Viewing the Financial Crisis from 20,000 Feet Up

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The U.S. economic crisis is systemic but the system is so complicated that commentators, policy makers, and the general public are focusing on details rather than on the big picture. This article offers a different perspective: An overview of the whole system, as if from 20,000 feet above it, that allows us to see the systemic nature of the crisis without being distracted by its complex details. The primary focus is on the problems with subprime mortgages, and I suggest a general approach to defuse that major driver of the crisis. But conditions have worsened so quickly since September 2008 that actions, which might have arrested the decline at that time, are now inadequate. However, one central message—that it will be hard to get the financial system back on its feet without resolving the problems in the mortgage market—still holds, and our general approach of government intervention at the point where the real-economy risk connects to the financial system still offers a way to do that. And while real estate remains the largest and most disrupted sector of the economy, the principles outlined in this article are potentially applicable to other areas, as well.

The first version of this article was written in September 2008, as the financial problems that began cropping up during 2007 suddenly began to turn into a massive worldwide financial crisis. At that time, while Wall Street firms were experiencing the huge losses that have forced a major restructuring of the financial services industry, the biggest drivers of the crisis were the collapse of home prices and the markets for mortgage-related securities. Perhaps if we had been able to intervene strongly at that time to shore up the system along the lines that are discussed herein, some of the serious problems in commercial paper, state and municipal finance, and other spheres could have been avoided, or at least lessened. It is too late for that now. I have updated this article to reflect some of the important developments that have taken place up to the beginning of January 2009, but it is clear that in this rapidly evolving crisis, many more changes will have occurred by the time this article is published. However, as long as the pernicious cycle continues of defaults, foreclosures, and forced liquidation of properties at fire-sale prices, which are the main focus of this article, the real estate sector will remain a major source of financial instability.

We are facing the most serious financial crisis in several generations. In the real economy, millions of people are defaulting on their mortgages and losing their homes. The financial community has been rocked by gigantic losses and venerable firms have been brought down. The Federal government quickly committed more than $1 trillion in an attempt to stabilize the markets, with relatively limited success so far.

People are upset and angry because they don't understand what is going on. One reason is that the problems are so large and involve so many parts of the financial system that it is hard to comprehend the whole thing. So different commentators focus on different aspects of it. Some try to explain how our largest financial institutions lost so much money and what this means for the future of Wall Street. Others look at the devastation being wreaked on families who are being forced out of their homes and neighborhoods where houses are standing empty, unable to be sold. Still others report what the Fed, the Treasury, the Congress, and now the incoming Obama administration are doing, and planning, to resolve the crisis. And in the middle of it all are a great variety of impossibly complex and risky derivative securities. People don't know how derivatives work, but they do know they have led to huge losses for a lot of big firms, which suggests they are somehow at the root of the problems. And, if so, those involved in creating and trading them must be largely to blame for causing the crisis.

The purpose of this article is not to explain how a credit default swap on the mezzanine tranche of a subprime mortgage CDO works. What I hope to do is to give an intuitive understanding of how the whole system fits together, starting with a crucially important property of all financial instruments, particularly derivatives. The key insight is that each one is what is known as a zero-sum game. This property allows us to aggregate the entire financial system and think about it as a single unified entity, without having to consider the details, just as if we were looking down on it from an airplane 20,000 feet above the ground. From that height we can see how huge losses in the real economy, coming from falling real estate values as the housing bubble deflates, are being passed through the financial system. But the system has become overloaded. It is simply not capable of dealing with losses on this scale, and it is breaking under the strain.

After laying the foundation that the zero-sum game concept applies to the entire financial system, I describe how the crisis may be defused by effectively disconnecting the financial system from the source of the risk that is too big for it to handle. That would immediately stabilize at least the mortgage-related part of it. It would also set the stage for government action that would help calm the chaotic situation in the housing market where the unmanageable risk is arising. The approach I offer is not meant to be a full-fledged plan, by any means, but rather an outline of a program that could be a basis upon which a complete plan would be developed.[1]

In the end, I hope to have given the concerned nonrocket scientist a better understanding of what is happening in the economy, a clearer view of the role all those exotic derivatives play, and a way to think about proposed solutions to stabilize the system and to regulate it in the future.

