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Transformation and Evaluation of Credit Risk

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The collateralized mortgage obligation market brought us creative ways of carving up mortgage prepayment risk. Then the inclusion of nonagency collateral introduced credit risk. Over the past few years, the evolution has continued with more extensive credit tranching utilized in collateralized bond obligations, collateralized loan obligations, and credit derivatives. This session explores what's out there.

Mr. Prakash A. Shimpi: Gus Harris is with Moody's Investor's Services where he rates collateralized bond obligations (CBOs), collateralized loan obligations (CLOs), and mutual funds. Following Gus will be Pat Wilson from Allstate Life Insurance Co., who is a portfolio manager and division head for private placements and bank loans. And rounding out our panel is Chris Anderson from Merrill Lynch. He's a

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specialist in investments by insurance companies and works very closely with chief investment officers (CIOs) in the insurance industry.

I happen to be the token actuary on the panel, but have never worked as an actuary. I've always worked in financial areas and am currently with Swiss Re new markets.

Mr. Gus Harris: The basic concept of a CBO/CLO is to amass a group of assets—typically speculative grade bonds and loans—into a trust and finance those assets through the issuance of senior notes and equity. What supports the senior notes is the cash flow. The cash flow from the assets is being used to pay the coupon on the senior notes, and then the excess cash flow will be paid out to the equity holders. Typically, what you see on the senior notes is two tranches, an AA2 tranche and a BAA3 tranche, yielding a London Interbank offered rate (LIBOR) of +40 points and LIBOR +120, +150. The equity returns are typically in the 15–20% range, if everything goes very well.

The important factor in terms of the assets is the average rating of those assets. Obviously, the better the rating, the better the credit quality, and the less subordination the notes need. The higher the coupon, the better the notes would perform. Another factor we look at is the diversity. Is our pool of assets diverse? Is it concentrated into one issuer, a couple issuers, or a couple industries?

Moody's estimates the rating of one of these structures by using the "expected loss" concept, not the "probability of default." Expected loss compares what the investor is promised to what is actually paid out. It's a more reliable measure than probability of default because it not only gives you the probability of losing money, but also estimates how much money you're going to lose.

The most common type of assets that we find in CBOs and CLOs are speculative-grade, high yield "junk" bonds. In 1988, CBOs were first introduced into the market, and I'd say more than 60% or 70% of the current structures are comprised of bonds. Over the past couple of years, bank loans have become more common in these structures, especially now that banks throughout the world are trying to remove loan portfolios from their balance sheet and structure them into a CLO. You have these mammoth \$5-billion deals where a bank is putting all of its loans into a CLO and collecting the proceeds.

We're also seeing emerging markets bonds and loans. This has slowed somewhat since the meltdown last summer, but we're starting to see these trickle in a little more right now. Also, we see some synthetic securities, trade receivables, project finance, and other types of derivatives, which I'll briefly touch upon later.

Certain quantitative issues are extremely critical in our analysis. The first is the average rating factor. Since 1920, we have been able to quantify the probability and severity of default for a bond, given its rating. We've constructed a model based on that data. We look at the portfolio of assets and all the ratings of the bond to come up with an average rating for that portfolio. And to that average rating we could assign a probability of default, based on our history of Moody's ratings. What's the probability that each bond will default in that portfolio? Obviously the better the rating the less the probability. The rating factor is the number that quantifies the probability of default. Typically the CBOs/CLOs are in the B2, B1 range, which is very speculative.

The next factor is the recovery rates. Unsecured bonds have traditionally recovered about 50-55¢ on the dollar. Moody's uses a 30% recovery rate. Bank loans have recovered about 70-75¢ on the dollar historically. We use 50% in our modeling. Emerging markets assets is a fairly new rating class for Moody's, and we don't have a lot of data, so we took the high yield numbers and shaved that to 25% of par for sovereign assets and 10% of par for corporate assets. Bankers will tell you we're too conservative.

The reason we give the high yield bonds a recovery rate of 30%, compared to 50-55%, is that the standard deviation is about 25¢. So because of the uncertainty about what's going to happen in the next 10 years, we've taken a one standard deviation hit to the recovery rate. The same thing is true for bank loans. Twenty-five cents on the dollar is the standard deviation of the recovery rate on bank loans, so we move from 75%, which is the historical average, down to 50%.

With respect to the senior notes that are funding this structure, if the senior notes get rated lower, the less the rating the bank requires, the more we allow the recovery rate to move up. We inch toward 50¢ on the high yield side, and we inch toward the 75¢ from the bank side. But that happens only as the rating of the notes declines. If a bank asks for a AA2 on the liabilities that are funding the assets, we're going to use 30% and 50% recovery rates. If they ask for BAA3 credit, we'll go up to a 36% and 60% recovery rate. We inch up, but never hit the average, which is 54% and 75%.

