



***“Global Financial Intermediaries:
Lessons and Continuing Challenges”***

***Address at the Federal
Reserve Bank of Boston’s
56th Economic Conference:
The Long-Term Effects
of the Great Recession***

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I’d like to reiterate the welcome to conference participants that I offered yesterday. Thank you for being here to take part in this conference on the long-term effects of what many have come to call, sadly, the “Great Recession.” I hope that the ideas and analysis exchanged at this conference will help alleviate the effects of this downturn and the slow recovery, as well as help prevent future problems from causing so much hardship for so many.

I should mention that the views I express today are my own, and not necessarily those of my colleagues on the Federal Reserve's Board of Governors or the Federal Open Market Committee (the FOMC).

As I – and others – have noted many times, a key lesson from the recent downturn and prior financial crises is that problems in financial institutions and financial markets can and do spill over to the real economy, very significantly. Policymakers must worry about the financial system and markets because problems there can disrupt the financial intermediation on which market economies depend.¹ When this happens the economy suffers, and the economic prospects of its participants.

Given the severity of the recession that followed the recent financial crisis, it is crucial that our financial infrastructure becomes resilient enough so that financial intermediation can continue, regardless of a shock, without extraordinary intervention from the public sector (the government and, ultimately, taxpayers). During 2007 and 2008, the U.S. Congress, Treasury department, Federal Deposit Insurance Corporation, and the Federal Reserve all took extraordinary actions to avoid a more-severe financial crisis and more damage to economic prospects. Despite this unprecedented public-policy response, the recession was long and severe and the recovery continues to be much slower than we would like. And the United States was not unique in this respect. Many foreign governments and foreign central banks also took unprecedented action to try to alleviate the effects of the financial crisis in their countries.

Particularly noteworthy is how many large global financial intermediaries experienced severe distress. These institutions play a vital role in the credit flows and financial intermediation that underpin the global economy. They span national borders and presumably

have the ability to be better diversified across products and geographic locations than smaller institutions or intermediaries doing business in just one country.

But because these global intermediaries are key players in many countries and in many financial markets, and because they are highly interconnected with other financial institutions, they also serve as particularly efficient conductors or transmitters of shocks in one area to the wider global financial system. Unfortunately, such was the case with the major shock caused by residential real estate problems in the U.S. More recently it appears to be the case with the sovereign debt problems in Europe.

As you know, there have been significant legislative and regulatory responses to the financial crisis that emerged in 2007. In the United States, the Dodd-Frank legislation made significant changes to frameworks for addressing systemically important financial institutions, among other things. Internationally, many of the impending Basel III rules are similarly intended to address some of the lessons of the financial crisis.

I am very supportive of these efforts, but I suspect they can be strengthened and improved. Indeed some countries, such as the U.K. and Switzerland, are fairly far along in establishing standards that are higher than those required by Basel III. But in my view some significant challenges remain to be addressed if we are to have a global banking system in which no institution is “too big to fail” given the collateral damage its disorderly demise would cause to economies and citizens.

Before the new domestic and international rules could be fully implemented, the world has once again been buffeted by financial shocks, this time emanating in Europe. And once again large financial intermediaries, despite all the positive roles they play in facilitating global

commerce, have been efficient in transmitting or conducting the shocks. As a result the world economy has slowed, and stock prices of large financial intermediaries have fallen significantly.

Once again, governments have started to intervene to mitigate global banking problems, which in turn may stress the debt burden of those governments, and could ultimately undermine the credit ratings of some countries. While the full impact of sovereign debt problems and their impact on large financial intermediaries will not be known for some time, it is apparent that the financial intermediaries encompass some vulnerabilities for the world financial system and the global economy.

Considering the Large Financial Intermediaries

Given the key role that large financial intermediaries played in the crisis of 2007 and 2008, as well as their role in the problems that have arisen more recently, it is important to understand why financial intermediaries contribute vulnerabilities to the global financial system. So I'd like to provide some background on the large intermediaries and their potential for conducting shocks around the global economy.

Figure 1 explores bank size relative to the size of the home country, specifically the asset size of the largest bank in each country as a share of GDP.² When financial intermediaries become large relative to the GDP of the home country, several potential challenges exist.³ First, a large institution could essentially be “too big to save.” Should a global bank become insolvent and the home country need to recapitalize it – so that it can continue its crucial role in financial

intermediation within the economy – then the sheer scale of the required equity capital could strain a country trying to raise sufficient funds to provide the equity.