THE FINANCIAL SYSTEM AS A ZERO-SUM GAME

We begin at ground level with a close look at how two common financial instruments, homeowners insurance and home mortgages, pass risk from the real economy through the financial system. This will make clear what I mean by a zero-sum game.

As the year 1900 began, Galveston was a thriving town of 42,000 people, the largest city in Texas. But that September Galveston was hit by a massive hurricane that killed about 1 in 5 of the inhabitants and washed away most of the town.

In those days, finance was mostly local. You bought a house by taking out a mortgage loan from the local bank. You kept your savings in the bank as well. Many homeowners had no insurance, and after the hurricane those that did ended up receiving little or no compensation for their losses because their insurance company was either wiped out itself or overwhelmed by the total size of the losses it needed to cover. Survivors of the storm found they had lost everything: their houses, their possessions, and their life savings. In September 2008, a massive hurricane named Ike struck Galveston again. Fortunately, there was relatively little loss of life, but billions of dollars of property damage. Who will bear the losses this time?

Let us focus on a single homeowner. We'll call him Homer. Suppose that before hurricane Ike washed it away, Homer's house was worth $300,000, which was financed by a $250,000 mortgage loan. For the sake of the example, let us also suppose that the house was insured against losses up to $225,000. Homer has lost a $300,000 house, but a good portion of that was covered by insurance. Hurricane Ike washed away Homer's house and destroyed $300,000 of real assets. Someone will end up bearing that loss. In 1900, Homer would probably have borne it all; in 2008, much of it has been passed on to others through the financial system.

Insurance companies expect there to be some losses on the policies they write, so they hold loss reserve funds more than sufficient to cover expected damage claims in a normal year. Those reserves are the first line of defense. But the possible losses in a major hurricane are bigger than a single company can bear on its own, so Homer's insurance company purchases protection against a really large disaster from other insurance companies, known as reinsurers. This spreads the risk out further. If an event produces losses greater than are covered by its reserve fund and reinsurance, the insurance company must dip into its own capital. The uncovered portion of the loss then lands on the company's shareholders.

The insurance company absorbs $225,000 of the loss. That means Homer, who is on the other side of that insurance contract, saves $225,000 that he would otherwise have lost. This kind of contract is called a "zero-sum game": If the party on one side has a loss, that exact amount is received as a gain by the party on the other side. The loss to one plus the gain to the other must exactly offset and sum to zero. This is not just a theoretical principle; it is a matter of accounting.

Going further, if the total loss is large enough that the reinsurance coverage kicks in, once again, each dollar of loss to the reinsurance company is a dollar less that Homer's insurance company loses. It is another zero-sum game. Similarly, if the company exhausts its coverage and pays Homer's claim out of firm capital, here again each dollar the shareholders lose is a dollar Homer gains. And what if the loss is so huge that the insurance company's capital is exhausted and it is driven into bankruptcy without being able to cover all of the claims? Then Homer doesn't receive the full $225,000 he is owed. But the zero-sum nature of the insurance contract still holds: If he gets only, say, $100,000, the insurance company "saves" $125,000 that it was supposed to pay Homer, but his uncovered loss increases by that same amount.

We will see in a minute how the contracts involved in mortgage finance are also zero-sum games. In fact, this principle extends in the same way all the way through the entire financial system, because every one of the financial contracts that form the connections among the millions of firms, financial institutions, individual borrowers, and lenders is a zero-sum game.

