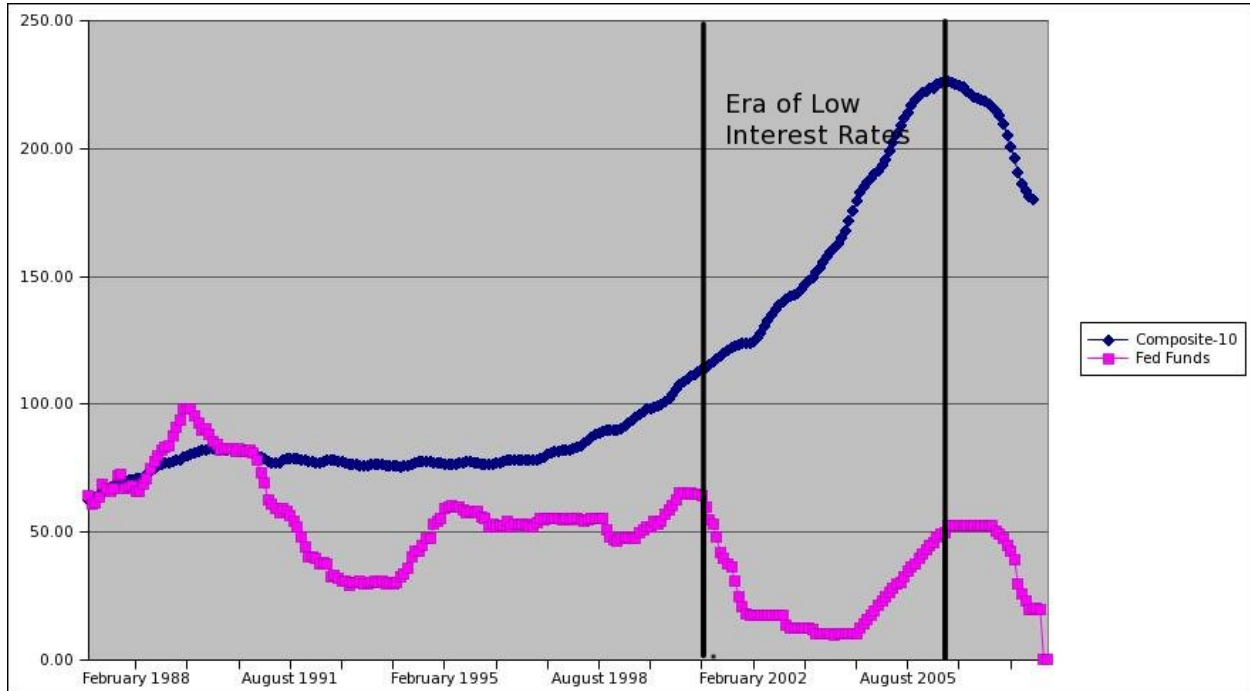


Crisis And Bailout

by Michele Boldrin and David K. Levine, September 30, 2008

Everyone knows that the United States faces a serious financial crisis and that the Administration is asking for an astoundingly large sum of money to fix the problem. Fewer may know what economists think about the crisis. Most academic economists - the economists who do not work for companies likely to benefit from the bailout, nor for the President - [are opposed to this plan](#). This large group of experts has wide ranging political opinions, and includes democrats, republicans, and most likely some libertarians. So: why is there a crisis, what is this plan, and why are a large number of academic economists opposed to it?

We might start by asking how we got where we are today. The basic fact is that the housing market boomed and has now gone bust. As a consequence, a vast amount of financial securities, written on the expectations that the bust would never come, are now worth little. Was this a bubble, the natural working of the market, or was it a creation of government policy? Or, more probably, all three? Certainly there is a great deal of evidence that both the boom and the bust in the housing market were encouraged by government policy. The chart below shows an index of housing prices (the Case-Shiller Composite-10), and the short term nominal interest rate, the Fed Funds rate (multiplied by 10), which is set primarily by the Federal Reserve. Beginning right after 9-11-2001, the Fed Funds rate was very low in comparison to the earlier period. These low interest rates meant that money could be lent cheaply in the short-term, helping to fuel a lending boom in the mortgage market through the use of Adjustable Rate Mortgages (ARMs). The boom was also encouraged by lax supervision of the two government sponsored secondary mortgage lenders, Fannie Mae and Freddie Mac. These large Government Sponsored Enterprises (GSEs) bought nearly half the mortgages in the country from the banks that originated them, and resold them to investors as Mortgage Backed Securities (MBSs). Other, private, investment banks performed similar functions by creating, issuing and trading similar, unregulated, securities, such as Collateralized Debt Obligations (CDOs), Collateralized Mortgage Obligations (CMOs), Real Estate Mortgage Investment Conduits (REMICs) and so on. The [total outstanding value](#), as of the end of 2007, of these kinds of securities is in the order of \$6 trillion.