Moody's studies have also shown that certain bonds and certain issuers are correlated in terms of their probability to default. In certain industries, especially for the speculative-grade issuers, when an issuer defaults, there's a good chance that someone else is going to follow. When we look at a portfolio of assets, we accumulate all of the assets by industry and assume that all of the issuers in a certain industry have a correlation of 30% of defaulting. By doing that, we transform a

portfolio of a 100 bonds or loans into one of about 30 or 35 because of the correlation and assign it a diversity score.

The minimum coupon is another factor we consider. If the bonds are paying about 9–10% and the loans that are funding the assets are paying about 6–6.5%, it's critical to maintain that spread. We want a high coupon, so, in the indenture, we impose a restriction on the collateral manager. This way, the coupon cannot fall below a certain level. We have comfort in knowing that if the coupon is 9.5% on day 1, it will not drop by a lot because the manager will be required to maintain the minimum coupon for the deal.

The timing of the default also must be in accordance. When a default occurs, if it occurred in year 1, 3, or 5, we use different types of timing scenarios to get a feel for just how solid the structure is under these different scenarios.

Once we have our diversity, we model the deal using a binomial expansion tree. We go through the indenture and see what the waterfall is. When money comes into the trust, there's a 15 step process. First it gets paid to the trustee, then to the senior notes, then to pay down the senior notes a bit, etc. We model all the waterfall provisions and then run the model with one default, two defaults, three defaults, all the way up to the number of diversity. If the diversity is 35, we run it up 35 times and get the loss at each scenario. Then we calculate an estimated loss for each one of the tranches you're being asked to rate and compare that loss to a benchmark based on an historical study of Moody's rated instruments.

Some CBOs start up with no assets. It's a shell, and all the noteholders' money is just sitting there to be reinvested by the adviser. Obviously, we don't want that. That's called the ramp-up period and typically takes between three and six months. The longer the ramp-up period the greater the risk that the advisor cannot invest these proceeds to get enough coupons, diversity, or rating scores. There's risk that the manager will not be able ramp-up adequately, so the longer the ramp-up period, the larger the ramp-up amount, the more strict we are on certain tests. We ensure that, at the end of a period of six months, there's a one month or two month test, so that we know managers are going toward a hurdle. If they don't make the hurdle, they have to pay down the notes and repay their investors. That is not a good thing to do these days.

Regarding the priority of payments, we go for the waterfall and model the whole deal. We want the senior notes to be first in priority with excess cash. We don't want equity holders being paid out while our senior notes are defaulting on their interest. Two tests that also provide comfort for the noteholder are the overcollateralization test and the interest coverage test. Basically if there's a lot of

default, the assets will fall below the liability. It will fall below some type of minimal threshold, which is typically above one. Once that happens, all cash is trapped into the deal and is used to pay down the senior notes. The equity holders do not receive anything else until the CBO gets back into compliance. So the overcollateralization test is critical with the CBOs and CLOs.

Other factors are caps and swaps. A lot of these deals have bonds as assets, but the liabilities are floating rate liabilities. Therefore, you have a mismatch—a fixed rate asset and a floating rate liability. The way the banks protect against this is that they add a cap or a swap into the deal to protect against a potential mismatch.

The collateral manager and the trustee are also important. We've had deals where we just walked away because we thought the collateral manager could not manage these deals, He did not have a good proven history of managing high yield bonds and loans. And we don't want managers trading the deal. If they're doing a good job, we'll allow them to trade, but once they start getting close to violating their tests, they cannot trade anymore.

The final structural issue is that there's no market risk because these are all cash flow deals. The cash flow that's being generated from the bonds is supporting the note. We are not relying on being able to sell these bonds at greater than par. That would be a market value deal, which Moody's also rates, but that's different from our cash flow deals.

In addition to analyzing the model we also have an attorney review the indenture and go through the issues that may exist. The key issues are:

- Bankruptcy remoteness. We want to ensure that the trust has full rights to these assets for the benefit of the noteholders and that no one else could come and claim these assets away from the trust.
- Subordination. We want to ensure that there's adequate disclosure in terms of subordination that establishes who has what rights.
- Review of legal opinions. We also receive legal opinions from independent council. The bankers will have an independent attorney both here in the U.S. and offshore reviewing the documents. And we will get a letter from them that the CBO is not a taxable entity. That's extremely important. If it's taxable, our coupon suddenly declines by about 35% or 40%. We want to make sure that all the documents—such as the swap and cap agreement and the management agreement—are enforceable. And, finally, with respect to bankruptcy remoteness, we want “true sale” and “perfected first priority security interest,” so we get opinions from counsel on those issues.