The most important thing to see in this process, which is highly relevant to understanding our current financial crisis, is that losses arise in the real economy and someone has to bear them. The entire financial superstructure, no matter how complicated it may be, consists of zero-sum game components. Its operation does not generate additional losses, and it does not eliminate losses. It just distributes the losses that occur in the real economy to those who will ultimately bear them. In our highly developed financial system, Homer's loss will end up being distributed in minuscule amounts to millions of investors all over the world.

Since our financial system is entirely made up of zero-sum securities and contracts, it must also be zero-sum in aggregate. It is this important property that lets us look at the whole financial system as a single zero-sum entity, as if we were 20,000 feet up, and think about how it works as a unified system.

But before that, let us address two obvious questions: First, if the financial system is zero-sum for the people trading contracts, how are the people who run it all able to pay themselves generous salaries? And second, what about losses that occur when a part of the system breaks down, if Homer's insurance company goes bankrupt, for example?

One part of the first answer is that financial firms run the system, but many also operate as investors, attempting to earn high returns by placing their capital at risk. (Of course, when those returns become losses, as they have recently, the firms' capital is reduced, which not only limits their ability to make risky investments but also diminishes their ability to perform their role as financial intermediaries.) But most of the answer is that *having* a financial system creates enormous value for the economy. The cost of running the system, including the salaries, comes out of the overall profits it generates.

To see this, think about Homer's insurance. He faces a large risk, and he is happy to pay for insurance that will protect him from it. Suppose insurance coverage costs $100 a month. He would still buy insurance even if it cost $120 a month, so he's getting a good deal relative to what he would be prepared to pay. The financial system takes on Homer's risk, repackages it with zero-sum contracts into forms that are palatable to investors, and distributes it in infinitesimal pieces across a vast number of investors around the globe. Those investors might be happy to insure the risk in return for compensation equivalent to only $80 a month. If they actually get paid $90, they also are getting a good deal. And there is still $10 left over.

We can think of it this way: Homer has a zero-sum insurance contract with the financial system to which he

pays $100 a month. The financial system has zero-sum contracts with the ultimate risk-bearing investors for which they are paid $90 a month in total. The zero-sum contracts make both Homer and the ultimate investors happy, and there is $10 economic surplus generated that supports the system.

Where this reasoning fails is when a loss is so great that the financial system breaks down. An insurance company that loses its reserve fund is less able to provide insurance coverage. Policies it has written for other customers are compromised, and if the company loses its capital too, and is driven into bankruptcy, its customers lose their insurance coverage, its employees lose their jobs, and other real economy losses result. The contracts that tie everything together are still zero-sum, but some of the economic value produced by the financial system is lost.

MORTGAGE SECURITIES AS ZERO-SUM CONTRACTS

Now let's apply the same kind of reasoning to Homer's mortgage. In 1900, a bank made a mortgage loan and kept it on its books as an investment. When the houses in Galveston were destroyed, so were the local banks, because their assets were gone.

The system for financing mortgage loans today is quite different. Homer's local bank arranged his mortgage loan initially, and continued to collect the monthly payments afterwards. But unlike the old days, the local bank did not keep the mortgage on its books as an investment. Soon after origination, the loan was sold to a larger bank that combined it with other mortgages into a mortgage pool. New securities backed by the pool of mortgages were then created. Some of those mortgage-backed securities (MBS) were sold in the financial markets to long-term investors. Some were pooled together with other mortgage-backed securities and became the underlying assets that supported creation of more-complicated mortgage derivatives.

The process is called securitization, because the mortgage loans are effectively transformed into securities. All of the new securities are "derivatives," which means that their value "derives from" the value of the underlying pool of mortgage loans. Every derivative is a zero-sum game instrument. Although they are different in nature from insurance contracts, it is still the case that if a dollar is lost on one of the loans in the pool, the total payout to the MBS backed by that pool falls by a dollar.

Poor Homer! After receiving the insurance payout, he still owes $25,000 on his mortgage. But he no longer has the resources to pay it, and he has to default. At this point, the loan will be unwound. The $225,000 from the insurance company will cover part of the principal on the loan, which is being paid off early. The remaining $25,000 will be written off as a loss due to default.