Consider a hypothetical example. A troubled two trillion dollar bank located in a country whose GDP is also two trillion dollars would in all likelihood put the country in a position of needing to issue government debt to finance an equity infusion. If the government recapitalized the bank with 10 percent more capital, the nation's debt to GDP ratio would increase by 10 percent. If multiple banks failed at the same time, the national debt to GDP ratio would rise even further. Thus while government rescue of a bank may stem an individual institution's crisis, it can precipitate sovereign debt concerns.

Ireland's recent experience is instructive. The Irish banks were not among the world's largest financial intermediaries, but they were large relative to the size of their home country's economy. Prior to its banking crisis, Ireland was a country with a relatively low debt to GDP, but became a country with a *high* debt to GDP ratio – largely as a result of providing emergency equity support for its troubled banking sector.

Now I would like to direct your attention to **Figure 2**, which shows the pricing on sovereign credit default swaps for a number of countries. Credit default swap (CDS) rates for many countries are now very high by historical standards – meaning the cost of insuring against a sovereign default has risen appreciably. While I know that thin trading in credit default swaps for individual entities necessitates caution in their interpretation, the overall trend is clear. A country needing to recapitalize one or more of its financial intermediaries faces further fiscal strain – potentially at a precarious time, when investors have already become more cautious about trends in the country's debt to GDP levels.

Another potential problem arises when investors have little confidence in a particular global bank or the home government. In this case, simply recapitalizing the bank may not be sufficient to address concerns, and additional financial support by the country may be necessary. For example if depositors rapidly withdraw their deposits from a troubled bank, the home country may need to support deposit holders in addition to providing equity (capital) – particularly in countries where deposit insurance regimes are not robust, or payment of depositors’ claims is not timely.

What’s more, a failure to support the liabilities of a troubled bank (in this case the deposits) would potentially destabilize *other* banks in the country, even those with relatively healthy balance sheets. Compared to simply infusing capital, supporting liabilities could require much larger expenditures by the home country and thus the home country would need to contribute substantial additional funds.

Yet another issue concerns the reliance of large financial intermediaries on so-called wholesale financing arrangements. As you know, retail depositors are frequently covered (to varying degrees) by deposit insurance, so in countries with credible deposit insurance frameworks, retail depositors covered by insurance are less likely to “run.” In contrast, however, wholesale funds – such as very large certificates of deposit, and commercial paper – tend to move out of troubled banks relatively quickly. Thus banks that depend heavily on wholesale funding can potentially experience a fairly sudden liquidity crisis. Such crises force governments to make quick decisions about providing support – decisions that have important economic ramifications for their countries.

Discussing these concerns is not an esoteric exercise. **Figure 3** shows the average credit default swap spreads for largest financial intermediaries, in groups of five.⁴ As I just mentioned, one needs to use caution in reading too much into credit default swap rates – but they do indicate that similar to credit default swap spreads on countries, financial firms around the world have seen a marked increase in CDS spreads. The cost of insuring against default has gone up substantially relative to the beginning of the financial crisis. Suffice to say for many banks, the rates remain quite elevated at present.

Figure 4 shows stock price declines at the largest bank by country (and for countries with more than one bank in the top 20 in assets, the declines are averaged). Bank stock prices have declined substantially since the beginning of the year. Many large financial intermediaries have experienced significant declines and market prices already reflect concerns with financial intermediaries outside and inside Europe. **Figure 5** provides stock-price data on the largest institutions in Europe and the U.S., again in groups of five, including the average change from the peak to the current level, and from the end of 2010 to the current level for each group of banks.

Outstanding Issues Related to Large Financial Intermediaries

The Basel III capital accord is designed to reduce the risk that large financial intermediaries will become troubled and require government intervention. While there are a variety of proposed requirements in Basel III, two major initiatives include potentially raising capital requirements for systemically important institutions – to reduce the probability they become insolvent – and improving the ability of large financial intermediaries to withstand

liquidity shocks. These are important and necessary improvements, and the overall accord is an important step in the right direction. Yet some important outstanding issues remain to be addressed. I would like to mention some key ones, which of course are more interrelated than stand-alone.

1. Resolution of large financial intermediaries

The first outstanding issue involves the challenge of resolving a failing international financial institution. Different countries have very different bankruptcy frameworks and resolution arrangements, and these differences can significantly impact who gets payment in a restructuring. These differences remain a major impediment to orderly resolution.⁵

As seen in **Figure 6**, related to absolute priority in liquidation, there are significant differences across countries, particularly related to the treatment of secured creditors and employee claims. These differences mean that the place where funds “reside” in a global organization will determine which creditors get paid. Knowing this, there is the potential for the organization in danger of failure to shift funds (prior to closure) to countries where the treatment of particular classes of creditors is favorable to the organization.

