



What If a Large, Complex Financial Institution Fails?

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Executive Summary

We consider four different approaches to the resolution of distress or failure of large, complex financial institutions (LCFI): (1) laissez-faire or market-based; (2) regulatory forbearance; (3) receivership in hands of government or government-appointed regulator; and, (4) distressed exchanges. We investigate several criteria for evaluating these approaches, including which method works best in liquidity versus fundamental crises, the difficulty with managing failed institutions and the resulting systemic risk, the issue of moral hazard and its impact on future crises, and the impact on taxpayers. While a market-based approach helps resolve insolvent institutions and provides discipline, it may not work well in dealing with systemic risk during a crisis. Regulatory forbearance achieves almost the opposite outcome, simply blunting systemic spillovers during a crisis but at the cost of severe moral hazard. On balance, we find most attractive the receivership approach with temporary transfer of ownership to a resolution authority that provides an orderly restructuring and liquidation (if needed) of the distressed LCFI's. While distressed exchanges also offer a market-based solution that would prevent moral hazard, there remain question marks around their swift implementation for LCFI's and especially their vulnerability to sparking contagious runs on other LCFI's.

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¹ The authors are contributors to the recently published book on the financial crisis by the NYU Stern School of Business, *Restoring Financial Stability: How to Repair a Failed System*, John Wiley & Sons, 2009.

Table 1 below provides a summary of some of the main findings of the paper with respect to the ability of different resolution mechanisms to handle some of the main economic issues underlying the failure of a LCFI.

Table 1: Different resolution approaches and their relative merits

Resolution mechanism / Economic Issue	Laissez-faire	Forbearance	Receivership / Nationalization	Distressed exchanges
Minimizing taxpayer losses	✓	✓ (if Liquidity crisis) X (if Solvency crisis)	X (if Liquidity crisis) ✓ (if Solvency crisis)	✓
Dealing with insolvent institutions	✓	X	✓	✓
Dealing with ex-post systemic risk	X	✓	✓	? (Could lead to contagious failures)
Managing failed institutions during resolution	✓	✓	? (Likely to stretch govt skills and resources)	✓
Dealing with ex-ante Moral hazard	✓	X	✓	✓

The paper is organized as follows. Section I provides background on the current risks of a LCFI becoming insolvent. In Section II, each of the above resolution mechanisms are discussed in some detail. Section III makes a concluding remark.

I. Background

It is not outside the realm of possibility that a large, complex financial institution (LCFI) will once again begin to fail over the next few years. The argument is fairly simple. While not underwater, the current balance sheets of many financial firms are too risky given their degree of financial leverage, and, in turn, of their corporate and household borrowers. And in the last two years a number of LCFI's have collapsed or avoided a collapse only via massive government financial support (Bear Stearns, Lehman, Fannie and Freddie, AIG, Citigroup, Bank of America, Merrill Lynch, etc.)

It is useful to recall how financial institutions ended up in their current predicament. The tale of this financial crisis is that large financial institutions exploited loopholes in regulatory capital requirements to take a \$2-3 trillion one-way asymmetric bet on credit, particularly tied to residential real estate but also commercial real estate and other consumer credit. The institutions performed this feat in three ways.

- First, they funded portfolios of risky loans via off-balance sheet vehicles (SIVs and conduits). These off-balance sheet vehicles required about one-tenth the same capital requirement yet in 95% of the cases the credit risk was effectively recourse back to the institutions.²
- Second, they made outright purchases of AAA-tranche of non-prime securities which were treated as having zero credit, liquidity and funding risk. The broker-dealers, the government sponsored enterprises and the banks combined held over one-half of the \$1.8 trillion of these securities outstanding. This is the exact opposite of the theory of securitization in which credit risk is meant to be transferred from the financial sector to the capital market at large.
- Third, financial institutions bought “underpriced” protection from monolines and A.I.G. in the sense that banks were able to pocket the difference between the spread on these AAA-tranches and the monolines’ premiums. Because neither A.I.G. nor the monolines had much capital underlying this insurance, the risk again was effectively recourse back to the financial institutions through the counterparty risk of the insurers.

