| seven |

Financial Weapons of Mass Destruction

To FINANCIAL ENGINEERS, CDO derivatives are gorgeous. They can be twisted and turned into a million tantalizing shapes. One beauty is called a "CDO squared." You've got a bunch of high-risk CDO equity tranches that just aren't selling. So what do you do? You make more wine. You pour all those bottom-tranche glasses into a new bottle. Then you create another upside-down pyramid of glasses, and sell them, with your wine pouring, from the top down. (The idea is to gather up hundreds of bottom-tranche wine glasses from many different CDOs, so that you'll have enough wine for a new bottle. In theory, they shouldn't all go dry at the same time.) With a little bit of guile, luck, and some fancy mathematical modeling that befuddles the all-too-willing rating agencies, you've created a high-rated, highly marketable new set of senior tranche securities—all based on the junk of the junk.

Pretty cool. But what if you can't sell all the bottom tranches of the CDO-squared securities? You guessed it. You form another pool of those untouchables—called a CDO cubed—and tranche away again. If you're not too tipsy, let's walk slowly through this winery. You started by taking the *bottom* glasses of wine from many CDOs and pouring them into a new bottle. Then that bottle of risky CDO wine is used to pour a new upside-down pyramid of glasses—your CDO squared. Then you take the bottom glasses of many CDO-squared pyramids and pour these very, very risky glasses of wine into a new bottle that fills up yet another upside-down pyramid of glasses—the CDO cubed. Anyone buying this stuff is either very drunk or nuts or both. (Fortunately, there are very few cubed CDOs.)

But the real wizardry comes with the addition of one more incredibly seductive derivative: the credit default swap (CDS). (Dear Wisconsin: This is the critical component of the garbage they sold to your school districts.)

Credit default swaps. Warren Buffet called them "financial weapons of mass destruction." Attach them to your CDOs, spew this potion of toxic tranches all over the globe, and presto: The crash of 2008.

Credit default swaps were added to CDOs to solve a specific financial problem—the time and effort it took to form a CDO, called the "ramp-up." To form a regular CDO, you have to get legal title to the one thousand or so subprime mortgages (or credit card debts or car leases or corporate loans or bonds). This takes time and a lot of legal fees. You don't want to tie up your bank's money for three or four months. In that time, the financial world could turn against you before you can unload the tranches. There must be a faster, simpler way.

There is. The particular swap that solves this problem is viewed most clearly with corporate bonds, the heart of the swap market.

Corporate bonds are in essence a loan to a corporation. You give the company money and it gives you a bond—a piece of paper that says they agree to pay you interest for a period of time. After that, you get your principal back in full . . . provided the company doesn't fold in the meantime. Each kind of corporate bond gets a risk rating (from the rating companies) based on the financial health and strength of the company. The lower the risk, the better the rating and the less interest the corporation needs to pay to attract investors to purchase its bonds. If the company goes bankrupt, corporate bondholders are first in line to get repaid from the remaining corporate assets. So bonds often retain considerable value even if the corporation goes under.

Now let's say you bought $100 million of Lehman Brothers bonds back in 2006 when they were high flyers on Wall Street. Even though these bonds seemed solid, you might have desired a bit of insurance, just to be sure. So you asked your friendly

banker to write you a credit default swap. For a fee from you (let's say $500,000 per year for five years—0.5 percent), you could buy full protection for the $100-million principal of your bond in case Lehman Brothers defaulted during that time. You're willing to pay it, even though it cuts into your interest payments from the bonds, because the credit default swap secures your principal entirely. It makes your balance sheet look less risky and helps your company maintain a good debt rating. You've transferred the risk through the swap to whoever sold you the insurance.

Why would someone else take on that risk? Because they are betting that it is unlikely that such a prestigious Wall Street firm would fail, and the $500,000 per year in fees they would collect from you seemed adequate to cover that small risk. And besides, the bank or other investor who is buying your risk gets these nice premiums without putting out any of their own money. That's a nice return. Everyone is happy.

It turns out that thousands of investors and institutions thought this type of hedging was a spectacular deal. The next step was to marry the credit default swap and the collateralized debt obligation into a *synthetic CDO*—precisely what the Wisconsin folks bought.