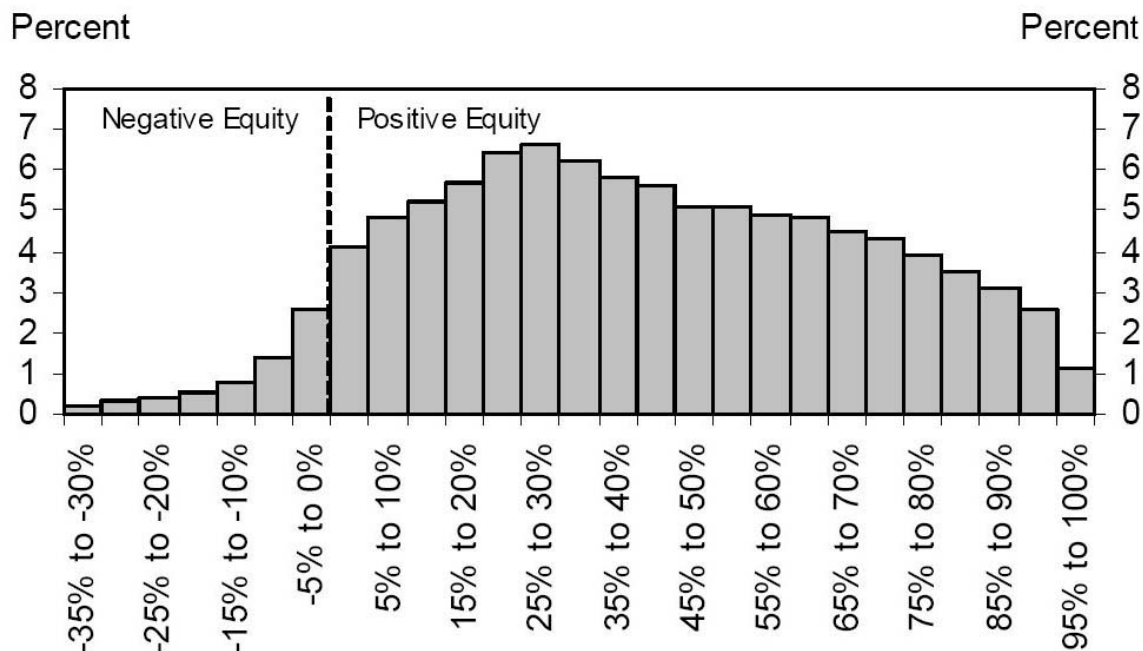


While not the only culprits, Fannie Mae and Freddie Mac were certainly, and by far, the two largest players in this market. With support from Congress they encouraged banks to make high risk loans with low teaser interest rates and little or no down payment. The Bush administration, repeatedly proposed greater oversight of the two GSEs, and was continually rebuffed by both Republican and Democratic Congresses. Private investment banks, and banks of any kind, also played an important role in the financing of the housing bubble and in the creation of MBSs of various kinds. The favorable lending rates on the short term market (at least until well into 2005) allowed banks to borrow cheap and lend, at a substantially higher rates, in the form of (long term) house mortgages that would, right after, be securitized and distributed through the financial system. Then, after several years of the housing boom, the Federal Reserve concluded that it had made a mistake setting interest rates so low and started to raise them. This suddenly took the fuel out of a car that was going full speed, sending an increasing number of borrowers into default and leading to the rapidly falling housing prices seen in the graph.