This is a pretty big market these days. As of 1988, we've rated 126 CBOs and CLOs with assets of \$70.5 billion. However, since the beginning of this year, we've rated approximately 35 deals with assets of roughly \$30 billion or \$40 billion. We plan on rating more than 100 deals by the end of this year and assets of over a \$100 billion. It is growing extremely fast. European investors love these instruments. You have the conversion of the currencies and interest rates are dropping. They're looking for yield and finding it in these instruments. And the spreads are very good for the credit rating that is assigned.

We monitor CBOs and CLOs by reviewing monthly reports and visiting the managers and trustees. We always reserve the right to downgrade should the manager mess up. We've actually downgraded at least one deal, and have a couple on our watch list.

There are several trends to watch in the market. Emerging markets assets are starting to trickle back in. If we did not have the meltdown last year, we would have had a lot of purely emerging markets-devoted CBOs. That did not happen, but we're starting to see buckets of emerging markets. These deals are getting synthetic bonds, trade receivables, and project finance deals. And the bank loan deals are extremely popular, too.

A lot of the bonds and loans that are put into the structures are not rated by Moody's and there's no public rating. In that case, we ask the manager to submit financial information on the issuer and we will go through a shadow rating process. It's almost the same as a public rating process. The only difference is that our analysts don't talk to the management of the company. So the group of the shadow rating process and we get an indicative rating for the credits. Even if they're not rated publicly, we will obtain an internal rating.

CBOs and CLOs are extremely unique instruments. But investors and people who are structuring and analyzing these deals need to be know that they're all different. You can't take one and compare it to another. There are many moving parts: asset liability mismatches, subordination, coupons, default rates, etc. The only way to understand these deals is to roll up your sleeves and start modeling—or at least understand the modeling implications. And that explains why they will not become standardized any time in the near future.

Ms. Pat Wilson: Transforming credit risk is not new. The granddaddy was “letters of credit.” I hate letters of credit because, once you try to use them, somebody sues you, so I'm not going to spend any time talking about them.

Insured bonds are the modern line insurers. For a company like Allstate, insured bonds are a big deal because we have a fairly significant municipal-bond portfolio. They've tried to make inroads into taxables, and been less than successful. They tried to get in prior to the real estate debacle and lost their shirt at it.

I'd like to spend more time on CBOs. We bought our first one in the late '80s. They have been around longer than that, but they've only become stylish in the last two years or so. In transforming credit risk, you also have asset-backed securities and have credit derivatives. I'll spend a little time on credit derivatives as well.

Transformation has its roots in investors wanting to minimize credit risk. This is sad when you think about it because all of us, including Allstate, got overexposed to credit in the '80s. We created this monster called "securitization" to take the risk out of the assets that you traditionally purchased. And a CBO is nothing more than taking that risk out and breaking it up into pieces so you can no longer eat the whole thing.

We've had regulatory and rating agency pressures. We are all very mindful of the fact that we need the yield, but we also need to make these capital requirements tests and win the beauty contest. And winning the beauty contest means that you're biased against the risk that fundamentally is where you make your money. That's a problem.

Also, the formulas force you into higher and higher credit quality assets. There's a big difference between being 0.3, 0.1, 4, and 9. That's not a good relative value basis to make your decisions on asset classes. Nevertheless, that's one of the constraints that we all live with. In fact, I'd argue that it's an overconstraint. It really hurts your business and your ability to compete with other financial service providers.

The life insurance preference today is to take more credit risk. I see that in a lot of different asset classes. However, it's more and more difficult to find it because there are so many structures that take risk out. In fact, there is very slow growth in the traditional asset classes, the private placements. We've had strong high yield issuance with very tight spreads. You could argue CBO issuance has helped to spur very tight spreads in strictly BB and B securities. And you've had a limited commercial mortgage volume because of, very limited construction in the United States until the last year or so.

Newer asset classes, which historically were our bread and butter, are beginning to require new management skills not readily available in the current pool of investment professionals, so we have to go outside to get them. And you need not

only managers, but also scale and diversification. All those things are very difficult to achieve.

Most insurance companies, though, still tend to limit the amount of risk that we can take. There's greater emphasis on risk/return controls and greater independence from the asset/liability modeling (ALM) view. More and more, our investment committees are asking us, "How much risk are you taking versus the market?" That is becoming the question that's debated in investment committees. It's taken for granted that there's a good ALM fit. But if you're taking more risk or less risk than the marketplace, that's where investment committees are focusing.