A disorderly failure of a global financial institution can be extremely damaging. Creditors may not know which jurisdictions hold valuable assets. They may be unclear on the prevailing bankruptcy rules, how these rules affect their positions, or how long their funds will be tied up. The situation surrounding the failure of Lehmann Brothers is quite relevant here. Three years after the bankruptcy, significant litigation continues. Some creditors were impacted

by the movement of funds in the final days before bankruptcy, and many creditors still do not know the amount they will receive or the timeframe in which they will be paid.

The failure of several Icelandic banks also highlights the problem. While small by international standards, the troubled banks were large relative to the size of the Icelandic economy. Uncertainty about whether depositor claims (particularly foreign depositors' claims) would be satisfied – and by whom – highlights the difficulties that can emerge when even relatively small institutions fail.

Such uncertainty could provide depositors and creditors with a strong incentive to remove funds from a troubled global financial institution. This may mean that large financial intermediaries could be particularly susceptible to the rapid withdrawal of deposits due to uncertainty surrounding resolution. Needless to say, this is particularly problematic at a time of financial stress.

Ideally, international agreements would govern cross-border claims on global institutions. However, as the table highlights, differences in national views on which creditors should get the highest priority make obtaining an international agreement quite elusive, at least any time soon. There are fundamental legal and cultural differences in national insolvency and resolution regimes – including differences in insolvency criteria; which parties can initiate an insolvency proceeding; whether the debtor or an administrator is in charge; the time for payment of claims; set-off and preference rules; and others.

While a uniform approach to creditor hierarchy would arguably enhance financial institution resolution and financial stability efforts globally, the likelihood of harmonizing the array of entrenched national creditor hierarchies would seem to be unlikely in the near term.

Moreover, these differences are unique and important to individual countries. Consequently, interim or alternative measures seem appropriate. But I hope I have helped illuminate a key challenge that could make an orderly failure of a large institution potentially elusive.

2. Wholesale financing of large financial intermediaries

A second outstanding issue involves large financial intermediaries' reliance on wholesale funding arrangements. Many large financial intermediaries raise funds across international borders, so the location of their creditors may well differ from the location of their assets. This situation is quite prevalent among many large European banks that have raised funds in the short-term credit markets for commercial paper and jumbo certificates of deposit, in order to fund longer-term assets either in the United States or elsewhere in their global operations.⁶

But this practice of raising short-term dollar liabilities to fund longer-term dollar assets can make the financial institution less stable if global creditors come to feel less certain about the institution's prospects (or the prospects of a class of institutions). In fact, **Figure 7** shows that the cost of raising dollar liabilities through the use of foreign exchange swaps has increased substantially this year – an indicator of creditor concern about such institutions.

This reliance on wholesale liabilities – compared to retail liabilities like deposits that usually enjoy deposit insurance – makes a large financial intermediary more susceptible to liquidity pressures. This is precisely why the new Basel III requirements devote significant attention to the liquidity and funding strategies of large financial intermediaries.

Additionally, during periods of distress there is a natural incentive for regulators in a given country to “ring fence” some operations of a global bank within their borders – in other words to prevent any bank assets from leaving the country in order to maximize funding available to meet their liabilities to domestic creditors. Such a policy could make it difficult for large financial intermediaries to continue funding – particularly wholesale funding – across national borders.

As long as the sources and uses of funds in such situations differ because of national borders and related regulatory and legal requirements, the ability to resolve a global bank will be complicated, giving rise to concerns about the risks of broad financial contagion. I would add that if we are to avoid future crises and the need for extraordinary government intervention in crises, then the issue of over-reliance on wholesale funding will need to be addressed.

3. Protection of home country operations

A third lingering issue concerns the protection of home country operations. An alternative being explored in the United Kingdom and in Switzerland – areas with global financial intermediaries that are large relative to their economies – is whether in some circumstances the public sector will only support the domestic operations of their banks. By ring-fencing responsibilities, the home country government will be better able to forestall a crisis in their country. However, other countries could be adversely affected if subsidiaries and branches in their jurisdiction must “fend for themselves.”

Again, the Icelandic example highlights the problem of small countries supporting large financial intermediaries, and whether the home country and its regulatory authority and taxpayers can be expected to be willing and able to serve as a source of strength should the bank be in danger of failing, or fail. It is exactly these concerns that have caused some countries to require that all branches of foreign banks operating within their borders be supported by capital (sometimes referred to as full subsidiarization).

The benefits of creating a subsidiary with deposit insurance and access to the Federal Home Loan Bank system would likely change the nature of their U.S. operations. By requiring capital against all assets in the country, financial firms are more likely to depend on a more stable mix of liabilities – including retail deposits, wholesale funding, and term debt – rather than just wholesale deposits. And the capital in the country would provide additional protection to meet domestic claims should the global parent become troubled. Alternatively, the domestic operations would be more readily salable, which could potentially reduce the spread of difficulties and limit the disruption of crucial financial intermediation. However, this solution also comes at a cost – as risk management, liquidity management, capital management and regulatory requirements become more costly to the parent, since all financial operations in a country are now subject to the regulatory requirements of that host country.