Next we should ask: what is the connection between the fall in housing prices and the difficulties in which banks find themselves? A homeowner typically borrows the money to purchase a home from a bank. For example, a purchaser might make a 20% down payment, and borrow the other 80% from a bank. If the price of the house were then to fall by 40% the homeowner would find themselves "upside down", owing more money on their house than the house is worth. If the homeowner wished to move, or fell on difficult financial times, they might choose to stop paying their mortgage, possibly by declaring bankruptcy, in which case the bank will foreclose the mortgage taking ownership of the house. That leaves the bank with a house less than the value of the loan, so the bank loses money. What are the losses suffered by banks as a result? At the beginning of the year, Standard & Poor's [estimated that losses](#) might exceed \$265 billion.

To see how such a number might be computed, we start with market value of the US stock of civilian housing at the peak of the housing market. This occurred in the end of 2005 when the value of houses was roughly \$21 trillion dollars. About half of that is mortgaged making the value of mortgage loans around \$11 trillion dollars. As of now, the average foreclosure rate, the ratio between the value of unpaid mortgages on foreclosed houses, and the value of all mortgages is slightly below 3%. Against \$11 trillion in loans, that means about \$300 billion in bad loans. Of course even in good times there are bad mortgages: for example between 2000 and 2006 while the housing market was booming, the rate was about 1.5%, meaning that even if times were good there would be about \$150 billion in bad loans. In addition, while the banks lose money because of foreclosures, they end up with the houses, so to figure the actual losses, we should subtract the resale value of the houses they end up owning. This would mean that losses beyond the ordinary might be as low as, say \$50 billion or even less. On the other hand banks also lose money not only because of foreclosures but because they choose to renegotiate loans rather than foreclose. For example, Washington Mutual before it failed, had set aside \$2 billion for mortgage "workouts" meaning negotiating more favorable terms for the borrowers. In addition it is not only actual losses that matter, but, since a mortgage runs for 10-30 years, future losses matter a great deal. These future losses may occur either because some people who are upside down and have not currently walked away from their mortgage may choose to do so in the future, or because the housing market may fall even further.

Although the future is unknowable, we can get an idea of how important future losses might be by examining how much equity home owners have in their homes. Owners with negative equity are a threat to walk away from their mortgages. Owners with low equity may have negative equity in the future if prices fall further. The chart below shows how much equity homeowners had in their homes at the end of 2006. Roughly 10% are upside down, with another 5% having equity of less than 5%. Given the substantial fall in housing prices since the end of 2006, that means that about 15% of all loans could be in negative territory, a considerably higher figure than the 3% who have already defaulted. (An exact calculation is difficult, because changes in houses prices in different parts of the country are [extremely varied](#).) If we figure that on average the negative loans are about 10% below the average value of the mortgage, and recognize that a bank seizing a house significantly lowers the value of the house, we might estimate that about 3% of total mortgage debt represents a loss to the financial sector, or multiplying by \$11 trillion, there are about \$330 billion in losses. Another way to get at this, is to observe that if the housing market declines and homeowners that are upside down default on their loans, the financial sector will then absorb up to about 15% of those losses. Since the housing market has fallen about 20% from the peak, this also gives losses to the financial sector of about \$330 billion. These numbers are similar to those of Standard & Poor's. However, if housing prices were to fall another 20%, potential losses could then approach \$660 billion. So we see that while actual losses are not so large - on the order of \$50 billion or less - future losses could approach the \$700 billion being proposed in the bailout plan.



Note: All data as of December 2006.

Source: First American CoreLogic, Inc.

The next thing to understand is how an entire financial superstructure was built on the shaky foundation of bad mortgage loans. In order to spread the risk of a single lender defaulting, many mortgages are packaged together as a single mortgage backed security that is then sold to investors. However, even a mortgage backed security is risky - for example, if the entire market falls - so these are further subdivided into tranches, with the riskier tranches being required to suffer losses before the safer tranches do. The key step consists in acquiring insurance, in one form or another, on these tranches, which allows them to be traded in the market and used as collateral for further borrowing. Various instruments can, and are, used for this purpose but Credit Default Swaps (CDSs) are by far the most common. The market for CDSs is now estimated to be \$63 trillion. Notice that there are about five times as much value in the "insurance contracts" as the \$11 trillion in assets being insured. (This \$11 trillion includes lots of old and safe mortgages not in need of insurance and mortgages actually traded as MBSs is only \$6 trillion. On the other hand not all CDSs are backed by mortgage securities.) Clearly, MBSs, CDOs and so on, were used as collateral for lots of additional borrowing. The fact that so many securities were backed by so little means they were used for gambling as well as insurance. Be that as it may, the market for CDSs and similar derivative contracts was certainly a key to turning U.S. housing mortgages into the foundation of a particularly large and complicated castle of cards. That explains why, as the value of those houses is dropping the whole castle of cards threatens to crumble. If you would like to read more details about the problem, Diamond and Kashyap have a good [writeup](#).

