict regulation of the financial industry, even before the Congress Commission fully investigates financial sector's role in the crisis. John Gieve agreed that there is lot pressure to constrain the banks, but thought that despite the pressure, the proposals err on the cautious side.

Hans-Joerg Rudloff, *Chairman, Barclays Capital*
Noting the incentive structure in the industry did not lead to proper prudent behavior, Hans-Joerg Rudloff asked how intrusive should the regulators be to make the system consistent with a prudent behavior? Richard Herring thought that compensation plans for regulators are highly constrained and that it is very hard to align their incentives with the interest of taxpayers.

Jean-Pierre Landau, *Deputy Governor, Banque de France*
Jean Pierre Landau thought that the question was: how to be as unintrusive as possible, while facilitating the creation of the right incentive schemes? This

is more difficult than it sounds, he noted, especially since there is no fully satisfactory answer as to why are the bonuses in the financial industry so high. The bonuses can either be rents, but then they should be competed away, or a reflection of very high marginal product of labor in the financial industry. In the latter case, the role of regulators is to make sure that the way marginal product of labor is incorporated into bonuses internalizes the risks that the financial activity is creating for the economy. Richard Herring mentioned work under way at the Wharton School. It shows that wages of CEOs in the financial industry have not kept pace with managers in comparable corporations.

Charles Wyplosz, *Professor of International Economics, the Graduate Institute of International and Development Studies*
Charles Wyplosz reported on a study by Phillipon and Reshef, which examines the ratio of bankers' wages relative to comparable managers' wages. The ratio goes up during periods of de-regulation, and down during periods of re-regulation. This indicates that when banks are allowed to take a lot of risk, they run up along the risk-return curve. The apparent high marginal productivity, and hence high compensations, is driven by the high level of risk that the banks are taking, in the expectation that major costs will be picked up by taxpayers. These rents are captured by the employees of the bank, rather than passed on to customers. If this story is true, then regulation must reach the point where banks are only as profitable as any other business is justifiable.

Jean-Pierre Landau, *Deputy Governor, Banque de France*
Jean-Pierre Landau observed that since the bonuses are in part driven by a disconnection in time between risk and compensation, the claw-backs should go a significant number of years into the past. But he acknowledged that regulating all this might be much more difficult than often thought.

Hans-Joerg Rudloff, *Chairman, Barclays Capital*
Hans-Joerg Rudloff concluded the discussion by saying that: "It will take a lot of efforts to create a system, which will allow us to operate globally with more security and certainty."

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