Because almost no capital was attached to these bets, i.e. the transactions were highly leveraged, it is possible to show that their economic properties were those of writing a way out-of-the-money put option on the aggregate market. It is well-known that writing out-of-the-money put options produces large expected returns – this is why financial institutions engaged in the trade. Large expected returns, however, go hand-in-hand with large systematic risk – this is why financial institutions got into so much trouble when the negative aggregate shock to the real estate market occurred. Therefore, the financial sector’s capital buffer to protect underperforming loans in times of recession eroded almost immediately, leaving the sector with no capital protection for very weak loan portfolios.

² See Acharya, Viral V., Philipp Schnabl and Gustavo Suarez (2009) “Securitization *without* risk transfer,” Working Paper, NYU-Stern.

The loan portfolios of banks included credit card loans, commercial real estate loans, residential real estate loans, especially subprime and alt-A, and corporate loans. When these loans were made, the loans' values were not very sensitive to changes in the value of the underlying assets. Interest rate risk was the more primary concern. This is because there were valuable claims underneath these loans in the capital structure, such as equity and mezzanine financing. Once the value of the assets – the real estate, the corporations, and the household's income and wealth – substantially dropped in value, however, as standard finance theory for pricing contingent claims suggests,³ the loans (even at the top of the capital structure) were now much more sensitive to changes in the value of the underlying assets. In fact, these loans began to take on the risk properties of the lower claims such as equity and distressed debt. This is the situation the financial sector currently faces.

Coupled with an overall increase in both the volatility of the assets (due to increased uncertainty) and the correlation across assets, the bank's balance sheets have become much more sensitive to aggregate economic shocks than they were intended to be given the amount of leverage.

This was one of the motivations for the stress tests of the large banks performed recently (in 2Q 2009) by the government. To understand the likelihood of a major financial institution failing in the next few years, it is important to evaluate the stress tests. At first glance, the scenarios underlying the stress tests were not very stress-like. Of the three factors, the unemployment rate is currently tracking well above the most adverse scenario, housing is tracking at the adverse scenario level, and GDP growth lies between the adverse and baseline scenarios. But what really matters is how these scenarios used in the stress tests translate to the probability of loan defaults and losses. Here, the scenarios appear more severe, reaching levels only last seen during the 1930s. The tests were not, as once feared, a whitewash.

But there are grounds to be concerned. The reason the losses were so high comes less from incorporating future large negative shocks to the system, but more from the nature of the loans held by the banking institutions. Many of the loans have reset features that come due in the next few years that make it hard for the borrowers to pay. This is attenuated by the fact that some loans, especially in residential Alt-A option ARMs and interest-only commercial real estate loans, suffer from falling collateral values while their principal due has been increasing. These loans will default irrespective of what happens in the underlying economy. It is simply a question of recovery values banks can extract.

There are two main worries. The first is that the system has not really been put through an additional negative shock, either an economic one here or abroad, or even a geopolitical event. As mentioned above, the sensitivity of the loan portfolios to changes in asset values are at an all-time high. The second is that the stress analysis looked at expected losses to be realized only through the end of 2010.⁴ Due to the nature of the contracts – interest rate resets, balloon payments, light covenants, etc... -, a number of loans run into problems at a date *beyond* 2010. If the economic scenario does not dramatically improve, it is a battle between bank's future

³ See, in particular, the early contribution of Bob Merton: Merton, Robert C, 1974. "[On the Pricing of Corporate Debt: The Risk Structure of Interest Rates](#)," *Journal of Finance*, 29(2), 449-70.

⁴ The stress tests did require loan loss reserves through 2011, so it could be argued that the tests actually ran through the end of 2011. However, exact details are unclear from public disclosures.

earnings and the expected future losses of these loans. And while in the more adverse scenario the unemployment rate is assumed to average 10.3% in 2010 it is highly likely – given recent trends in labor markets – that such an unemployment rate will be reached already in 2009 and that the peak unemployment rate in 2010 may be closer – if not above – 11%.

Therefore, there is the real possibility that some LCFIs will once again begin to fail, namely that the face value of the liabilities exceed the current value of their assets. Hence, it is useful to create taxonomy of available resolution options and assess their relative merits. Even disregarding the current risks to the financial sector, designing efficient resolution of LCFI's is likely to be a key choice made by regulators also in future crises.