There is a potentially puzzling aspect of the situation. While it is not easy to compute the amount that has been lost by failing banks - in part because what is reported is the face value of assets that have lost part of their value, rather than the actual amount of money lost - preliminary calculations of the market capitalization of failed banks (Bear and Sterns, Lehman, Washington Mutual, and Wachovia) prior to their failure is roughly comparable to the total loss in the value of the underlying mortgages and MBSs. The puzzle intensifies if we consider that UBS also has lost a great deal of money, and that the insurance company AIG failed as well. If the loss in value of these companies was due to the decreased value of their mortgage and mortgage security holdings, most of the actual and potential losses fell on these particular companies, or there are losses that we have not been able to account for - the invisible "dark matter" of the banking system. Another thing that bears note - and may partially explain why losses may be greater than those purely from housing - is that bankers have taken large amounts of money out of the system. The [BLS reports](#) that in 2006 the about 174,000 employees of investment banks earned about \$76 billion. Some of this was certainly in the form of stocks and stock options that subsequently became worthless. Still, our examination of the balance sheets of, for example, Goldman-Sachs suggests that less than 25% of the total amount obtained by adding employees' compensations to net earnings remained inside the firm in such form. If we are conservative and also recognize that some of those 174,000 employees were administrative assistants, janitors, and other people who had no responsibility for the investment decisions of the banks, we still see about \$50 billion a year disappearing into the pockets of investment bankers. Over six years, this means that about \$300 billion or more was taken out of the banking system by managers - a number comparable to the potential housing market losses and much greater than the actual losses.

Let us be clear too on what these managers did. With the collusion of government and rating agencies, they repackaged risky mortgage loans as "safe" bonds, and wrote insurance contracts promising to make good losses in case of a housing market downturn. In fact they had no ability to make good on those losses. In short, they got paid a lot of money for creating the present mess. We can argue about who bears the responsibility for allowing this to happen: government regulators, bond rating agencies, investors and lenders who should have monitored better what was done with their money. Some fraud may have been involved, and it is possible a few people will go to jail. But at this point the money is gone with little reasonable prospect of getting back more than a token amount. In thinking through bailout plans, it should be borne in mind that one of the reasons why even free marketeers such as ourselves are eager to see some sort of restrictions on the compensations of those who are bailed out is that we would not like to see taxpayers pay a lot of money to banks and simply have the managers pocket the money.

Problems and Solutions

What is the problem that we now face? Some banks have made bad choices, as have some homeowners. So also have some automobile firms, people that have borrowed on their credit cards, made unwise marriages, and so forth. The government has not promised to bail any of them out, and if it did, it would encourage even more irresponsible behavior in the future. What is special about banking? The problem in banking is the possibility of cascading failures, that the failure of bad banks may drag down the good banks, leaving nobody to lend money to businesses, home-buyers and all the other people that who would like to borrow. One might fear that it would also deprive people with money deposited in banks of their savings, but the Federal Government does guarantee those deposits, at least up to a limit, so if a bank fails as Washington Mutual just did, the government will step in to pay the depositors. The problem of cascading failures is, nevertheless, potentially serious.

A simple example will illustrate the problem: I borrow \$1 million from Michele and lend it to you. You invest the million unwisely and lose it all, declaring bankruptcy. That means I don't get repaid. How am I to repay Michele the million I borrowed from him? One possibility is that I can't, that I also go bankrupt, and so your bankruptcy causes me to go bankrupt. That is what is meant by a cascading failure, when one bankruptcy forces another. However, perhaps I own mortgage backed securities. It may be that these are good securities representing money lent to people who can and will repay, or bad securities representing money lent to people who cannot repay, just as you cannot. In the latter case, if my securities are bad, then I am insolvent, and I should go bankrupt. But it may simply be that I am illiquid, meaning that while the securities are sufficient to pay off the money I owe to Michele, I cannot readily cash them in to raise the funds to repay him.