The insurance payout goes to the local bank, which passes it to the bank managing the mortgage pool, which pays it out to the holders of the mortgage-backed securities. There will be more redistribution through the system if some of those securities have gone into pools supporting further MBS, and so on. But in the end, every dollar will have been passed through the financial system to the ultimate investors.

The same is true of the distribution of the loss from the $25,000 write-off. Let's follow how that works. Homer owes $25,000, but he walks away and pays nothing. So, relative to what he was supposed to pay, he has gained $25,000 and the mortgage lender loses $25,000. Homer's gain plus the $25,000 loss of principal on the mortgage sum to zero.

The bank that bought Homer's mortgage is informed of the default and then writes down the principal value of the MBS that had been created from the mortgage pool. Some securitizations are structured so that the new securities would share this loss equally. But that means that the buyers of those securities are stuck with default risk, which no one likes. Other structures involve creation of different classes of derivative securities that divide up the exposure to default risk differently. In the end, though, every one of them is a zero-sum contract, so the loss will be parceled out among them in such a way that the total is exactly $25,000.

Why has financing mortgage loans led to such a proliferation of complex derivatives? It starts with the fact that every individual mortgage loan, like Homer's, carries with it exposure to two major types of risk: default and prepayment.

That a borrower may default and fail to pay back some of the principal on the loan is an obvious risk. Prepayment risk comes from the fact that the loan contract commits the borrower to monthly payments over a period of typically 30 years, but most homeowners pay off early. They may sell their house and move away; they may default, leading to foreclosure and liquidation of the property; or they may simply repay the existing mortgage and refinance at a better interest rate when the opportunity arises. This creates risk

because the lender is uncertain how long the payments on a mortgage loan will last and there is a good chance that it will be repaid at a time when it is hard to reinvest the money at an attractive rate.

Pooling mortgage loans and creating new securities makes it possible to rearrange the exposure to those risks. In aggregate, because they are zero-sum, the new securities will take on all of the prepayment risk and default risk exposure of the mortgage loans in the underlying pool. But what the securitization process does is to allow these risks to be concentrated into a small number of specialized securities. This means that most of the newly created mortgage-backed derivative securities bear little prepayment risk and are almost entirely insulated from default losses on the individual mortgage loans, which makes them especially attractive to risk averse investors.

The securities that receive nearly all of the risk exposure distilled from the underlying mortgage loans are naturally highly risky instruments, affectionately known as "toxic waste" in the trade. They are bought by the most sophisticated and risk tolerant investors, and their expected returns are also very high to compensate for the large risk. It is important to see that because the risk exposure is inherent in the underlying mortgage loans, ultimately it all has to be borne by someone. Although they look, and are, very risky, it is the existence of the toxic waste securities that makes it possible for most mortgage-backed securities to be as safe and sound as high-grade corporate bonds. (Unfortunately, that is not quite as "safe and sound" today as it used to be.)

In the end, the ownership of Homer's original mortgage loan, and all of the risk attached to it, has been dispersed through the financial system to the point that, like his insurance, bits of it are contained in investment portfolios throughout the world. But the critical feature is that, as with his homeowners insurance, every step in the process is a zero-sum game.

VIEWING THE FINANCIAL SYSTEM FROM 20,000 FEET UP

Having seen close up that all of the complex connections within the financial system are zero-sum, we are now ready take a broad view, as if we were far above it. From this distance, complex details are not distinguishable. One sees the real economy in which millions of individual Homers own houses that they have financed with mortgage loans. There are also millions of savers, who all want to invest in securities with high returns and low risk. And connecting the two is an amazing series of financial pipes and tubes that transmit money from the savers to the borrowers to fund those mortgage loans and transmit the monthly mortgage payments, the prepayments, and the losses in case of default back from the homeowners to the savers. We can't see exactly how it all fits together, but knowing that the financial system all adds up to a zero-sum game means we can ignore the details and focus on the overall flow through it of funds and risk from the real economy.