4. Reluctance to be proactive in retaining and raising additional capital

A fourth outstanding issue involves the reluctance of bank management or regulators to be proactive in retaining and raising additional capital for an institution or for groups of institutions. Basel III provides new restrictions on the ability of banks to pay dividends as their

capital becomes depleted. However, book and regulatory capital measures tend to be lagging indicators of the financial strength of the bank. Some financial intermediaries have experienced large declines in share prices and large increases in the pricing on credit default swaps, but still continue to pay dividends or buy back shares.

Given the support of governments to large financial intermediaries around the world in 2008, a more proactive approach to retaining capital within organizations during times of stress is in my view warranted – a view I have expressed a number of times in various talks. If taxpayer funds in a country may be used to bolster a bank due to its critical role as a financial intermediary in the country's economy, that step should not manifest itself in paying scarce funds to equity holders.

Moving to a structure where an institution's dividends are deferred during times of financial stress would greatly facilitate the increase of capital buffers at times when investors are concerned with a given bank's financial performance. Using easily observable financial triggers, such as very substantial declines in a firm's stock price, to pause share repurchases and dividends would provide no additional information about the institution's financial strength – but would allow it to build up capital during times of stress.

The amount of necessary government support for large financial institutions globally should provide a strong incentive for the capital requirement aspects of Basel III. In fact, it is notable that proposals in both the U.K. and Switzerland are calling for significantly higher capital requirements than in Basel III, to reduce the need for future interventions by those governments.

Concluding Observations

In conclusion, during 2008, governments around the world were forced to intervene to protect the global financial system. The Dodd-Frank legislation provided significant regulatory tools to address the “too big to fail” problem. However, three years after the failure of Lehmann Brothers, there remain significant impediments to avoiding the need for government intervention to protect large financial intermediaries. Everyone knows that some large European financial institutions have of late encountered problems. So it is critical that we focus on strengthening the financial architecture, so that the struggles of one institution or a group of them no longer poses risks to the broader global economy.

Significant challenges remain to be addressed if we are to have a global banking system where no bank is too big to fail given the collateral damage it would cause to economies and citizens. I hope that this conference and others like it will be part of the important process of addressing these outstanding issues and challenges.

Thank you.

¹ I discussed my definition of financial stability, and the implications of the definition, in a talk earlier this year at the Stanford Financial Forum. I noted that in my view “Financial stability reflects the ability of the financial system to consistently supply the credit intermediation and payment services that are needed in the real economy if it is to continue on its growth path.” And “Financial instability occurs when problems (or concerns about potential problems) within institutions, markets, payments systems, or the financial system in general significantly impair the supply of credit intermediation services – so as to substantially impact the expected path of real economic activity.” The talk is available at <http://www.bostonfed.org/news/speeches/rosengren/2011/060311/index.htm>.

² This includes the U.S., and all European countries with a bank ranked among the top 50 worldwide as of December 31, 2010.

³ Of course, the Euro-zone rescue fund could lessen this effect.

⁴ Five-year mid-price CDS spreads.

⁵ Resources in this area include *The International Comparative Legal Guide to Corporate Recovery and Insolvency*, published by the Global Legal Group; “A Safer World Financial System: Improving the Resolution of Systemic Institutions”, by Stijn Claessens, Richard J. Herring, Dirk Schoenmaker, (appendix by Kimberly A. Summe), July 2010, *Geneva Report on the World Economy 12*, published by the International Center for Money and Banking Studies and the Center for Economic Policy Research; and articles, papers, and chapters by Richard J. Herring including “The Corporate Structure of International Financial Conglomerates – Complexity and its implications for Safety and Soundness” (with co-author Jacopo Carmassi), “Wind-down Plans as an Alternative to Bailouts: The Cross-Border Challenges”, and “International Financial Conglomerates: Implications for Bank Insolvency Regimes.”