The first synthetic CDOs were invented in 1997 by Bill Demchak and his group at JPMorgan. They were searching for a way to protect their bank from the billions of dollars in outstanding loans they had made to their traditional customers—other large companies, banks, and foreign governments. They didn't want to sell the loans because that might upset their customers who had long, established relationships with the bank. So Demchak and his group invented a way *to get rid of the risk but not the loans*. They set up a pool of credit default swaps on three hundred corporate loans that JPMorgan held. Those swaps, not the loans, were put into a special-purpose vehicle—a kind of bank account held separately from their books, often in an offshore bank. JPMorgan paid insurance premiums into that vehicle. They tranched (sliced) that vehicle into securities and sold them to investors. Those investors, not JPMorgan, were on the hook

for any defaults in the pool of three hundred loans (worth $9.7 billion) JPMorgan held. The first offering in December 1997 was called the Broad Indexed Secured Trust Offering (nicknamed "Bistro"). It was a stunning success. The tranches were gobbled up in two weeks by insurance companies and banks. Soon the method was copied throughout the financial industry.[1]

"Bistro" and credit default swaps solved the problem of having to assemble those time-consuming, cumbersome, and costly CDO pools composed of real mortgages. Why? Because a CDO made up solely of swaps can be created instantly. With the help of complex computer modeling, you could design the swap-insurance payments so they more or less mirrored a regular CDO pool of mortgages that already existed elsewhere. Your swap-enabled CDO (the synthetic CDO) would be sliced into tranches and would return the exact same income as a regular CDO that contained real subprime mortgages or other risky forms of debt. You've just doubled the number of securities without creating any new pools of mortgages.

This is the heart of fantasy finance. It's also the hardest part. So let's slow down and take this step by step.

Imagine that you're a banker and your bank already has a $200-million portfolio of subprime mortgages. You are worried that some of these risky mortgages might go under. You want protection. And you'd like to make some money through some fancy financial engineering along the way. Here's one way to do it. (To simplify things we'll put the wine glasses away and only create two tranches.)

Step one. You set up a big bank account (your Special Purpose Vehicle) somewhere where the weather is warm, the beaches are nice, and there are no pesky regulations and taxes—like the Cayman Islands.

Step two. You entice investors to put money into that account so that it equals the amount of protection you want on your subprime mortgages. In this case you'd

like investors to put $200 million into your beachside account. The rules that govern the account are: If any of your bank's subprime mortgages default, you are permitted to take money out of the account to cover those losses. The bank account is your insurance fund. You no longer have any risk to worry about.

Step three. Your only problem is to find a way to entice investors to put all that money into your account. Unless you're Bernie Madoff, you have to give them something real in return: money. So, you agree to pay a certain amount into that account every three months, just like you were paying insurance premiums. But of course you want to keep those premiums down. So you need to give your investors something else as well: various amounts of risk and various amounts of return. You give some of your investors *more* money if they are willing to gamble, and *less* money if they don't want to gamble. (You don't increase your overall premium payments. You just give out your total payments to your investors unequally.)

Step four: You give them various combinations of money and risk by setting up tranches. The investors in the top tranche are the *last* to lose their money in case you have to raid the kitty to cover your subprime mortgage losses. The bottom tranche investors are the *first* to lose their money if you have to confiscate it. To make that arrangement attractive you give the bottom-tranche investors proportionally *more* of your insurance payments so they get a very high rate of return. (You can afford to do so because there are only a few securities for sale in the bottom tranche.)

Step five: You temporarily invest the $200 million in the account in very, very safe treasury bills, bank notes, and money-market funds. This contributes to the interest payments that will go to the investors.

Step six: You then toast everyone involved, especially yourself. You have set up an account that is full of hard, cold cash (and very liquid, safe investments) held near a warm, sandy, unpatrolled beach. You and your bank can sleep soundly knowing that the money is all yours if you need it to cover losses should any of your mortgages default. You now have rock-solid investments on your books. In exchange, you have to put insurance premiums into that beachside account for your investors, but those premiums are much lower than the interest payments you are getting from your subprime loans. You're in the money and it's insured.

Now let's see why everyone involved likes this arrangement. The top-tranche investors are happy. They put money into your account and got a decent rate of return from your premiums. But they are the last to lose their money if you tap into the account to cover defaults. They sleep well because they have very little risk, but still a good return. In fact the rating agencies said this kind of top-tranche investment was AAA.

The bottom-tranche investors who put money into your account are happy too, but in a different way. They are happy like a gambler with an adrenalin rush—one who anticipates getting a big payoff at the gaming table. They know the money they invested could be lost to you should the housing market go sour, but they are getting a very high rate of return right now. They are betting that if the investment lasts long enough, they can get back much more than they invested, before something bad happens and you take some, or all, of their investment away.