A bird's eye view on the financial system reveals that the financial crisis arose in the real economy from huge losses caused by the bursting real estate bubble. As long as the financial piping remains intact, the total loss will be "only" the drop in real estate values. But unlike the Internet stock bubble of a few years earlier, the fall in house prices involves a much larger class of assets, whose values affect everyone. How much of a bubble is actually bubble and how much is true value can't be known until after it has deflated and prices have stabilized at lower levels. That process is still ongoing in the housing sector, and what level prices will eventually get to depends heavily on what we do in the meantime to manage the crisis. In the end, the total drop in real estate values will likely be in the trillions of dollars. Moreover, the disruption in the financial system originating with mortgage loans has sharply reduced its efficiency as a conduit of funds from lenders to borrowers, which has spread the crisis much further and exacerbated its impact. Huge losses in the stock market, which has just completed its worst year since the 1930s, are an obvious illustration of this.

While the financial system is very efficient in handling real economy risks in normal times and even in fairly bad times, from 20,000 feet up we see that it is simply not capable of dealing with real sector losses of the magnitude we are facing today. It is as if the insurance industry was trying to cover the losses from a category 5 hurricane that flattened every house in Florida. The financial system is overwhelmed and fragile parts of it are failing or operating at greatly reduced efficiency, as financial firms lose their reserves and their capital. It was estimated that financial firms had already lost over $400 billion of capital by the end of September 2008. Some, like IndyMac and Lehman Brothers, will lose it all and go under, and all firms are cutting back on their risk exposure in order to preserve capital, in essence partially disconnecting themselves from the system. Reduced capital translates directly

into less ability to bear risk. Even if new losses stopped coming from the real economy, the capacity of the financial system as a conduit of credit has already been seriously diminished. Loans have become harder to get, and at times impossible, even for creditworthy borrowers.

If the system itself remains intact, new capital can come in. Capital-depleted financial firms will sell themselves in part or in entirety to new investors, witness Bank of America's purchase of Merrill Lynch and Warren Buffet's purchase of a portion of Goldman Sachs. This would preserve the financial system, albeit under new ownership. But until things settle down, new investors will be very wary of risking their capital in a way that exposes them to the major losses that are still being generated in the real sector. That is the major reason that the U.S. decided to inject massive amounts of new public funding into the banking sector, under the Treasury's Troubled Assets Relief Plan (TARP), and as did many other countries, including Britain and France.

If we were to allow significant portions of the financial system to break under the strain from the real estate sector, the total loss to the real economy would become much worse. If the connective piping were to be destroyed, the whole financial system would lose some of its ability to provide credit to borrowers and attractive returns at low risk to savers. The cost of borrowing and the risk of lending would both increase, which would hurt all of us. We should try to avoid this if at all possible by keeping financial firms that lose their capital afloat in some way. The Federal Reserve and the Treasury deserve credit for handling the insolvency of major securities firms without breaking them during this period.

It is not just a theoretical argument that the real economy can be seriously damaged if we let financial firms go bankrupt when the risks they took on turn into bigger losses than they can handle. We have a strong historical precedent to look at. Following the stock market crash of 1929 and several unfavorable events in the real economy, the U.S. financial system was in severe disarray. It was widely believed at the time that what was needed was to let badly managed banks that had taken too much risk go bust. By 1933, roughly one-third of the banks in the country had failed, and the country had fallen into the Great Depression. Most economists now feel that allowing such a large portion of the financial system to collapse was one of the major reasons the Depression of the 1930s was so deep and lasted so long. Luckily, Fed Chairman Ben Bernanke spent much of his career as an academic economist studying the Great Depression, and he has shown that he is not about to let us repeat that mistake today.