⁶ I discussed this at some length in a talk delivered on financial stability and short-term credit markets, available at <http://www.bostonfed.org/news/speeches/rosengren/2011/092911/index.htm>

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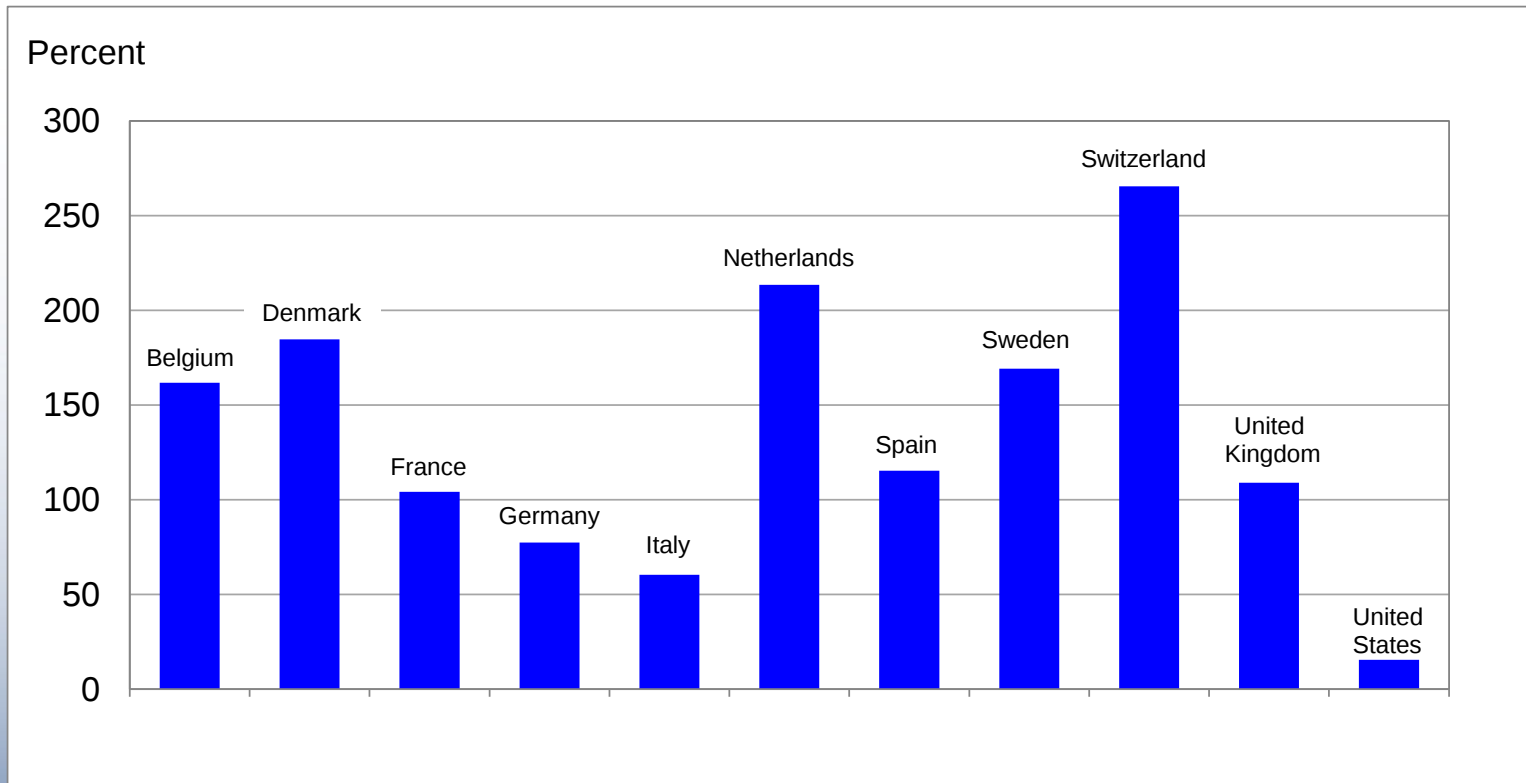
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Figure 1