II. Strategies for Resolving Distressed or Failing Financial Institutions

We discuss four general ways to attack the problem when a bank is in distress (laissez-faire, forbearance, receivership or nationalization, and distressed exchange) and their relative merits based on reasonable economic criteria. Table 1 in the Executive Summary describes succinctly our overall assessment

A. Laissez Faire

The first is unbridled free market capitalism. We are sympathetic to this view. We wish we somehow could figure out a way to let the market work and let these institutions fend for themselves. Shareholders, creditors and counterparties knew the risks they were getting into. After all, why is some debt secured, why do we have collateralized lending, why do riskier assets deserve larger haircuts, etc...? But when Lehman Brothers went down, we looked into the abyss. For an institution substantially larger than Lehman, this would be the equivalent of nuclear armageddon for the financial system – a Mad Max scenario for the economy. Indeed the near global financial meltdown that followed the disorderly collapse of Lehman in the fall of 2008 suggests that the laissez fair approach does not work for systemically important financial institutions. And if one such LCFI is allowed to collapse the risk that contagion will lead others to collapse is significant.⁵

B. Forbearance

The second is to provide government aid to the insolvent bank, to in effect throw good money after bad, to subsidize the bank and hope that the bank earns its way out of trouble. This is sanctioning private profit taking with socialized risk. Since October of 2008, one could argue that the government has followed this strategy.⁶ Let the banks plod along, throwing money here

⁵ Financial economists have argued that when a firm is in distress at the same time when its industry peers are in distress, resolution of the firm's distress is unlikely to be smooth and will in general involve fire sales and delayed restructuring (see, most notably, the contribution of Shleifer, A. and R. Vishny, 1992, Liquidation values and debt capacity: a market equilibrium approach, *Journal of Finance* 47, 1343-1366).

⁶ Actually the government subsidization of financial institutions started even earlier: pushing the Fed Funds rate down to zero and allowing banks to earn a fat net interest rate margin; providing lender of last resort support to banks and primary dealers through the TAF, TSLF and the PDCF facilities; allowing banks – via changes in FASB

and there to keep them afloat, at usually way below market prices at a high ex ante cost to taxpayers.⁷

It is not a totally crazy solution even if it exacerbated the moral hazard distortions of government bailouts. There may well be a positive externality to spending taxpayer money to save a few so we can save the entire system. Many would argue that the approach was successful in preventing a systemic financial and economic disaster in September and October of 2008. Furthermore, forbearance helped stabilize the system as the economy worked through its troubles in the winter and spring of 2009.

We consider one by one the arguments in favor and against the forbearance approach, recognizing that some forbearance may be unavoidable both from an economic efficiency standpoint as well as political economy considerations.

i. Liquidity Versus Fundamentals

At the heart of the debate between forbearance and more drastic action like receivership and liquidation is the question of whether this crisis is a “pure” panic, that is, one of fear and illiquidity, or one of fundamentals and insolvency. By their nature, fear and illiquidity are temporary states of the world. As risk aversion reverts back to more normal levels, and markets open up, the banks’ general condition is likely to improve. This would suggest that forbearance is the natural strategy.

Forbearance avoids both the sudden impact of a bank failure causing systemic risk and the deadweight losses associated with the bank failure itself.

accounting rules – to reduce their reliance on mark-to-market accounting in measuring the value of their illiquid assets; etc.

⁷ We do not address in this “white paper” whether forbearance could have been implemented more efficiently. For example, a number of economists, ourselves included, have argued that the government should stop providing capital, loan guarantees and financing with no strings attached (see Acharya, Viral V., David Backus and Rangarajan Sundaram, “Government money should have strings attached”, FT.com Economists’ Forum, 6 January 2009). Banks should understand this. When providing loans to troubled companies, they place numerous restrictions, called covenants, on what these firms can do. These covenants generally restrict the use of assets, risk-taking behavior, and future indebtedness. For example, consider the fact that the government, while providing aid to banks, did not restrict their dividend payments. Banks only marginally reduced dividends in the first 15 months of the crisis; bank bailout money had been literally going in one door and out the other (see Acharya, Viral V, Irvind Gujral and Hyun Shin, 2009, Dividends and Bank Capital in the Financial Crisis of 2007-2009, Working paper, NYU-Stern). Consider also recent bank risk-taking. The media has recently reported that Citigroup and Bank of America were buying up some of the AAA-tranches of nonprime mortgage-backed securities, the same type of securities that the government provided insurance on portfolios of \$300 billion and \$118 billion for the very same institutions. Finally, one government program, the temporary liquidity guarantee program (TLGP), allows banks to issue debt backed by the U.S government for a fee of 75 basis points. While the program is part of the forbearance strategy, it does not differentiate across banks, thus creating distortions in relative pricing. Also, because the guarantee is in effect a subsidy to the banks, it has been argued that it sows the seeds for future problems, encouraging the same behavior by banks that led to the crisis in the first place (for further details, see Acharya, Viral V and Rangarajan Sundaram, Chapter 15, “The Financial Sector Bailout: Sowing Seeds of the Next Crisis”, in the NYU-Stern book “Restoring Financial Stability”, John Wiley & Sons).