This is where the "lemons" problem comes in. Potential buyers of my securities know that my securities may be good or bad, but without a lot of time, effort, and money, they cannot easily tell which is the case. I, on the other hand, know whether my securities are good or bad. So a potential buyer will charge a price based on the average quality of securities for sale. If both good and bad securities are for sale, they will offer to pay an average of the price of good securities and bad securities. The lemons problem is that if my securities are bad, I am very happy to accept that price, while if my securities are good, I am not so delighted to sell. In other words more bad securities will be offered for sale than good; that in turn further lowers the prices buyers will be willing to pay, further driving down the quality of securities for sale. In the worst case I can only sell my securities, good or bad, for the value of the lowest quality securities possible. This means I might have to go bankrupt, even though I hold securities adequate to pay my debts, simply because buyers cannot tell that my securities are really good. We would prefer that the banking system not collapse because the bad securities have driven out the good.

What is the solution? One is for the government to step in and buy securities, as proposed in the bailout plan before Congress. It is hard to know the consequences of this without knowing how the government will determine the price it pays for securities. One possibility is that it simply offers to buy a certain number of securities of a given risk class to whoever will sell it to them at the lowest price. What happens depend on whether all securities that are bid are identical in risk or not. If they are Larry Ausubel and Peter Cramton [explained how](#) they can be efficiently valued in an auction. However, given that the private sector is unable to sort out the good securities from the bad, there is no reason to think the government can do so. If it cannot, then if the government pays, say, \$30 per security, it can be fairly confident that it will only get securities worth less than that with the taxholder responsible for the difference. Notice that the ones who reap the rewards are the holders of bad securities who sell to the government at what is for them a premium price. Those who made bad decision are rewarded, those who made good decisions are not. In effect in order to keep the bad banks from driving out the good we rescue the bad banks.

There are many alternative schemes to the one proposed by Treasury.

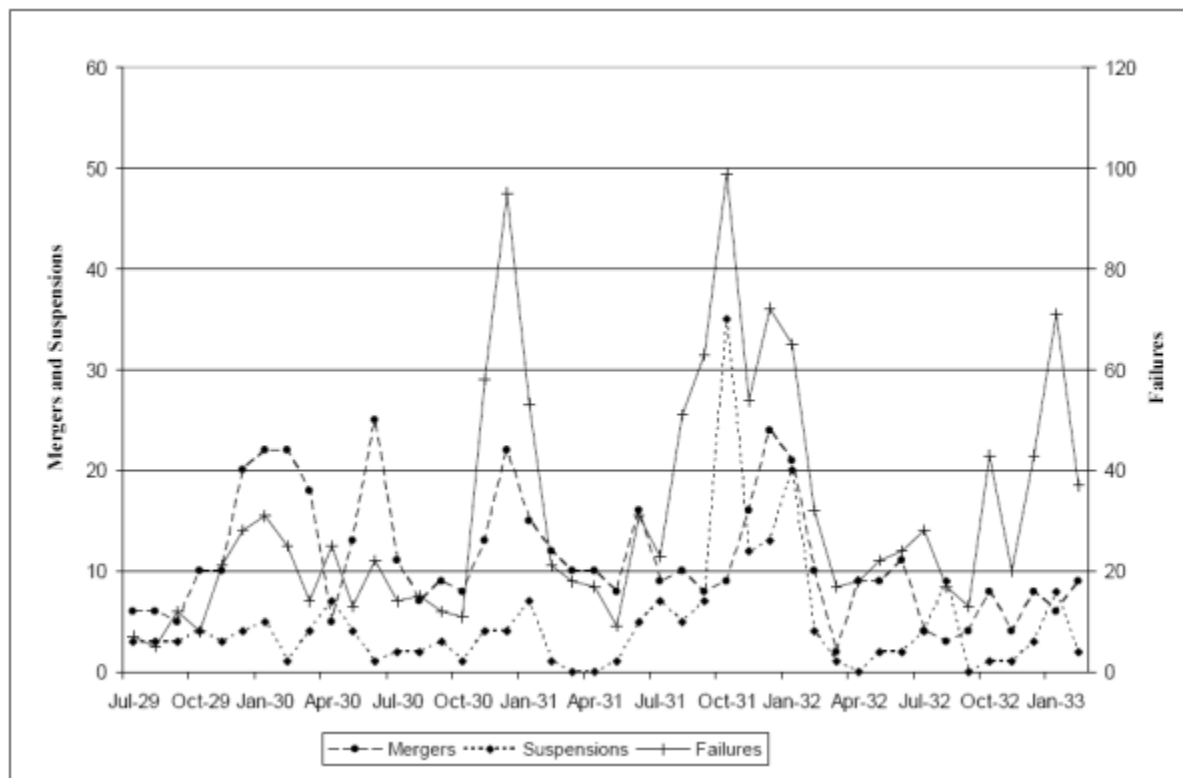
1. Require banks to raise more capital. To do so the current shareholders and executives will have to relinquish some power and allow either foreign banks or foreign investors to enter as shareholders and have a say in the management of the bank. This requirement forces banks sell off their risky securities to be replaced with safer securities such as Treasury Bills. Forcing everyone to sell faces the same lemons problem that is faced by the Treasury scheme, except that now the losses are borne by the good banks rather than the taxpayer.
2. Forgive debt in exchange for equity. That is those who are owed money by the bank are required to accept instead a share of the firms stock. This gets around the