Bank Size Relative to Country Size: Assets of Largest Bank as a Share of GDP

as of Year End 2010



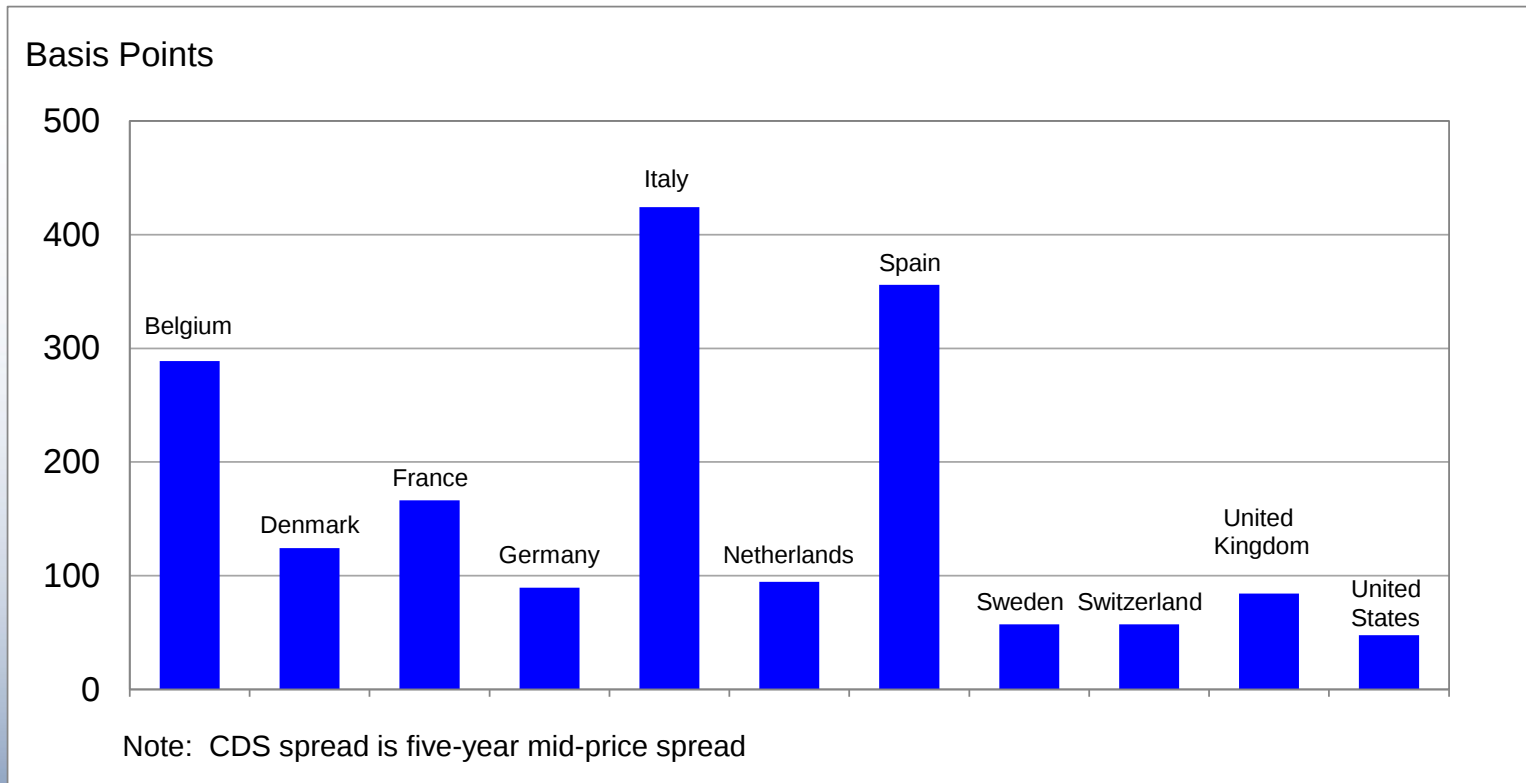
Note: Includes the U.S. and all European countries with a bank ranked in the top 50 worldwide as of year end 2010.

Source: Global Finance, IMF

Figure 2

Sovereign Credit Default Swap Spreads

as of October 12, 2011



Note: Includes the U.S. and all European countries with a bank ranked in the top 50 worldwide as of year end 2010.