There is no doubt that there have been severe dislocations during this crisis consistent with panic and extreme illiquidity in normally, well-functioning markets. But the crisis initiated in late July of 2007 and is continuing to this day; it is not just a crisis of liquidity but also one of credit and insolvency. Even if current market values of some securities and loans are below their longer term value they are unlikely to be worth par even if one allows time to heal some wounds.

As an anecdote, consider at one point the fastest growing master plan community in the United States, Mountain's Edge, just a 20 minute drive southwest of the Las Vegas strip. Intended to hold 12,000 plus homes, along with goods and service establishments, the community was a model for Las Vegas' growth. In February 2009, 57 homes sold that also sold in 2006, the peak of the housing "bubble". The average (median) drop in price was 47.9% (49.8%). These losses are mostly borne by the debtholders, in this case, the banks. This is just one example of the extent of credit risk faced by banks during this crisis.

ii. A Lost Decade

For economists specializing in the field of banking, the forbearance approach has a familiar ring. In Japan's lost decade of the 90's, Japanese banks kept loaning funds to bankrupt corporate firms so as not to write-down their own losses, which resulted in the government supporting zombie banks supporting zombie firms. This cycle has often been described as the primary cause for Japan's lost decade of zero growth.

There is a debate amongst economists about the extent to which this current crisis mirrors that of Japan in the 1990s. On the one hand, there is a feeling that banks have not appropriately written down the losses in their loan portfolios and credit-linked securities in the hope that these loans and securities will recover with the underlying economy. Because of this wait and hold strategy, banks are in no position to make new risky loans. Forbearance perpetuates this problem as it allows banks to continue to hold these assets. This, for example, is one of the problems with getting banks to participate in the US government's private public invest program (PPIP).

On the other hand, there are many healthy banks; there is a public market for financing; and there is a shadow banking sector that can step in if needed. It seems far-fetched to believe the failure of a few large banks will have a permanent effect on the ability of credit-worthy individuals and firms to raise capital. The current low level of loans is perhaps also to do with the demand for loans than the lack of available supply. Forbearance has its faults, but it will not be the primary cause of a lost decade in the U.S. Also, it should be noted that Japan allowed forbearance to last for many years – at least from the collapse of the bubble in 1989 until 1997 – when the failure of many banks and securities firms forced the government to shut down some institutions and recapitalize others. In the US instead public and private recapitalization of US financial institutions started already two years into the beginning of the crisis.

iii. Moral Hazard

Perhaps, the strongest argument against forbearance is that of moral hazard. With forbearance, and memory of such, the financial sector will continue in the future to take asymmetric one-way

bets that offer small spreads, so-called carry trades. Of course, these trades offer spreads because of credit risk, liquidity risk, and funding risk, all of which showed up during this crisis. Heads, I win; Tails, you lose.

There is something unseemly about managed funds buying up the debt of financial institutions under the assumption that these firms are too-big-to-fail. In theory, these funds should be the ones imposing market discipline on the behavior of financial firms, not pushing them to becoming bigger and more unwieldy.

It has been said by many that this is not the time for thinking about moral hazard. Yet if we bailout the creditors, then effectively we have guaranteed all debt of future financial institutions. We have implicitly socialized our private financial system.

It is certainly true that we can institute future regulatory reform which tries to quell the behavior of LCFIs. But this will be complex and difficult to implement against the implicit guarantee of too-big-to-fail.