And of course, you, the banker who dreamed it all up, get a very nice bonus. You get hefty fees from the money that goes into the account for putting the deal together, for setting up the account, for selling the investments, and for managing the whole shebang.

All of this happens without buying or selling any of the underlying

mortgages. No time or money had to be spent assembling a new pool of mortgages. This is hall-of-fame financial engineering.

This was also the kind of "exotic and opaque" investment that was sold to the Wisconsin school districts. Without knowing it, the Wisconsin Five bought a tranche just one small step above the gambler's tranche. They didn't even get the upside of the gambler's payoff that should have come with it. (But they sure got the adrenalin rush when they started to lose.) They were putting money up to insure very risky debt held (or bet upon) by the Royal Bank of Canada (RBC). For accepting such risk, their rate of return should have been awesome—that's the upside. Instead the banks and investment brokers took very high fees and gave all the downside—the highest risks—to the school districts. As the default rate moved closer and closer to the school districts' tranche, the value of the schools' $200-million investment plummeted to next to nothing. Any day now, the default rate will hit the point that triggers the release of the $200 million to the Royal Bank of Canada. And since the school districts had borrowed $200 million to place that bet, they will still owe that too as well as the interest payments. They might have been better off investing with Bernie Madoff.

Now please hang on as we take one more bewildering step into fantasyland. In our example, we created a new security that insured a pool of debt your bank actually owned. But that's not entirely necessary. You could set up a synthetic CDO based on a pool of loans that *you didn't own at all*! You can go through all the steps outlined above *as if* you were insuring something real. But you, the derivative dealer or packager, don't need to actually own the underlying junk debt.

Say what? How can a banker or anyone else write a credit default swap on a mortgage they don't own? The answer blew my mind. Two parties can agree to write a swap on anything. Owning it is irrelevant, just like you don't have to own a real baseball team to play fantasy baseball. Unlike regular insurance policies that must conform to laws and regulations, you can use

unregulated credit default swaps literally to bet on someone else's bonds or loans or mortgages or assets that neither you nor your betting partner (called your counterparty) own. It's as if a thousand people were allowed to buy fire insurance on your house. What's at stake is essentially a bet: Is the house going to burn down, or not? Is the bond going to go into default or not?

Since this is fantasy finance, let's pretend you are the Royal Bank of Canada. You could sell a synthetic CDO to the Wisconsin school system that was nothing but a series of bets on bonds or mortgages that neither the RCB nor the Wisconsin schools owned. You are literally placing a bet on something you can observe (the baseball game) but don't necessarily own (the real major league players). If the bond or mortgage you are referencing goes belly up, Wisconsin has to pay you. If the referenced assets do not default, you, the RCB, pays insurance premiums to Wisconsin.

Now let's get back to reality, which is stranger still. As of this writing, the lawyers for the Wisconsin Five still do not know what the school districts actually insured. They're not even sure if they insured something that the RCB owned, or whether they just were part of a bet in which neither the schools nor the RCB owned the bonds or debt that were insured. The entire $200 million may have been simply a bet on a pile of junk debt that neither party owned. And you wonder why the financial system collapsed?

One more time: You can make a wager on any asset that you can observe. You don't have to own it. As a result you can set up a giant set of tranched securities without owning the underlying assets. And you can sell those tranches to investors—and make fees from selling them. Welcome to the very heart of fantasy finance.

Fantasy baseball really does provide an apt analogy. The value of synthetic CDO tranches is based on the value of mortgages or credit card debt owned by someone else, just like the value of your fantasy baseball team is based on players under contract by

the real major league teams. Fantasy baseball is a synthetic derivative that operates "on top" of real baseball. It has financial value because you're willing to bet on your fantasy baseball team, and everybody in your league is willing to bet on their own derivative teams and against yours.

Miraculously, synthetic CDOs are not limited by the supply of mortgages or bonds that are assembled within pools. One pool of actual subprime mortgages can prop up many sets of securities. First, you can set up a CDO that you tranche and sell to investors where you actually are selling real slices of those mortgages. Then you can set up multiple synthetic CDOs based on credit default swaps (insurance) on those tranches you already sold. This increases the number of securities that can be sold, based on the same set of mortgages. It also amplifies the fat fees for the creators and brokers. And it multiplies the risk to the financial system. If something goes wrong in the underlying pool of junk debt, multiple synthetic CDOs can simultaneously crash in value.