Source: Bloomberg

Figure 3

Credit Default Swap Spreads of Largest Banks in Europe and the United States

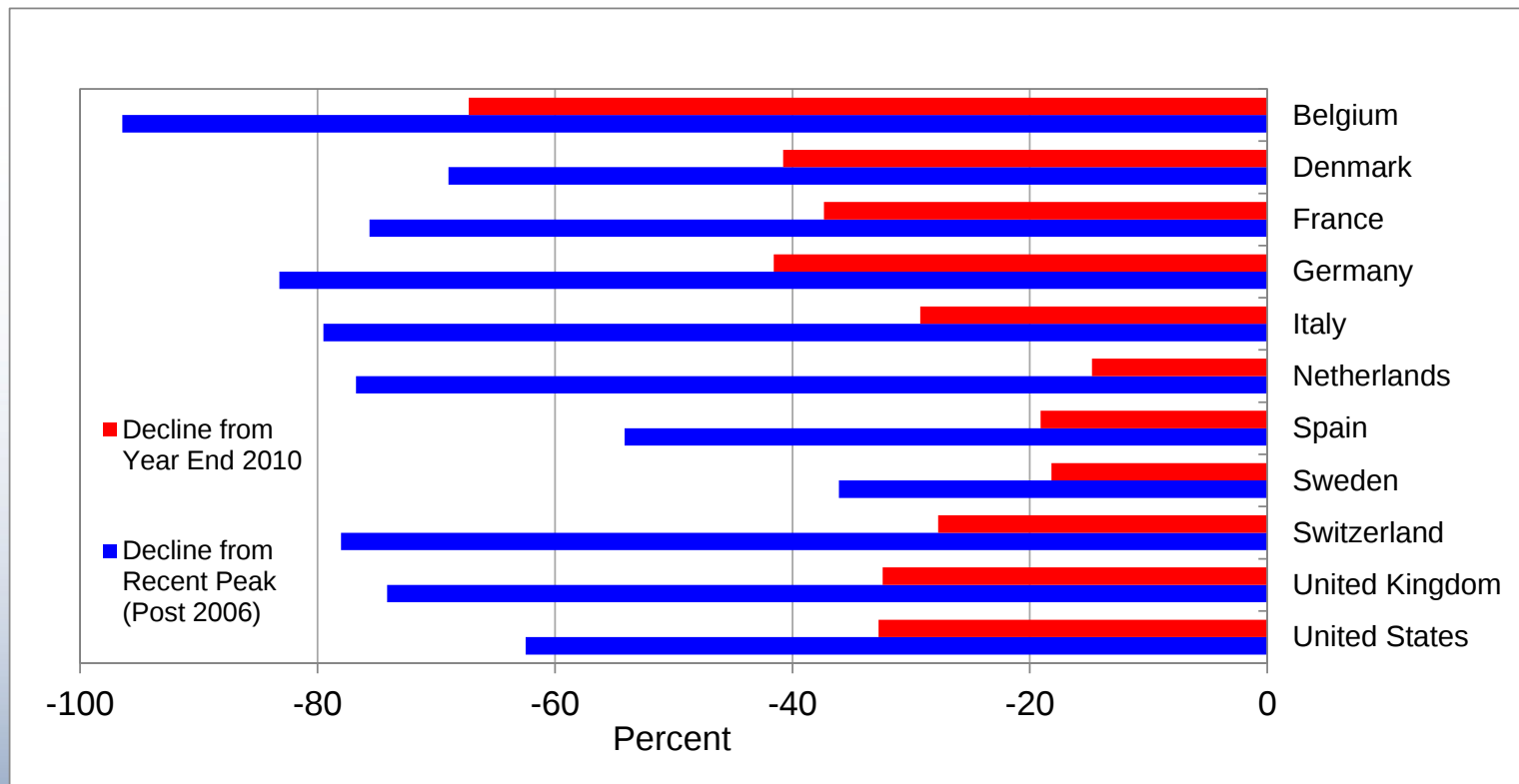
Largest Banks in Groups of Five	Average Bank Assets Billion Dollars	Average Five-Year Mid-Price CDS Spreads in Basis Points			
	Dec 31, 2010	Dec 29, 2006	Dec 31, 2008	Oct 12, 2011	Peak
Five Largest Banks	2,456	6	121	219	276
Next Five Largest Banks	2,019	9	128	221	381
Next Five Largest Banks	1,470	6	129	245	366
Next Five Largest Banks	1,028	12	158	273	420

Source: Global Finance, Bloomberg

Figure 4

Stock Price Declines at Largest Banks by Country

as of October 12, 2011



Note: Includes the U.S. and all European countries with a bank ranked in the top 50 worldwide as of year end 2010. For countries with more than 1 bank in the top 20 in assets, declines are averaged.

Source: Bloomberg

Figure 5

Stock Prices of Largest Banks in Europe and the United States

Largest Banks in Groups of Five	Average Bank Assets Billion Dollars Dec 31, 2010	Average Stock Prices: Index Level Dec 29, 2006 = 100			Average Percent Change	
		Dec 30, 2008	Oct 12, 2011	Peak (Post 2006)	Peak to Oct 12, 2011	Year End 2010 to Oct 12, 2011
Five Largest Banks	2,456	33	34	110	-68	-27
Next Five Largest Banks	2,019	30	26	104	-76	-33
Next Five Largest Banks	1,470	41	35	111	-68	-29
Next Five Largest Banks	1,028	34	27	118	-77	-37

Source: Global Finance, Bloomberg

Figure 6

International Rules of Priority

U.S. *	England	France	Germany	Switzerland
Secured creditors	Administrative expenses	Employee wage claims	Privileged creditors (includes employee wage claims)	Secured creditors
Administrative expenses (includes post-petition wage claims)	Secured creditors (fixed charge holders)**	Administrative expenses	Secured creditors	Employee, pension, and family law claims
Certain claims related to an involuntary petition	"new contracts" and employee claims	"new money"	Ordinary creditors	Other claims
Employee wage related claims	General expenses of administration	Certain secured claims	Subordinated creditors	
Employee benefit claims	Preferential creditors (employee claims)	Certain wage claims		
Other claims	Secured creditors (Floating charge holders)**	Claims from current contracts		
	Others claims	Other claims		

Source: Figure reflects general categorizations based on information on the countries listed above from The International Comparative Legal Guide to: Corporate Recovery and Insolvency 2011.