Also, paradoxically, the financial crisis has caused – through financial consolidation – the too big to fail problem to become an even bigger to fail problem. Indeed JP Morgan has acquired Bear Stearns and WaMu; Bank of America has taken over Countrywide and Merrill Lynch; Wells Fargo has taken over Wachovia; and the reason why Citigroup wanted to take over the failing Wachovia was to ensure that it would become even bigger to fail and thus receive an even larger government bailout.

An action like receivership resolves the biggest regulatory issue down the road, namely the too-big-too-fail problem of banks that are systemically important. And, in one fell swoop, if the senior unsecured debtholders of the bank lose when it is nationalized, market discipline comes back to the whole financial sector.

So the large solvent banks will have to change their behavior as well, leading most likely to their own privately and more efficiently run spinoffs and deconsolidation. The reform of systemic risk in the financial system may be easier than we think.

C. Receivership

The third way of addressing insolvency is government receivership or “nationalization”. Throughout this crisis, there has been debate about whether nationalization is the right word. According to a standard dictionary definition, it is the act of transferring ownership from the private sector to the public sector. Although this is literally what would take place with certain banks, almost everyone agrees that the type of nationalization that would take place would be a temporary one. Thus, if everything went as planned, a better analogy would be of the government acting as a trustee in a receivership of the bank.

That said, we do think a term like nationalization is the appropriate description. It is a misnomer to think, as a number of pundits have suggested, that we have experience at nationalizing banks through the FDIC. For example, the latest bank (and 45th of this year) to be closed by regulators

is Horizon Bank of Pine City, Minnesota. It has two branches and assets of approximately \$87.6 million.

It goes without saying that Horizon Bank is no Citigroup, Bank of America, Wells Fargo, or JP Morgan, among others. The complexity, size and systemic nature of these institutions deserve deep analysis.

The basic argument for receivership is that we need an organization to simultaneously facilitate the reorganization of the LCFI and be a trustworthy counterparty to all the current and ongoing transactions. The only one with the balance sheet right is Uncle Sam. But make no mistake about it. With receivership of a LCFI, the government is the owner and the ultimate residual claimant. Once we take down the LCFI, we have crossed the Rubicon. The die is cast and there is no turning back.

There are three major issues for government receivership to address:

i. An Insolvency Regime

Right now, there is not a clear legal structure for dealing with large insolvent financial institutions, whether they are bank holding companies, broker/dealers, insurance companies or even hedge funds. What we need is a special insolvency regime for large systemically important financial institutions like the one proposed by Chairman Bernanke and Secretary Geithner.

Up until now, when a large institution was in trouble, there were only two unpleasant options: either a full bailout of counterparties and creditors – as in the case of Bear Stearns, A.I.G. and Citigroup – or a disorderly bankruptcy – as in the case of Lehman. What is necessary is a middle ground, an orderly insolvency regime like the conservatorship of Fannie and Freddie.

While the FDIC can close down a large bank, that bank is often part of a bank holding company that holds a lot of the debt and other systemically risky assets such as credit default swaps and other OTC derivatives. And, on top of the bank holding company, the non-bank subsidiaries - such as broker dealers, insurance companies, etc. – also end up in a disorderly bankruptcy if the entire financial institution fails. That is why the newly proposed legislation is necessary. Indeed, such legislation should have been passed after the Bear Stearns bailout to provide a more orderly workout of Lehman, to avoid a full bailout of the counterparties and creditors of AIG and to provide a fiscally less costly workout of troubled firms such as Citigroup and Bofa. Failure to pass early such legislation led to the massive bailout of a number of LCFIs and to the disorderly collapse of Lehman.

One of the strongest motivations for receivership is that it provides a path for financial firms to emerge from the crisis. In order to have a healthy economy, we need a healthy financial system, and for a healthy financial system we need to cleanse the system of the bad assets. Otherwise, creditworthy firms and institutions will not have access to the needed capital, and this will prolong the economic downturn.

This is the primary benefit of nationalization of some of the LCFIs. In receivership, it is much easier to separate the bank's good assets and bad assets – to divest the firm from its toxic assets and troubled loans. This is because insolvent institutions will never take this action. If they did, it would by construction force them under.