The credit markets are intensely competitive, and it's become more and more biased away from traditional buy and hold players. I would label the whole insurance universe as a buy and hold player. About the only place that you truly dominate the market anymore is private placement, where you have an 80% market share. But you have less than a 50% market share on commercial mortgages, because of conduits. Life insurers really only dominate the 10 year and out portion of the corporate bond market. And you are a small but important player in the collateralized mortgage obligation market.

Your ability to throw your weight around as an industry has really shifted rather dramatically. Today, when the insurance industry says it has to have it this way, nobody cares. I wish someone did because it would make my life a lot easier, but nobody cares.

Credit spreads have been tight and only recently have become more volatile. I think you're going to see more of this volatility because we are entering about the eighth year of a credit cycle. I think everybody is very mindful of that. Also, there's a skiddishness in the marketplace anytime we have bad news. And that's going to continue to build until we start to see what an economic slowdown will bring. Most of us don't think an economic slowdown is going to happen. But, watching the change of events this week, where the U.S. finally decided to intervene on the part of the yen, we were in a period where we could have seen spreads free-fall around us because of flight-to-safety issues. That's a very real threat today. You may think spreads are the thing that matters the most, but you're spreading off of a treasury that's shrinking into nothingness. It's moving in the direction of Japan.

As an industry, we are very vulnerable to the credit cycle. We've gone up substantially in the last year in high yield bond exposure and in nonstandard assets. Is it significant enough to cause a downgrade of the industry? I don't think so. But we are very vulnerable to chasing assets in pricey times to sell product, when

particularly annuities and other core products don't work very well in a low-interest-rate environment.

CBOs and credit derivatives offer some ways in which you can do this better. CBOs offer investors the unique ability to pick the level of risk they want. Their spreads are very attractive. Credit derivatives (default options) are also attractive, because they expand the universe of less liquid securities. These are not liquid instruments. I don't care if there is a public bond issue, they are not liquid. When the bid spread gets wider than a couple basis points, that's not a liquid security.

Credit derivatives can be customized to your specific portfolio situations. That's a very important advantage because sometimes you may want to do something to get the portfolio effect to allow you to do other things. They can be attractive compared with comparable public bonds. I'm not sure they're attractive compared with private placements, though, because I'm not sure if the liquidity premium is priced fairly in credit derivatives today.

In the CBO structure, senior notes are typically about 75% of cap structure. A coupon is LIBOR + 40–60, the average for maturity is about 12 years, and we expect the average life to be somewhere around 8–9 years. We don't really expect the senior note deal. We buy it to last 12 years.

There's going to come a point where it's economical for the equity holder to exercise this put right. And we would anticipate that because they can't keep this structure sustained for a long enough period of time. Senior subordinated notes are about 10–15%. Coupons we're seeing are in the 170 range, although I think that's moving up. We also think there's an optionality charge that needs to be factored into these, because of the option that the equity holds and where you stand. Senior sub-notes are long relative to a lot of insurance liabilities. In reality, however, they aren't as long as the state of maturity (12 years) would suggest.

Finally, sub-notes/equity offer expected returns of 15–19%. When you get into the math, you can discover that if you hit the default cycle right, you can be at 30% on these. Or you can be at 6% or 7%.

Senior note deals can sustain default levels in the mid-teens. We do something very similar to what Moody's does, except we look at the default frequency a little more because we feel we have other options—or we see other options emerging in the marketplace that will affect recoveries—so we spend more time on that. Obviously, it's the senior claim that's the first to be paid out. It has attractive spread levels. Today we're seeing LIBOR + 40–70 BP. The LIBOR + 70, though, has an emerging market component, and that market is in a nonliquid state right now.

There are no buyers and sellers at the moment, but we anticipate that will change, probably within the next week to two weeks. That tells you something about how much you'd want to use this type of asset against the product, because if you're counting on the market to be liquid and it's not, that tells you it's a new market and the liquidity is not there. In this case, you should be prepared to be a holder.

Senior subordinated notes go into the 10–13% range. They should get a higher recovery than a comparable credit entity. Most of us are pretty familiar with BBB securities. As they trigger some of the tests, they start to liquidate, so that will help put a floor. Having worked on credit instruments where the credit died, you can be at 10¢ on the dollar, at 95¢ on the dollar, or play around with standard deviations all you want, but once you get to these levels, what's the probability that they can still meet those tests? This forces them into liquidation.