The events of October 2008, following the bankruptcy of Lehman Brothers, revealed another surprising and stunningly powerful aspect of the crisis. While actual losses arise in the real sector of the economy and the financial system simply transfers them dollar for dollar through to the ultimate investors, extreme *uncertainty* about which firms would ultimately bear those losses and be driven into insolvency greatly exacerbated the situation because it destroyed the confidence and trust the system needs to operate effectively. In this environment, banks hunker down and refuse to lend to each other even overnight. Fears that potentially lethal MBS might be lurking on counterparties' balance sheets caused interbank lending to freeze up repeatedly during the fall and it is still at a greatly diminished level. If an overnight loan has one tenth of 1% chance of not being repaid, while your bank might desperately need the funds tomorrow, you don't lend. It doesn't matter how low the Fed funds rate may be.

WHAT CAN BE DONE TO DEFUSE THE CRISIS?

Taking a broad perspective also gives us some insight into the likely effect of plans to alleviate the crisis. Until mid-September, the Fed and the Treasury concentrated on providing liquidity to the system and managing the insolvency of such major firms as Bear Stearns, AIG, and especially Fannie Mae and Freddie Mac, in such a way as to minimize the damage to the financial system. Massive injections of liquidity by the Fed and other countries' central banks have been undertaken to stimulate lending. Because values of mortgage-related securities have become extremely uncertain, lenders who make the short-term loans that the securities industry depends on to finance its business do not want to accept them as collateral. And no one wants to lend to a firm that might be teetering on the brink of bankruptcy.

The bailouts of major financial institutions have been necessary to keep the system from crashing. But they cannot solve the problems in the long run. The financial piping is overstrained, and the piecemeal approach is like a plumber running around to shore up one leaky spot after another, wherever the risk of failure appears to be the greatest.

The $700 billion TARP bailout agreed to in September was intended to be a much more ambitious and comprehensive effort. A main feature of the original plan was for the Federal government to stabilize the market for mortgage-backed securities by offering to buy them. These securities had become nearly impossible to sell, because the market for them was in free fall, but also nearly impossible to hold, because no one wants to accept them as collateral and provide the short-term financing needed to carry them. The hope was that once a floor value was set, the financial firms would be willing to resume trading these difficult securities at reasonable prices and everything would settle down.

That part of the TARP plan was never implemented, and in November 2008 the Treasury formally abandoned it. For one thing, there was no way to fix a "correct" price for a security whose market price was 20 cents on the dollar, while the banks believed it was *really* worth 60. In any case, the rapid deterioration of the world financial system during October made it clear that buying troubled mortgage-backed securities was unlikely to solve the problems, because it failed to deal with two major issues. First, the losses that had already been taken had severely depleted the capital available to the financial system. Even if things had calmed down immediately, we would not have gone back to "business as usual" in the credit markets until the industry was recapitalized. This need superseded the idea of helping the banks' balance sheets by allowing them to unload their toxic waste securities.

Second, and more importantly, the TARP plan did not deal with the source of the problem, which lies in the real sector of the economy. Addressing the symptoms of the crisis by supporting the market prices of existing mortgage-backed securities does not alter the dynamics of default and foreclosure in the real economy. The original TARP plan would have helped to limit further capital depletion in the financial system because the toxic securities where the largest losses will end up would have been transferred to the Federal government. But as long as large numbers of homeowners are finding themselves unable to pay their mortgages, lenders are foreclosing and trying to sell the houses into a market that has largely collapsed because there are too many other houses for sale, and potential buyers are having a harder time getting mortgages because credit has tightened up, the losses and extreme uncertainty will continue, and the financial system will remain under more strain than it can handle. Unfortunately, efforts to deal with the housing sector problems have so far been only done in a piecemeal and uncoordinated way. Major government lenders like the FDIC, through its recently acquired ownership of IndyMac, and private sector banks like Citigroup and J.P. Morgan Chase have launched a variety of plans to reduce defaults by renegotiating the terms of individual mortgage loans. But this is a time-consuming process that can only reach a fraction of the troubled loans.