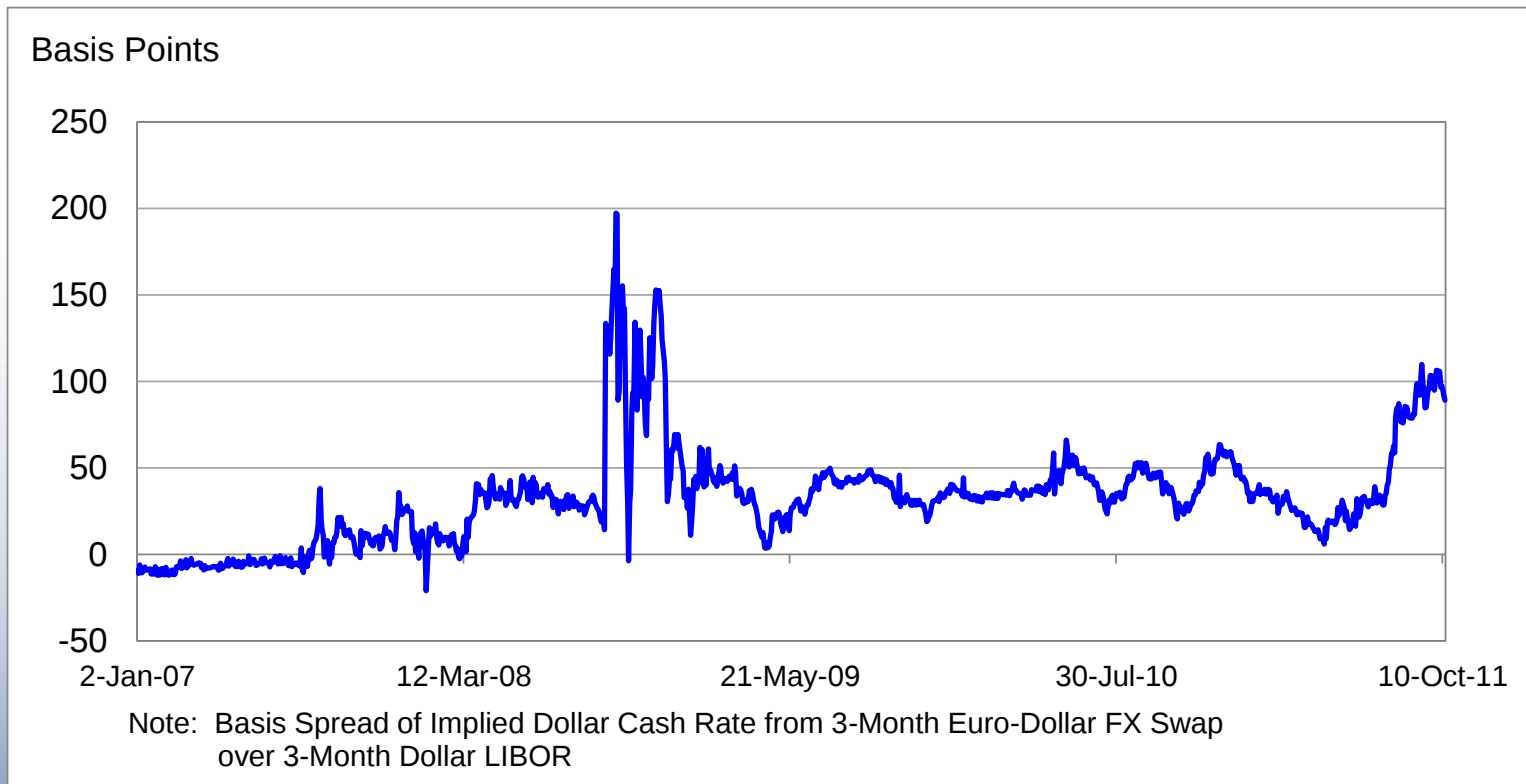
*A bank in the U.S. is subject to special procedures of the FDIC and is not eligible to file bankruptcy. Section 165(d) of the Dodd-Frank Act mandates that certain nonbank financial companies submit plans for the rapid and orderly resolution under the Bankruptcy Code in the event of material financial distress or failure.

**Security interest (charge) attaches to the asset in question as soon as the security interest is created. Compare to a floating charge or security interest over moveable property that does not attach to any particular asset and crystallizes upon an event of default.

Figure 7

Dollar Funding Pressures

January 2, 2007 - October 12, 2011



Source: British Bankers' Association, Deutsche Bundesbank, Financial Times / Haver Analytics.