Coupons are attractive, but they are definitely not liquid. We sold some, but they trade by appointment. We had greater success selling straight up private placements than we have selling this CBO piece because the market is just not deep enough.

Optionality needs to be factored into the analysis. I quoted a spread of 170 off. Depending on how you assume that the CBO will wind up, you could find that your real spread is something like 150, but could be as high as 160. Senior sub-notes have some of the underlying characteristics of an interest sensitive instrument, even though it's a credit CBO. That's because you're underlying high yield bonds, which are very sensitive to interest rates. And you have equity holders with a put option who are going to capitalize on that when it becomes optimal for them to do so. And we have to assume that they're going to do that.

Given that the default range is 10–13%, that's in the fat part of the tail, folks. This is very high yield, so you should count it as part of your exposure. Even though it is an NAIC 2 –BBB- security, you really ought to count it because these things are going to get hit. Maybe they won't get hit dollar for dollar the way your high yield exposure does, but, when high yield goes bad, you will have problems with these securities. It may not be a principle loss, but it will certainly affect your interest and your operating income stream, depending on how much you've used them.

Most of our experience has been with subordinated notes/equity because we have the luxury of putting the CBO in our property and casualty company, where investment risk co-varies with the business risk. That's allows us to compare these instruments on that basis. We've had some fall below that 10% level, and we've

had a couple hit the 30% level. We got lucky and picked a good manager. They never experienced anything close to the default levels that Gus was referring to.

We think these are pretty attractive versus private equity. In private equity, you can actually go below zero in certain circumstances, depending on what your role is. If you find yourself on the board, you have the distinct possibility of going below zero because you control the call options. But you do have some ability to determine your future and minimize your losses. You should regard it as a very active decision.

Sub-notes/equity can be structured to generate operating income, using various techniques. They don't necessarily need to come through with capital gains and losses because 100% of your capital is at risk. I think you probably surmised that. That means you can lose it all. I think the probability of that is low, but it's real. And absorbing the first dollar of loss means that you could start out thinking you're going to get that 15–16% return. However, if the default that Gus talked about hits in the first year, you've basically lost 300 basis points of return right off the bat.

You have to have a positive outlook for high yield for three years. Three years is the standard period where an equity holder has to stand still. That's a pretty long term call on high yield.

The senior notes need to be counted, probably at a multiple of what your exposure is because of the nature of how much you can lose. We've purchased the senior notes and use them for low-duration segments instead of mortgage-backed and asset-backed and have found them to be pretty attractive. We've purchased the senior subordinated notes in our life company. Given that they do have a sixth-rate coupon, we found them to be more attractive than swapping the senior notes. That's because you get more protection in the structure, at least from interest rate risk. And we do have some subordinated notes in equity.

I'm going to switch gears and talk about credit derivatives. Credit derivatives can help you manage credit risk in a portfolio context. The various products include constant duration swaps, index swaps, total return swaps, substitution swaps (where you can substitute one credit for another), credit options, and credit swaps. This credit carries with it several different types of risks: downgrade, spread, repudiation (where they swear up and down they never borrowed the money from you), bankruptcy, insolvency, and default.

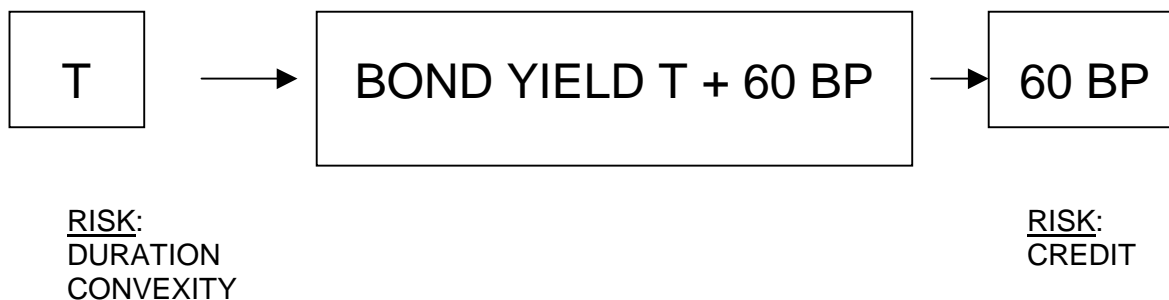
Most of these are pretty straightforward. But repudiation, for example, is tricky. When Gus referred earlier to the "true sale opinion," that's basically what they're doing. They're saying, "This wasn't a real sale. I never sold you these assets.

Therefore, how could I owe you this money?" Default is one of my personal favorites. Is it a technical default, a monetary default, or a cross-default? Is it a default that has matured or a default that's been waived? Exactly what is the default?