All of these synthetic CDOs are playing "on top" of those mortgage pools just like in fantasy baseball. In real baseball, all we have are the thirty teams in the American and National Leagues. But there are tens of thousands of synthetic fantasy baseball leagues that play using the statistics of the real major leagues. (Some estimate that right now there are fifteen million of us playing fantasy baseball.) So too in fantasy finance: There's no limit to the number of synthetic CDOs that can, in theory, be created . . . assuming there are those who are willing to pay premiums for the credit-default-swap insurance and those who are willing to buy the tranches formed around those premiums.

And it doesn't stop there. Credit-default-swap insurance also is a tool that can make high-risk equity tranches much more desirable. Toxic tranche buyers might want to hedge some of the risk they are taking on. Having too much of it on your balance sheet might make the credit rating agencies look askance. Credit default swaps allow you to remove the risk entirely (which is

what the Royal Bank of Canada might have been doing with the Wisconsin school districts). During the housing boom, financial institutions (primarily investment banks and insurance companies) wrote swaps with the owners of equity tranches. For a period of let's say five years, the investment bank would insure the equity-tranche owner so that she would not lose her principal—in return for quarterly payments, just like an insurance policy. The equity tranche owner would continue to collect the high interest payments you'd expect from a risky investment, but in effect would share some of that risk and interest with the swap counterparty, which insured the principal.

In a very real way, credit default swaps enabled anyone to hedge their bets for any security at any time, in any place in the world. Anyone could unload some or all of their risk, or so it seemed. It worked beautifully—as long as everyone could pay their bets if the bonds or tranches ran into financial trouble. You can see why Greenspan admired the guile and genius of the derivative designers.

We now have the tools to explain how $300 billion of subprime and "Alt-A" loan losses could do so much damage. During the housing boom, synthetic CDOs greatly expanded the number of tranches that were sold all over the world. And credit default swaps increased the market for the toxic-waste tranches by insuring them. In fact, the subprime assets were referenced again and again in multiple synthetic CDOs. This more than *tripled* the $300 billion worth of subprime and Alt-A losses into a trillion dollars of losses on CDOs backed by risky housing debt. If we include the full range of CDOs backed by corporate, consumer, and housing debt, the estimated losses climb to about $1.6 trillion. Of that, our banks have suffered about $500 billion in losses on the CDO-type assets that they held on to. Combined with losses on more standard loans to corporations and consumers, the U.S. banking system has piled up about $1.7 to $1.8 trillion

in losses, as of February 2009.[2] And that's just the banks. Other financial institutions, such as insurance companies, hedge funds, pension funds, and sovereign wealth funds, have been hit with similar losses. Financial engineering, like the sorcerer's apprentice, turned a bucket of polluted water into a toxic tidal wave.

Because this is so key, let's repeat it. Synthetic CDOs allowed the banks to sell layer after layer of securities based on the same underlying junk debt. Here's another analogy: They were able to sell the Brooklyn Bridge again and again (but that doesn't do justice to the bridge, which at least is solidly constructed). This process of selling multiple securities based on the same debt again and again turned a $300 billion subprime mortgage problem into a multitrillion-dollar fiasco.

While the subprime and junk-debt markets boomed, these banks and insurance companies were making enormous profits by selling and reselling securities based on the same risky debts. But the risk was amplified if something went wrong with the pool of subprime mortgages or bonds that ostensibly underlay all this betting.

Fantasy baseball fans will have an intuitive grasp of this danger. What happens to the tens of thousands of fantasy baseball leagues if the real major leagues go on strike?

This kind of fantasy finance would be relatively harmless if it was really like fantasy baseball—a form of gambling that doesn't change real baseball. Unfortunately, fantasy finance actually affects the underlying economy—even though neither the party who pays the premiums nor the counterparty who insures, owns the tangible asset that they're betting on. It's as if my fantasy baseball team could cause Yankee steroid star Alex Rodriquez (A-Rod) to have a good or bad year.

We can see some of the real-world consequences of credit default swaps by comparing them to home and life insurance. If you own your house, you usually take out fire insurance, just

in case. And since you want to protect your family, you also are likely to purchase life insurance. Now imagine that someone you don't know also takes out fire and life insurance polices on you and your home. Why would they do that? You might start to worry that this mysterious insurance buyer was just waiting for your house to burn down with you in it. After all, they're paying good money for the chance to benefit from your misfortune.