The way it would work is that the healthy assets and most of the bank's operations would go to the good bank as would the deposits. Some of these deposits are insured, others (e.g., businesses and foreign holdings) are not. But the likelihood is that the good bank is now so well capitalized that there would be no threat of a bank run. The net equity, i.e., assets minus deposits, would be a claim held by the other existing creditors of the bank, namely shareholders, preferred shareholders, short-term debtholders and long-term debtholders.

The goal would be to reprivatize the good bank as soon as possible. After all, the point of the exercise is to create healthy financial institutions which can start lending again to creditworthy institutions. In almost every successful resolution of financial crises in other countries, this was the path.

Of course, the tricky part of nationalization is the handling of the bad assets. The bad assets would be broken into two types – those that need to be managed such as defaulted loans in which the bank would own the underlying asset, and those that could be held to maturity such as securities like the AAA- and subordinated tranches of asset-backed securities. With respect to the former, the government could hire outside distressed investors or create partnerships with outside investors as was done with the Resolution Trust Corporation in the S&L crisis.

Along with the equity of the good bank, these assets would be owned by the existing creditors. The proceeds over time would accrue to the various creditors according to the priority of the claims. Most likely, the existing equity and preferred shares would be wiped out in such an arrangement and the debt would effectively have been swapped into equity in the new structure. Under this scenario, it is quite possible, even likely, that taxpayers would end up paying nothing. This is because, for the LCFIs, these creditors cover well over half the liabilities.

There are alternative ways to dispose of the bad assets of a failing LCFI. Some argue that the government is not best suited to manage bad assets of a failing institutions and that this is the job and expertise of true private sector bankers. If we do believe that the government does not have a comparative advantage in managing and disposing of such assets there are two alternative options.

First, when privatizing the assets and liabilities of a failed LCFI include both the bad and the good assets into that transaction and provide – via properly priced government guarantees of the bad assets after a first loss for the creditors – an incentive to the private investors purchasing the privatized bank to take over both the good and the bad assets. This is the approach that was used by the government in the privatization of Indy Mac after its takeover by the FDIC. This is also the approach partially undertaken in the bailouts of Citigroup and Bank of America and in the the rescue of several UK banks (the UK Asset Protection Plan). But while in the Indy Mac case guarantees of bad assets after first loss were used after a receivership of the bank was used to

reprivatize the bank's assets and liabilities in the Citi and Bofa cases such as solution was used to prevent a receivership from occurring in the first place.

Second, the government could use either a reverse auction (as in the initial TARP plan) or non-recourse loans (as in the most recent PPIP plan) to sell back to private sector investors the toxic assets and loans.

Each one of the three options for disposing of bad assets (separating the good bank from the bad banks, providing guarantees after first losses to investors buying the privatized bank, auctioning off the bad assets) has some pros and cons that are familiar and will not be discussed again here.

ii. Managing the Systemic Risk

Assuming the government gets the legal issue of receivership of LCFIs resolved with the passage of a legislation, they still have to manage the systemic risk of a major bank failure. While some policymakers cite Lehman as evidence of doom and gloom, we are not so sure. The financial sector was left rudderless the week of September 15th, 2008. We have fortunately learned much since that terrible week.

Why did Lehman Brothers cause systemic risk?

Was it the counterparty risk, e.g., the fear of being on the other side of an interest rate swap, a credit default swap, or a repo transaction? This fear was well founded. Ask any hedge fund whose hypothecated securities disappeared in Lehman's U.K. prime brokerage operations. There are now some precedents to learn from for the failed institution. As it did with A.I.G., the government can be a counterparty to all of the failed firm's transactions (which represents the most serious of the systemic risks). Since most of these are margined and collateralized, however, many of the assets would show up in the good bank.

For the large complex banks, about half are deposits. To avoid runs on the uninsured portion of these deposits, the government has to provide a backstop. But it is not clear they need to cover the other creditors of a bank, as recent failures of IndyMac and Washington Mutual attest.

This goes to the question, however, of whether the collapse in the value of Lehman's short-term debt was the root cause of the panic. The run on money market funds was directly attributable to the Reserve Primary fund's holdings of a large amount of short-term Lehman commercial paper; preventing money market funds – who are supposed to invest into safe assets – from purchasing toxic and risky securities- is the right way to avoid the systemic risk from the default of short term debt of a LCFI. One would presume the same thing would happen here as the short-term debt of all questionable LCFIs would come under pressure. It is highly likely that the government might have to step in.