lemons problem because it does not force banks to liquidate good or bad securities. The cost of the scheme falls on the bond-holders: however, if the banks go bankrupt, they will be on the hook anyway. [Zingales](#) argues that debt forgiveness schemes have worked for resolving financial crises in the past.

3. Allow bankruptcy judges to reset the terms of mortgages. Allowing a workout of mortgages seems like a good idea, and the private sector is already doing this. To the extent that judges provide workouts that banks were unwilling to give, this will make mortgage securities even worse, so aggravates the problem from the perspective of banks. The argument in favor would be that if we are going to throw obscene amounts of money at banks to solve their problems, we should let a little of it rub off on the home buyers who are no more culpable than the bankers.
4. Buy foreclosed houses for the value of the mortgage. Although the actual cost of the Treasury plan is difficult to compute, since it is hard to know the value of securities we will purchase for our \$700 billion, we know that buying the houses will cost about \$150 billion, and leave us holding about \$100 billion worth of houses. If we act quickly, therefore preventing the house prices from dropping much farther, that may be it. An important benefit of this approach is that it avoids the lemons problem entirely. A drawback is that it does not do anything about securities that are in trouble due to the possibility of future losses rather than present losses. It also leaves the government owning houses rather than securities, and houses are less easy to handle than securities.
5. Insure mortgage backed securities. It is unclear why those holding good securities would be willing to join the scheme, so this also suffers from the lemons problem. In particular the ones who will wind up paying are the good banks. The idea of paying banks up front and having them repay down the road, which seems to be the central element of the scheme, makes sense provided the ones who pay down the road are the same ones that get bailed out. Pooling all securities under one roof will probably not do this, but there are alternatives.
6. Force an orderly winding down of the housing based derivative market. It is likely at this point that a large fraction of the contracts currently alive have turned into empty gambles, in which one party is unable to pay. Markets are already operating in this direction as the number of outstanding CDSs suggest, but the process might be aided by an impartial arbiter.
7. Do nothing. The Federal Reserve and sister agencies such as the FDIC already have tools designed to deal with banking crises that they are using effectively. Unfortunately the crisis has now been blown all out of proportion with many people believing that the sky will fall if nothing is done, and this has the potential to become a self-fulfilling prophecy. So at least minor cosmetic measures seem to be crucial to restore investor and consumer confidence.

The sky is not falling, and will not fall

Yes: there can be cascading bank failures and that is a bad thing. But it does not happen instantly, not tomorrow, not next week, not next month. Here is a graph of bank failures during the Great Depression which we supposedly face again if we don't approve the bailout plan immediately.



This is taken from a [publication of the Federal Reserve Board](#). The point of the graph is simple: the banking system didn't fail all at once during at the beginning of the Great Depression: there was a continuing series of bank failures stretching over more than three years. And it bears emphasis: at the beginning of the Great Depression the Federal Reserve did exactly the wrong thing: it failed to provide liquidity to the system and allowed the money supply to contract. It is the documentation of this in the *Monetary History of the United States* for which Milton Friedman and Anna J. Schwartz are justly famed. At the moment the Federal Reserve has been carefully, and largely quietly, doing what it is supposed to do - namely exactly the opposite of what it did at the beginning of the Great Depression.