Now imagine ten thousand people taking out fire and life insurance on you and your home. It would not come as a shock if someone tried to torch your house—after checking to make sure that you were at home. Or maybe these investors are just biding their time, essentially speculating that since you do seem to be getting on, you might just keel over before too long. So they bought the policy now while it's cheaper and hope to sell it later for a higher price if you're still alive by then. They're merely gambling on the odds of your survival. Small comfort.

Of course the regulated insurance industry knows that this would be bad for business. They understand that if ten thousand people take out fire insurance on your house, they will soon be asked to pay ten thousand claims because of a suspicious fire. So to get fire or life insurance, you have to have a material interest in the asset insured.

Not so with credit default swaps. You and I could get together to create an insurance swap on $10,000 worth of Corporate X bonds that neither of us own. You might be willing to insure those bonds if I gave you $1,000 up front and another $500 per quarter over the next five years. If Corporation X goes bankrupt or gets bought out or restructured (we must agree on the list of trigger events), you'd have to make sure I get the difference between $10,000 and what the bonds fetch after default. There are forms we can fill out that detail this bet—and a bet is exactly what it is since neither of us own any Corporation X bonds.

As of this writing there is an enormous swap market for this kind of corporate bond insurance. Trillions of dollars' worth of swaps are out on the bonds issued by developing nations and

major corporations. Take General Motors: Some estimate that $1 trillion worth of GM swap bets are on the table right now.[3] (Other estimates are much lower, but no one knows for sure because the swaps are unregulated.) These are essentially bets about whether GM bonds will sink into default or swim. The vast majority of the swaps are among parties who don't even own GM bonds. They are just speculating on GM's demise. As of December 2008, GM was in such sorry shape that if you wanted to bet on the demise of $10 million worth of GM bonds over five years, you would have to pay your counterparty $8 million up front plus $500,000 per year.[4] Had you gotten into this action in 2005, your insurance swap would have cost only $304,000 up front and no yearly payments. That means your 2005 swap has greatly appreciated in value. You could now resell it for a sizable profit, assuming you could find a buyer. (In fact, these swap "spreads" are used by investors to gauge the risk of a company.)

Once credit default swaps are severed from real ownership of the underlying asset, the sky's the limit on what you can insure. For example, if you own shares of GM you might want insurance in the event that overall car sales go below a certain number per month. Enron, in fact, had a very profitable line of derivatives for agricultural firms and airlines that wanted to insure themselves against weather events. Some enterprising derivative dealer would be glad to help you find the perfect set of swaps to meet your appetite for hedging risk . . . and for outright gambling. And with each deal, the derivative dealers get a nice fee.

Right now the face value of all the swaps that exist around the globe is estimated at over $70 trillion—about four times the value of the entire U.S. economy. Some reports claim that's a vast underestimate—that the real number is more like $600 trillion. Others say it's "only" $50 trillion. In truth no one knows because the swaps are not regulated. In any event, it is certainly the largest casino game in human history.

Until very recently, Alan Greenspan believed this swap market was a most wholesome phenomenon because it dispersed risk.

He saw that all the sophisticated players could and did hedge their bets. He believed such swaps actually limited the economic damage caused when companies like Enron and WorldCom collapsed, because so many of the bondholders were made whole owing to their CDS-insurance protection. Greenspan believed these swaps limited the domino effect that such corporate implosions could cause.

But there are major systemic problems that the former Fed chairman chose to ignore. What happens when one of the big gamblers can't pay off its debts? Bear Stearns and Merrill Lynch were among the biggest bettors. By September 2008, the Fed realized that if either company folded, a run of credit default swaps would be triggered, and the two firms would be unable to cover the swaps they had written. If they couldn't pay, it could undermine a string of institutions that in turn might go bankrupt, triggering wave after wave of credit-default-swap payments and bankruptcies. Instead of allowing Bear Stearns to go bankrupt, the feds facilitated and guaranteed its merger into JP Morgan. Merrill Lynch was preemptively sold to Bank of America. Credit default swaps had connected these failing companies to thousands of critical nodes in the global financial system. (Since the bonds of these companies did not go into default, many of the insurance swap bets didn't have to be settled.)