For portfolio purposes, you can either increase or decrease your exposure to a specific credit risk, which is good. You can also look at your total portfolio risk. This is important if you have a small portfolio and you're concerned about diversification. A lot of mutual funds use it for this purpose. Finally, it's used as part of a strategic portfolio to look good with a rating agency. You can also use them to take a position away from your portfolio manager. Let's say you think it's a good time to take credit risk but you don't want to disturb the normal activity of your investment rate or private placement portfolio. In that case, you might put a structured note of some sort on top of that for a specified period of time and let that run.

It's important to understand what a credit derivative is. It's basically a two-way contract that allows specific aspects of credit risk to be separated from other risks in an instrument and passed on from one counterparty to another. That is deceptively simple. People generally talk about credit derivatives this way: You have a bond and it has a yield (see Figure 1). You want to get two risks, duration and convexity, on one side, and take the credit risk on the other side. That's what's billed as the credit derivative. For example, Ford Motor Co. recently issued a put option. The strike spread was LIBOR + 70, and the option period was three months. You can put these on for a very short period of time. As a buyer, you would pay about .04% of face, and by the time you convert that to comparable public bonds—which you should do—you pick up about 12 basis points over Ford's public bonds. That seems fair. It doesn't seem cheap and it doesn't seem rich. It just seems fair. I could walk down the hall and talk to my private placement people who have done Ford on a private basis and ask, "How much would you want to get?" their answer would be 10-15 basis points. If it's complicated, I would want 20-30 basis points. But for a straight up deal, this is fair.

FIGURE 1
WHAT IS A CREDIT DERIVATIVE?



Credit derivatives require a three-way conversation: a derivative conversation, a public bond conversation, and a private placement conversation. The private people in most of our shops price off the public bond, but they really don't know the values of liquidity because they don't deal with nonliquid instruments all the time. You need to get all three of those people in the conversation before you know whether you have a good value or not.

When you unbundle the credit risk, you can also unbundle the tax treatment, the accounting treatment, liquidity, and the relationship. And all those things are important, depending on what your investment objectives are. At some point, for example, we spent a little time on liquidity, but if something would happen to Ford, let's say, you don't have a relationship if you own the credit derivative with Ford. You may get one, but first you have to go through the existing relationship and realize on a contract. So, depending on how complicated the instrument is, it does put you a step or two behind another credit.

It also allows you the ability to sell a credit or reduce your exposure without having to trigger gains or losses on a particular holding, depending on how you structured it. This can also be very attractive because you don't need to suffer a real loss to trigger a payment. If you define a default and a repudiation and say, structure the instrument to trigger on some kind of ratings event, you can do that without being in the actual loss mode.

This becomes kind of the newest form of risk transfer, and that's one of the reasons why credit derivatives are very attractive from a portfolio manager's perspective. If, for example, I had too much Ford and wanted to get rid of some because of excess capital gains, this market would allow me to short it. The flexibility of credit derivatives allows us to do things we wouldn't otherwise have been able to do. We probably can do them cheaper and certainly with fewer headaches. The actual credit risk is similar to the credit risk taken in another instruments. You don't necessarily have the same protections but the risk is the same.

Credit swaps can create exposure to a reference entity or index or to a specific credit entity or issuer. One of the things that makes this instrument different is that you need to have people who are familiar with dealing with both narrow and broad credit events. We don't pay our public bond people to do that, and they don't have enough time. You need people who can look at a default and understand what type of default it is, when it happened, and what the triggering event was. Did they miss a payment or just pass the grace period? In a lot of instruments, if the payment was due July 1, they're in the grace period until Sept. 1. It's important to understand these nuances.

Broad credit events can include everything, but most of the ones we've seen are cross-acceleration. I've worked in debt instruments for 22 years, and the only time I've ever accelerated anything was after the company went bankrupt. It just doesn't happen, so that's like getting nothing because you need to be in the cross-default mode.

You can get a wide variety of instruments delivered to you. It could be a security that looks identical, but is not the same security. You have to specify that security. You could end up with a security that's readily available or any qualifying debt claim. Or, you could find yourself in the worse possible case—something that actually happened with Mercury—which is that people with debt claims had accounts receivable claims delivered to them. They received a debt claim, but they didn't have a debt instrument. They were a little surprised.