As compared to the standard LCFI, Lehman had very little long-term debt. To understand whether a collapse in the LCFI's long-term debt value is systemic, one would have to analyze the concentration of this debt throughout the system. If it is widely held, it is unlikely to have systemic consequences. Of course, it would have profound effects on future financing of these firms.

One argument often made against receivership is that once creditors lose significant funds in a financial institution, this will be the end of capital-raising for banks. Since over 50% of all capital in the large banks is not deposits but short- and long-term debt, this will devastate credit markets -- or so the argument goes.

If banks in their current large and complex form cannot raise capital without full government backing, then this says more about the business model of large, complex banks than anything else. As mentioned above, if we really think the only source of capital is the government, we would have socialized our financial system.

The other argument against passing losses on to unsecured creditors of a LCFI is that this would have induced further losses on financial institutions holding such claims – such as insurance companies, pension funds, etc. – and thus caused further systemic risk. But a world where investors earn in good times a nice spread relative to Treasuries to hold unsecured debt of a financial institutions - so as to cover the credit risk – and then expect in bad times never to have to take a haircut is a world rife with moral hazard distortions: we either fully guarantee – with proper fees - such debt and have it earn a lower safe return or if it not guaranteed and earns a spread to cover the credit risk such claims cannot – ex-post – be treated as if they were fully safe and not subject to credit risk; otherwise the process of privatizing gains and socializing losses exacerbates the moral hazard distortions.

Of course, the creative destructive -- Schumpeterian -- nature of capitalism will solve this problem. Once unsecured debtholders of the insolvent banks lose, market discipline will come back to the whole financial sector. So the large solvent banks will have to change their behavior as well, leading most likely to their own privately and more efficiently run spinoffs. The reform of systemic risk in the financial system will end up being mostly organic, and will not require the heavy hand of government.

Even if systemic risk were still present, the government could protect the debt (up to some level) of the *solvent* banks, not the insolvent ones, by running stress tests to determine solvency as a regular part of its supervisory responsibility rather than just in response to a full-blown crisis. That is, the government can provide a haircut, guaranteeing X% of the debt. In any event, in this case, the creditors of the insolvent institutions would not have to be protected. This way, the risk of the insolvent institutions will have been transferred back from the public sector to the private sector, that is, from the taxpayer to the creditors.

In all cases the benefits of a receivership – compared to a Chapter 7-11 bankruptcy – is that in bankruptcy suddenly all liabilities of a financial institutions go into default and there is also default on all counterparties on derivative transactions (even if some derivatives have seniority in the bankruptcy process or are partly collateralized). Instead receivership allows the government to be a counterparty in all such transaction and have the time to decide on which claims will get a haircut and how much of a haircut. Thus, an orderly –as opposed to a disorderly – wind-down process is implemented.

iii. Managing a LCFI during receivership

To us, the most serious problem, as A.I.G. shows, is whether the government has the ability to oversee a LCFI in receivership. In a recent conversation, noted economist Myron Scholes told us he was also in favor of receivership – as long as it lasts just 10 minutes. His point is clear. In theory, receivership may be the right thing to do, but it is likely the government will mess it up.

With literally well over a million transactions on their books, who is going to manage a LCFI while it is a government institution, good bank or bad bank? Certainly, no one envisions Congressional leaders as the Chief Investment Officers of these firms, but there are many concerns. The government can go and hire professionals as they have done with Fannie Mae, Freddie Mac and A.I.G. But much of the value of a Wall Street firm is in its vast array of intangible, human capital. This labor is incentive driven. How much franchise value will be lost during the receivership process? In some cases, the government has handed over management of financial securities portfolios of Bear Stearns and A.I.G. to private players such as Black Rock. While some such “outsourcing” may be feasible, it raises difficult principal-agent problems of its own.