The crisis was caused by losses in the real economy that are too large to be passed through the financial system. Looking at the system as a whole it is clear that a way to stop the strain immediately would be to disconnect the financial sector from the real sector risk. The following is a simple sketch of how that might be done for mortgage-related losses. It is not meant to be a complete plan, by any means, but rather a basic approach that the preceding discussion should make clear would work.

Although the loss rate due to mortgage defaults is rising rapidly, probably the largest part of the problem for the financial system stems from extreme uncertainty, not (yet) from actual default losses. Homeowners are financially strapped, and some of them will default, but it is very hard to predict how many. Once a default occurs, it is very hard to predict how much will be recovered in a foreclosure, given the weakness in the housing market. Because it is so hard to predict the cash flows coming from the underlying mortgage loans, the market doesn't know how to value the mortgage-backed securities that have been created from those loans. Defaults have been running much higher than was expected, and many of the specialized mortgage-backed derivatives that were designed to bear the first losses from defaults have been wiped out. Further defaults will affect securities higher up the chain, and no one can be sure how high the damage will rise. That uncertainty is affecting even the very senior securities. Most of them will almost certainly pay off exactly what was promised, but their prices in the market today do not reflect that likelihood.

Suppose the Federal government announced that as of today, it guaranteed that the monthly payments on every outstanding mortgage loan would continue even if the homeowner defaults, and there would be no unplanned prepayment of principal. The monthly cash flows from all mortgage loans in the U.S. would immediately become fixed and fully known to the market, and as dependable as the coupon payments on Treasury bonds. Mortgage-backed securities, even the most toxic, would suddenly have absolutely predictable cash flows because

the government would be bearing the default and prepayment risks. Their prices in the financial markets would become about as stable as prices for other Treasury securities.

Stabilizing the cash flows from mortgage loans into the financial markets would be a major step in resolving the financial crisis, independent of what losses might be occurring in the real sector. The government would also be in a better position to limit the ongoing damage to the real economy from foreclosures and forced sales of properties into a depressed market.

In taking over the homeowner's liability to meet his mortgage payments, the government would be assuming the role of the homeowner vis-à-vis the mortgage lender. In collecting the monthly payments from the homeowner, the government would also be taking the place of the original mortgage lender vis-à-vis the borrower. The mortgage liability would not be forgiven, it would become a debt the homeowner owes to the government.

A homeowner who was current with his mortgage and paying on time could have the option not to participate in the program, or alternatively, could simply make the monthly mortgage payment to the government and the government would pay the lender.

If the homeowner was financially unable to make the required payments, the loan terms could be renegotiated. This would not have to involve forgiveness of the indebtedness for the approach to work (although that might well be a desirable feature of an actual homeowners assistance plan). Payment terms could be restructured to be more manageable for the borrower without changing the total loan value. For example, the monthly payment amount could be reduced in the present to what the borrower could actually pay, but set to increase gradually in the future as economic growth raises overall income levels.[2]

If renegotiation of mortgage terms to something the homeowner could afford proved impossible, it would mean that he did not actually have the financial capacity to purchase the house. At this point, the government could take over the ownership of the property (simply by continuing to pay the mortgage on it) and convert it into a rental unit. The homeowner's required monthly payment would then go down to the level of a normal rent for that house and locality.

This kind of financial arrangement would substantially reduce the number of foreclosures, evictions of families from their homes, and forced sales, with the attendant loss of value to the lender and the spillover damage to neighborhoods and communities. Losses in the real sector would drop, which would further reduce the stress on the financial system. The overall cost to the government of shoring up the financial system would be substantially lower than under a plan that did not address the ongoing losses in the real sector of the economy.