In summary, I think both instruments are attractive ways to get to the desired level of risk. They aren't a panacea, but they do give you extra tools for creating attractive opportunities for the life spread management business. However, I've noticed that it's very tempting to go overboard and buy too much

Mr. Christopher T. Anderson: A working definition of credit is “the risk of loss of agreed repayments due to the failure to repay by issuers or other obligators, which impairs your cash flow.” That's what risk-based capital (RBC) is geared toward. Somebody in another session went through a formula and assigned a basis point penalty to RBC. And for life companies asset valuation reserve (AVR) is solely pegged to credit quality. Credit is all we seem to be worried about. When the Securities Valuation Office (SVO) looks at a bond, they put it in one of seven categories, exempt through six. All they care about is credit.

I'd like to talk about four separate cases: asset-backed securities, catastrophe bonds, synthetic assets, and equity-linked notes.

Asset securitization first came into my consciousness when I worked at a commercial bank. Bankers had chunky loans and needed to push them downstream. The first thing they would do is syndicate loans to downstream correspondent banks. But those lacked liquidity and many other positive features of the kinds of securitization that are done today.

The first time the securitization issue hit the NAIC was in the spring of 1992 when a presentation was made to regulators describing securitized assets. We first stressed that securitization offered liquidity. You had something, like the loan syndication,

that was incredibly illiquid for a commercial bank. But, once you turn it into a security, it's liquid.

Second, you can value it. There's a marketplace and you sell and buy it. The question we posed to regulators was, "Which would you rather have, something valued by the market or something that was valued five years ago?"

The conclusion then was that asset-backed securities are eligible to be rated as bonds, so they can become bonds. We tell people to get it rated because that helps regulators and the SVO. What can be in these structures? The sky's the limit. It's not just credit cards and cars, but dated future receivables, and my absolute favorite, stranded assets. Power plants that never produced power were put into the rate base of consumers and the future receivables were then sold off. Selling electricity is hard enough for me to grasp. But selling electricity that will never be produced is even harder for me to understand.

I'll sound critical in some of my comments, but a lot of people have looked at some of these transactions with extreme care, me included, and, within certain limits, I'm quite comfortable. You'll have to make that decision yourself.

Those of you who attended the earlier session learned how to buy a hurricane. This is what catastrophe bonds are all about. A lot of these transactions are so-called principle protected, and I'll talk about that notion more when I get to equity notes. If it's principle protected, at least in the insurance realm, it is eligible to be called a bond. You can do the math. Some of the more sophisticated and complex transactions have been evaluated by four of the leading consulting firms in this area. It is a very sophisticated field.

The rating agency reviews for these transactions have been extremely detailed. Last July, regulators heard presentations from most of the rating agencies about their own due diligence in this process and what they do to push hard against the assumptions that were made and the modeling that's been done. The rating agencies haven't accepted things at face value, but have brought in their own consultants together with modelers. Presentations were made last July to regulators in a public session. They looked at it, thought about it, and accepted it. As a result, something that's principle protected as a catastrophe bond can get bond treatment if it's rated.

Here's where my skepticism comes in. In another session, the question, "What is the future direction for the profession?" was raised. Somebody said, "Don't worry about the future. Worry about the changes that have already taken place." Well, this has already taken place, folks. These kinds of structures are here. I'm not an actuary, but it seems to me that your roles within your organizations will call for

looking at these instruments beyond just "credit." There's a level of due diligence needed and some interesting possibilities for you to come up with an adequate analysis. There are elements embedded in some of these structures that are very interesting and complex and require all that you can muster to think five years ahead.

Catastrophe bonds represent a very good example. They're principle protected. Sure folks, you'll get your money back. What happens is that some of these structures extend out 10 years, and you get 1% interest. I'd like to borrow on that basis.

They're eligible for bond treatment as long as they're rated by rating agencies and they're related to a natural event. A natural event is a hurricane, a wind storm, an earthquake, or something like that. Non-natural catastrophes, such as a jumbo-jet crash are not presently eligible for treatment as bonds if they are not rated. For some reason, that's a fine point.

Replication is the same as creating a synthetic asset. It uses a combination of cash and derivative products to create synthetically an asset that would otherwise be permitted for investment by an insurer. Of course, it's necessary to prove that you've actually taken the cash and the derivative, put it together, and now have a BB bond. This makes a lot of sense in our realm because now you can fit it into state law, RBC, and AVR. It qualifies as an x-rated bond, which is the way our world is set up. You treat it as the synthetic instrument you have created, and that's the concept of replication.

I'm going to be a little harder on equity-linked notes. If they are not subject to risk of loss of principle for other than credit reasons, they're considered principle protected. Three years ago, the NAIC decided that, as long as you're protecting the principle and going to get your money back sometime, it's eligible for bond treatment. So they were bonds for statutory reporting.