We should be getting a sense of what was wrong with Greenspan's blind faith in unregulated markets—and with Congress's blind faith in Greenspan's "oracle" abilities. When the financial system was in decent shape, dispersing risk through unregulated default swaps seemed like a grand idea. The swaps seemed to create stability when a few corporations went under. But when the financial world experienced a more systemic problem—like the amplified collapse of the housing market—the credit default swaps started to turn toxic. Rather than dispersing risks, the swaps ended up twining them together, forming an intricate web that circled the globe. And so the collapse of even one large counterparty could bring down many corporations and cripple the world economy.

Nevertheless, Robert Pickel, head of the International Swaps and Derivatives Association (the trade group representing the major swap players), is in denial. As he told a Senate committee on October 14, 2008, "To say that [credit default swaps] were the cause, or even a large contributor, to that turmoil is inaccurate. . . . There is little dispute that ill advised mortgage lending, coupled with improperly understood securities backed by those loans, are the root cause of the present financial problems."[5]

Pickel is in a pickle. He, of all people, knows that synthetic collateralized debt obligations powered by credit default swaps drove the subprime housing market and enabled financial institutions to sell toxic waste securities all over the globe. He must know that credit default swaps created layer upon layer of leveraged securities based on high-risk mortgages and other debt. CDSs are at the heart of the casino, Pickel is representing the house, and we should not expect him to warn us about the dangers of gambling.

If you feel things have gotten too technical, don't worry. We are returning to the fundamentals. To understand derivatives, we need to figure how money is made. Since it's all about money-making-money, let's look at how credit default swap sellers get rich.[6]

Let's say you're an enterprising derivatives trader at a big insurance company or investment bank. You learn that one of your clients is taking a $500-million bond position in Corporation X. You know they would like some protection in case Corporation X develops problems down the road. So, as an enterprising trader you offer to insure that very large investment through a credit default swap. In return for a ten-year guarantee, your firm will receive a fee of $12 million up front.[7] Nice work!

Wouldn't it be nice to book all of it as profit? Imagine your bonus. Unfortunately, even the most pliable accounting rules can't let you get away with that. Sure your firm can keep the

money, but unfortunately it has to set aside some of the revenue to cover the risk. Needless to say, you, our enterprising derivatives dealer, want to set aside as little as possible. But there are a few rules of risk management that you must follow.

Here's a simplified model that you and your company might use to evaluate how much you have to set aside to cover risk. First you have to estimate how much the $500 million in Corporation X bonds would be worth if the company went bankrupt. The firm's financial statisticians check on the history of firms with ratings like Corporation X to determine that number. They discover that for a company like Corporation X, you are likely to reclaim about 50 cents on the dollar. So that means your firm actually is risking only $250 million (50 cents on every dollar of the $500-million investment). For profit-and-loss purposes, that should be the most your firm can lose for insuring Corporation X's bonds.

Next, we'll figure out a second risk that cuts in your favor: What's the likelihood that Corporation X will actually default in the next ten years? Your trusty financial number crunchers determine that only about four firms out of a hundred like Corporation X have defaulted over the last ten-year period—making for a 4 percent chance of default. That probability then gets turned into a dollar figure. So we multiply this risk by the amount of money at stake:

$$\$250{,}000{,}000 \times 4 \text{ percent} = \$10{,}000{,}000$$

Our statisticians and accountants now agree that it would be prudent to say that by insuring the original $500 million in bonds for ten years, the odds are you're on the hook for $10 million. So for accounting purposes, you must set aside $10 million of your $12 million in fees as reserves. The difference—$2 million—is your profit. Hallelujah!

But what's two million when you have to share it with your bosses? Can't we milk this baby for more? Sure we can. And it's not hard. To double our profit, all we need to do is tweak our risk

assumptions just a little bit. Who among us wouldn't be tempted by such a prospect? After all, much of this is just guesswork. All we have are the odds.

Here's how we tweak. We have two risk numbers: how much we can get for the bonds during bankruptcy, and the chance of bankruptcy. We go back to our statisticians and we have them review it again. Lo and behold, with a little nudging from you (since they get bonuses too), they find that you can expect 55 cents on the dollar rather than only 50 cents. With this recalculation, we find that we're only risking a total of $225 million, not $250 million. We've knocked off $25 million in potential liability.

Next you take a more careful look at the default rate. You decide that the 4 percent was just a bit high, so you plug in 3.55 percent—because doesn't that seem just a bit more accurate? The stat guys say, "No problem, it could be 4, plus or minus a bit, so 3.55 percent looks okay to us."

You've made two very small changes and watch what happens:

$225,000,000 × 3.55 percent = about $8 million at risk

You took in $12 million in fees. Your risk is estimated at $8 million. You now can book a $4-million profit instead of a $2-million profit. A little number jiggling and you've doubled your profit.