Looking at more recent times in the early years of this century Argentina suffered a dramatic banking crisis leading to a default on the public debt. For a few months this forced a nearly complete shutdown of the national banking system. Bailout or no, nobody is predicting such a dramatic collapse in the U.S. The effect of the banking collapse in Argentina can be seen in the per capita Gross Domestic Product (GDP, a measure of income, measured in Purchasing Power Parity units) show below

2005	\$14,024.26
2004	\$14,161.54
2003	\$14,298.07
2002	\$14,435.93
2001	\$14,578.37
2000	\$14,728.00

1999

\$14,885.85

The crisis occurred at the end of 2001, and during 2002. As can be seen it did not have much effect on GDP. While per capita income fell in Argentina pretty much continuously due to various poor economic policies, the fall was not especially aggravated by having banks closed for several months.

The bottom line, in the immediate future, is this. The Federal Reserve Bank and its sister agencies such as the Federal Deposit Insurance Corporation (FDIC) already have strong tools against a cascading failure of the banking system. They have been using those tools, including advancing credit to banks through the discount window, insuring deposits, and selectively allowing institutions to fail. We have seen isolated bank failures. There will be more in the future. We have not seen good banks fail, nor have we seen cascading failures. We have been given no reason to think anything of the sort is imminent. It is sad to say that despite this the U.S. Government is in a state of panic. Supposedly knowledgeable government officials talk as if ATMs might stop working and firms will not be able to meet their payrolls. This is utter nonsense. To debunk the obvious: Washington Mutual failed Thursday night. Washington Mutual ATM cards continue to function as usual. Individual and corporate bank accounts are federally insured up to \$100,000 per bank. The normal process of bank closure does not prevent bank customers from accessing their funds. As to payroll: We do not doubt that some firms of various sizes are going to fail to meet payroll and go bankrupt in the next weeks. It is likely that a few of them would have been able to survive if credit was more widely available at the moment. But most firms do not meet payroll by short-term borrowing. The fact that banks are reluctant to lend to each other does not have much impact on their ability to make short term loans to customers. And so on.

No objective reading of data we have access to indicates anything near as bad as the claims that are being made. It may be that eventually more intervention than the Federal Reserve and Treasury can do without Congressional action will be needed. However, this is not a natural calamity or a war where there will be large and irreparable harm if we do not act immediately. There is adequate time for the public, the Congress, the Treasury and Federal Reserve to think through the alternatives carefully, to monitor the situation with equal care, and if necessary intervene in markets in a way that makes sense.

Public officials, especially the Chairman of the Federal Reserve Board have an obligation to explain these facts and reassure people that they are not in danger of a catastrophic collapse. It is rather unfortunate, then, the opposite seems to be occurring. For example, on September 24 Ben Bernanke declared in front of Congress:

All told, real gross domestic product is likely to expand at a pace appreciably below its potential rate in the second half of this year and then to gradually pick up as financial markets return to more-normal functioning and the housing contraction runs its course. Given the extraordinary circumstances, greater-than-normal uncertainty surrounds any forecast of the pace of activity. In particular, the intensification of financial stress in recent weeks, which will make lenders still more cautious about extending credit to households and business, could prove a significant further drag on growth. The downside risks to the outlook thus remain a significant concern.

...

Over time, a number of factors should promote the return of our economy to higher levels of employment and sustainable growth with price stability, including the stimulus being provided by monetary policy, lower oil and commodity prices, increasing stability in the mortgage and housing markets, and the natural recuperative powers of our economy. However, stabilization of our financial system is an essential precondition for economic

recovery. I urge the Congress to act quickly to address the grave threats to financial stability that we currently face. For its part, the Federal Open Market Committee will monitor economic and financial developments carefully and will act as needed to promote sustainable economic growth and price stability.

Roughly speaking he said "things are not too bad, but gradually getting worse, and you better act quickly to give us \$700 billion to fix it." The conclusion does not seem to follow. It is not surprising that people imagine that there is far more catastrophic information that he is not telling us. If the Federal Reserve Bank and Treasury in fact have information that things are worse than Bernanke reported they should tell us what it is. Otherwise they should stand up and make it clear that doomsday is not around the corner.