On the crucial question of how much such a large program would cost the taxpayers, in the end that would depend on how many new defaults there were, but it could be surprisingly little, considering the magnitude of the problem. In the unlikely scenario that no further defaults occurred once the program was in place, the government would simply be collecting monthly mortgage payments from homeowners and passing them through to the original mortgage lenders. This would be yet another zero-sum game contract with no gain or loss to the government at all. But realistically, we are in the current situation because a large number of homeowners can not continue making their mortgage payments at the current rates. If a mortgage were restructured without reducing the total loan value, so that the homeowner was able to pay the new amount, again there would be no economic loss. There would be a need for interim financing from the government, because cash outflow at the original mortgage rate would exceed cash inflow at the new level over the short run. But such financing would just amount to a bridge loan, that would be repaid over time with no overall loss.

There would begin to be a cost to the government only in the case where the homeowner could not even make the reduced payments on a restructured loan, and the house was turned into a rental property. The rental income would cover a portion of the ongoing payments to the mortgage lender, but not all. Because those payments include amortization of the loan principal, the government would be building up equity in the house over time. But the government should not be in the business of being a landlord over the long term, so those houses would eventually be sold when the housing market had stabilized enough that it was safe to do so. At that point there would be a loss if the sale of the house did not bring in enough to pay off the balance on the original mortgage. It is not possible to know at this point how much that would amount to in dollars (there might even be a profit), and the answer would depend a lot on the extent to which the program had allowed house prices to stabilize at a reasonable level.

CONCLUDING COMMENTS

I have suggested a different perspective on the current financial crisis based on thinking about the financial system as a consolidated system. The key insight that allows us to take that perspective is that every financial instrument represents a contract with two sides, which functions as a zero-sum game. The whole financial system consists of a vast number and diversity of such contracts, but they all share this property, so we can aggregate them and think about the system as a single zero-sum entity without having to know about all of the internal details. Following this reasoning showed how the government could stabilize the financial system and also begin to deal effectively with the source of the problems in the housing sector. By operating on the source of the risk, a program like this would reduce the market's enormous uncertainty about the value of mortgage-backed securities and the banks and financial firms that own them, which is stifling the credit market.

Here are a few more insights with regard to the issues that are currently being debated that we can draw from the "view from 20,000 feet up."

Even the most intricate financial derivatives are a zero-sum game. This means that it is not possible for a firm to lose $1 billion on them without that $1 billion showing up as a gain to the parties on the other side of those contracts. Lehman Brothers may have taken a big hit on credit default swaps, but this saved Lehman's counterparties from taking that hit themselves. Looking at the losses without considering the corresponding gains ignores half (the good half) of the full story.

Risk, and losses from that risk, arise in the real economy and must be borne by someone. The financial system does not create risk, it just distributes it. This means that if we were to decide, as a regulatory measure, that "toxic waste" mortgage-backed securities should be banned, we are inherently also deciding that other mortgage-backed securities have to become more risky, because they would have to take back the risk that had previously been transferred to the toxic ones.

The financial system will remain under extreme pressure as long as new losses are being generated in the real economy. Moreover, the losses that have already depleted the capital available to the financial system have reduced its ability to channel credit from investors to borrowers until more capital flows in.

Most important: The nation is angry. We can see, in retrospect, that excessive risks were taken; excessive compensation was paid to those who took those risks; people took out mortgages and bought houses they could not afford, encouraged by lenders who should have known better; and there is much blame to go around for the mess we are now in. But we must not allow an understandable desire not to let greedy schemers off the hook distract us from dealing seriously with the crisis. If we let portions of the financial system break down through misunderstanding of how it interacts with the real economy, we will all pay a heavy price. And that price will be on top of the losses from the real sector that will continue anyway.

ENDNOTES

[1]For additional details, see other articles and materials that are available on my website: http://pages. stern.nyu.edu/~sfiglews/.

[2]Several alternative payment structures with the same economic value but a range of monthly payment amount in the early years are presented in a spreadsheet on my website at http://pages.stern.nyu.edu/~sfiglews/.