Imagine for a moment the incentives for such behavior. If you can jiggle, so can your competition. In fact, maybe you won't get the business at all unless you shave those points. Your whole job is at stake. As one CDO Web primer put it:

> Ah, competition! Competition is where the process starts to get interesting over time. Competition for credit derivatives business, for these easy profits, means that you and others in your company have powerful

personal incentives to make aggressive assumptions about how low credit losses will be, and to validate your co-workers' assumptions as well. If your assumptions are not aggressive enough, you don't win any business, you don't earn bonuses, your bosses don't earn bonuses, and you are quickly out of a job.

The institutional culture then very quickly becomes that if you want to keep your job—you and the other members of your group make aggressive assumptions. If you want to make big bonuses—you make very aggressive assumptions about how low the losses will be on the credit derivatives, which then translates into increased business for you. And yes, other people will need to sign off on your group's assumptions—but they are in the same institutional culture as you are, with their own personal reward systems that are based on the company making money. Also keep in mind that even the internal (theoretical) watchdogs are put in place by senior management, who have their own incentive structure, which is based on the company making lots and lots of money this year.

In a free market, where all the employees and senior management of all the financial firms want their piece of this lucrative action, the first thing that happens is that the firms with aggressive assumptions keep the firms with conservative assumptions from getting any business. And then, because we have competition going on here, in the next stage of the cycle, the very aggressive assumptions firms take the business from the merely aggressive assumptions firms. Then in the next cycle, the people making the very, VERY aggressive assumptions take the business away—and the bonuses away—from the merely very aggressive assumptions makers.[8]

Okay, Okay, we get it. To make higher profits and bonuses, these guys have to take on more and more risk. Why should we care?

We care because the more they cheat on their reserves, the greater the odds that they might default on their bets, which will lead others to default and so on until you've got the makings of a full-fledged disaster.

Think about it this way. Since there is no regulation at all, it is possible—even probable—that the financial company in the previous example that "earned" the $12-million fee will decide *not* to keep that $8 million in reserve at all. Why should they? They could invest that money elsewhere or loan it out. As a result, the institution may have no reserves at all behind the insurance they write and book. That makes the policy—the asset—practically worthless—an IOU without backing. If the economy is growing, no one cares too much. But what if the IOUs come due?

Here's a recent real-life example, the collapse of the banking system in Iceland, which had overextended itself all over the globe. The meltdown is awful for the Icelanders, but it's also a drag for the entire world financial system. Why? Because it turns out that Icelandic bonds are part of a great many synthetic CDOs. (That's because there are only about eight hundred corporations and countries whose bonds you can bet on. So the same bonds have to get used again and again.) According to Reuters, "Out of 3,771 synthetic CDOs rated by Standard & Poor's Corp. globally, 9 percent have one Icelandic bank name, another 9 percent have two and 14 percent have all three."[9] In other words, synthetic CDOs all around the world have insured the same Icelandic bonds, again and again. As these bonds go into default, the synthetic CDO tranches based on them will lose their value because they will have to pay up on their insurance claims. (How much they have to pay up depends on the value of the Icelandic bonds after bankruptcy.[10]) And we can be certain that the traders who created those synthetic CDOs also jiggled the odds in their computer models to minimize the risk, accelerating the crash in the value of all the tranches. The

holders of those tranche securities will see their value plummet, which may put their own firms in financial danger, triggering yet another round of credit default swaps coming due . . . and so on.

Why should the dominos keep falling? The problem goes right back to those risk models. All of them were based on good-time assumptions—on the historical record of failures. But that record doesn't go all the way back to the Great Depression. Sometimes it doesn't go back any further than the go-go 1990s. The models didn't account for a major recession or a housing market collapse or any other catastrophic event. The jiggling all happened in the other direction.

Let's go back to our banker who trimmed down the odds. He got his bank to insure $500 million in Corporation X bonds, and used 55 cents on the dollar for what the bonds would likely be worth in bankruptcy. The chance of default was supposed to be 3.55 percent. Well, now the bonds are in bankruptcy. Had the analysts gone back further in time they might have used much higher odds, and therefore set aside larger reserves. Too late now. The bonds are in default. If those had been Lehman Brothers bonds, they only would be worth 8 cents on the dollar after default. That means the bank owes 92 cents on every dollar it insured for a total of $460 million out of the $500 million. But our banker had only taken in $12 million to insure those bonds (and $4 million was booked as profit and has long since vanished). His company is now out $452 million on the deal ($460 million minus $8 million in revenues after booking the profits). Ouch!