Let’s assume this gets sorted out and the government mirrors employment practices elsewhere at other firms. But then with the government’s protection in receivership, who is to prevent the LCFI from making too many, risky loans. They will have a competitive advantage over solvent, albeit less supported banks. This issue has recently come up with other government supported institutions. Indeed, the argument has been made that A.I.G. and Northern Rock to name just two have undercut their competition by respectively offering overly cheap insurance and mortgages. This competitive advantage problem is somewhat overstated as a LCFI in receivership may lose some of its best talent to other solvent institutions and as managing an insolvent institution limits its ability to undertake aggressive lending. But the way to reduce this moral hazard problem is to ensure that a firm in receivership is managed according to strict competitive criteria. Exactly because the government controls such LCFI it can hire managers that are instructed to avoid gambling for redemption. Such gambling for redemption risk is larger for LCFI that receive massive amounts of government bailout and forbearance but that are not directly controlled by the government (for example, the S&Ls in the 1980s).

D. Distressed Exchange

Because of some of the concerns associated with managing a LCFI, it appears that the government’s preferred approach in this crisis is to still to try and recapitalize the banks, if needed. But this strategy – avoiding full nationalization via receivership – leads to creeping and partial nationalization as weak banks will eventually have to convert their government preferred shares into common shares as in the case of Citigroup that will be soon partially owned – 34% - by the government. A more sensible way to resolve the capital problem of such banks is to induce the creditors of the banks (subordinated debt holders and unsecured senior long-term creditors) to convert their debt into equity.

The potential deadweight costs of receivership are quite high. Ideally, it would be better therefore if the debt could be restructured away from a receivership. Until recently, this would have been considered near impossible. However, in 2008, there has been a surge in distressed exchanges of debt for equity or preferred equity, 13 in all, relative to just 57 in the previous 24 years. Moreover, the largest ever such transaction took place just recently with the restructuring of GMAC debt.

While this is most easily done under the recently proposed special insolvency regime, the mere threat of this regime may be enough to induce the unsecured creditors of the banks to convert their claims into equity. The 11th hour failure of such talks with Chrysler creditors suggest it will be difficult to pull off this, especially given the greater complexity. But unlike the Chrysler case in which the creditors may be better off in bankruptcy, there is no such possibility for financial institutions.

There are two problems.

The first is that distressed exchanges do not necessarily avoid all systemic risks. While counterparty risk is avoided and general uncertainty is reduced, there can still be runs on the debt and equity of the banks. Without greater transparency, these runs could also force down healthy banks. Therefore, some of the concerns expressed above about managing systemic risks in receivership still hold here. Also, while distressed exchanges have been proposed at the level of bank-holding companies rather than the distressed commercial banks or securities firms themselves, there is perhaps the “peso” problem of an exchange offering by bank holding company triggering a potential run on short-term debt even of its better-performing subsidiaries.

The second, and more important, problem is that the debt of a LCFI dwarfs any previous exchange both in size and complexity. It will be very difficult to pull-off. Moreover, there is the added problem of debt-holders holding out for a full bailout along the lines they already have been receiving. Of course, the tale of this crisis is that LCFIs ignored their own business model of securitization and decided to pocket the spread and hold the risk themselves. And they accomplished this through leverage via the very same creditors who turned a blind eye. Why did creditors not regulate the banks? For the very same reason they are getting a free pass now.

These difficulties can be met, but only with time and clear communication to markets, suggesting that from an implementation standpoint, distressed exchanges may be rather challenging to employ when swift resolution of wholesale failures of LCFI's is required.

III. Concluding Remark

In this paper, we have laid out the pros and cons of forbearance versus receivership and/or distressed debt exchanges. Chairman Bernanke provides an example which we feel illustrates the different philosophy and approaches to dealing with the failure of a LCFI.

Specifically, Bernanke provides a very clever analogy for why we must worry about systemic risk and the failure of a LCFI. Suppose your neighbor smokes and, through his/her carelessness,

a fire starts and begins to burn down his/her house. This is not a time to start lecturing about smoking or installation of fire detectors. You need to put out the fire. Even though you might not want to call the fire company, once your neighbor's house burns down, the fire might jump to your house and other neighbors. So you make the call and deal with retribution afterwards.

But now let us change the story a little. Suppose your neighbor's house is blazing and is so intense that if the fire company tries to put it out, it might be very costly in terms of firemen's lives. You still make the call to the fire company. But now the fire company lets your neighbor's house burn down, and, instead, stands in protection of your house and your other neighbors. If the fire jumps, they stand ready to put it out. It potentially saves lives of the firemen, and has the added benefit that your neighbor most likely will give up smoking in the future.