Firms everywhere were writing default swaps on each other thinking they were cleverly spreading the risk around. They thought they were laying off their bets (that is, selling the risk to others) and booking the profits. But by 2007, economic reality started to sink in. Nearly all the risk models turned out to be wrong. So instead of being on the hook for a few million dollars as the models predicted, they're actually expected to pay claims on firms like Lehman Brothers or Iceland or equity tranches that had gone belly-up. All of a sudden they're out billions: real

money. All the big players in the credit-default-swap market—banks, insurance companies, hedge funds, large corporations—are looking at the possibility of huge losses now that they are being forced to align their models with reality.

Here is a chilling observation: It is possible that all the profits they booked and took home with them to their Caribbean retreats were phony. Those supposed profits have actually evaporated into billions of dollars in losses. Nine of the largest U.S. commercial banks have already seen their gains over the past three-and-a-half years disappear. On October 17, 2008, the *New York Times* reported that profits for these banks "from early 2004 until the middle of 2007 were a combined $305 billion. But since July 2007, those banks have marked down their valuations on loans and other assets by just over that amount."[11] A few weeks later, Fannie Mae reported losses greater than all its profits since 2002. So did AIG.

Let's pause to consider what those numbers imply. The nine largest banks pulled in $305 billion in *profit* over three and a half years. Fannie and AIG pulled in another $50 billion or so. Those profits paid for shareholder dividends, massive year-end bonuses for the elite traders and deal makers, enormous compensation packages for the top officers, and solid gold parachutes for the departing ones. Much of that money is no doubt tucked away in myriad assets, investment accounts, offshore tax havens, and the like. Yet all of the profits that luxuriously funded those compensation packages have vanished. You can take it to the bank that no one is going to voluntarily return his cut. Instead, you as the taxpayer are now shoveling those banks out of the hole.

And it gets more outrageous. Assume there's about $70 trillion of swaps out there and that a modest one-tenth of 1 percent fee was collected for writing them. That means the financial dealmakers may have already walked off with $70 billion in fees. That money is gone. What isn't gone is the $70-trillion liability. If more major companies default or are restructured, triggering

the default provisions of the swaps, the collapse of the CDSs will deepen. And if the counterparties can't pay, there will be enormous pressure for Uncle Sam to come in. Yet again.

As anyone without free-market blinders can see, you can't pin the derivative problem on Fannie, Freddie, or low-income marginal buyers. CDOs and CDSs were born and bred deep in the heart of our unregulated, free-market, over-the-counter derivative markets. These derivatives drove the market for subprime lending by turning junk mortgages into triple-A bonds, and they created a web of risk ensnaring the entire financial sector, and the rest of the economy along with it. These instruments are so complicated and opaque that no one but their creators can understand them (and maybe even they have not understood them thoroughly enough). Complex modeling and assumptions could be tweaked to fool rating agencies and investors. And the world was soon littered with toxic-waste securities that were supposed to be safe and sound . . . but are not, and never were.

We now have identified the largest components of the current crisis.

- *Collateralized debt obligations*, and their myriad tranches, made the sale of toxic mortgages respectable. They miraculously turned subprime mortgages into AAA-rated securities.
- *Credit default swaps* enabled the creation of thousands upon thousands of synthetic CDOs that were based on the same underlying pools of subprime mortgages (as well as other risky items, like credit card debt). This greatly multiplied the number of securities based on the underlying risky debt.
- Credit default swaps also *insured the riskiest toxic-waste tranches*, making them more attractive to investors.

- And finally, swaps linked together thousands of firms so that *a major failure of a few could paralyze the entire system.*

This helps us make sense of what the government was trying to do in the fall of 2008. The banks had a lot of toxic waste on their books—as well as hidden off their books through offshore special-purpose vehicles. At first, the government said it would dispose of that waste so the banks could stay solvent—that is, spend billions to buy it from them. Then it decided that wouldn't work, so instead they would inject large amounts of money into the teetering banks. The feds also had to protect large companies like AIG, Fannie, and Freddie, and merge away others like Bear Stearns and Merrill Lynch to keep the dominos from falling. Had the feds not intervened at all, it is likely that hundreds of banks and financial firms would have rapidly gone under. Then, we'd be staring straight into another Great Depression.