About a year and a half ago, I lead a group that looked at a specific case to determine if there are other risks. We looked at the S&P 500 for seven different scenarios as far back as the data took us. We presented that material in December and again in March, and the determination was made that something like this is eligible for continuation of bond treatment.

My question is, "How far forward can this concept be taken?" It's said that S&P 500 and your principle protected, and you make sure that the company gets return principle at sometime in the future, that's OK. If you take one issue of stock, is that OK? What if you take an impermissible asset? What about something that's a

prohibitive investment in your state and you stick it in and principle protect it? I don't know how far the concept moves and I don't know what happens when it's done. I know that regulators are now comfortable with S&P 500 broad-based equity. If it's an equity-linked note that's principle protected, it's fine. And all the advantages that people talk about, improved certainty and all the rest, are there. There's no question about it. And there's also no question that this industry needs investment vehicles and investment opportunities to stay competitive. Compared to what we see in Western Europe or the U.K., the industry in the U.S. has way too little equity exposure by almost any measure. Therefore, we need ways to structure it.

Your responsibility within this whole scheme, as I understand it, is to make sure you understand what is likely to happen. Make sure these instruments are modeled and that the models work. If it's not principle protected, it's equity. A key assumption is cash flow testing and asset adequacy analysis. Are you doing it? Is it being done to the level that it should be done? That's going to be the real test.

A process is being undertaken informally to assist companies in making determinations about how to categorize an asset. Specifically, I have a great deal but I'm not sure if it's preferred or common equity. We had one instance last fall where some insurers thought that a particular issue was preferred and it turned out the SVO disagreed and declared it common stock. That's not necessarily going to break people's hearts. My personal view is that NAIC's RBC shouldn't matter that much to most companies. It may matter specifically to a particular rating agency, and I wouldn't want to be the CIO who says, "I didn't care what I bought so we got downgraded by S&P because we blew all the numbers."

However, the classification of what a security may be will probably hit the rating agencies as well as the NAIC. So if something is determined to be common stock, it's going to go into the rating agency evaluation of your companies. Because statutory accounting is owned by the NAIC, the decision maker is going to be the SVO. And the SVO now has a procedure for reviewing emerging investment vehicles (EIVs) that has been utilized about eight times. This review does not reveal what the rating of the EIV will be, but determines how it will be rated—for example, if it's eligible for preferred treatment? You can get that judgment in about two weeks. The process has not been formalized, but it's being done. The EIV process can help defuse other possible issues down the road. The entire SVO will be totally revamped in the next year or two. Maybe this is a transition step.

From the Floor: Officially, the life insurance industry exposure to high yield is something like 5% or 6% of their invested assets and slowly creeping up. Does anyone know what the total exposure is, given all the CBO ownership, whether

subordinated debt or equity, that's out there? I imagine it's quite a bit higher, but I don't know.

Mr. Shimpi: On the catastrophe bond side—which is not credit risk but a different type of risk—life insurers have been major buyers of that asset class. Chris made the statement that that should help the profession find a future for itself, if there isn't one. It's certainly something I've been involved in the last few years. And I found that life insurers look at that as a diversifying asset class. Maybe 20–30% of the issues have gone there straight off the top. I don't know if you can make a similar statement for the CBO market as a whole.

Ms. Wilson: I caution you that this is all anecdotal information, so you can take it for what it's worth, which is probably nothing. On the floating rate on the senior note side, most of that paper has been sold to Europe, which means this is probably not in insurance company hands. Almost all of the BBB or “mezzanine” piece has been placed with insurance companies.

It's a big secret who owns all the equity. As near as we can tell, the equity is held by investment bankers in hedge funds. Only a small portion of these are held by insurance companies. One investment banker ventured that he thought maybe 10% of all the equity had been placed within insurance companies. And he meant insurance companies broadly, including life and property and casualty insurers.

Mr. Anderson: I was going to add that we've recently been asked to rate the equity piece of the notes. I think that's because the insurance companies are buying it and require a rating. We're rating them though against a zero income, not against a coupon rate, so the ratings are still at the junk level. If we were to rate them against the coupon, they'd probably fall into the CAA range. Now, you're getting probably a B1 or BA3 rating on a zero percent return on capital.

From the Floor: Will those bonds be counted as rated bonds?

Mr. Anderson: Yes. I'm happy to get this question for a couple of reasons. People may be surprised that I'm going to stand behind the work of the rating agencies, because there are other elements to be considered. But I do believe that when something has been evaluated, scrutinized, tested, pushed, stressed, when the interest rose it called in outside consultants. And they made such a concerted effort to scale things across disciplines, meaning that they cross-populated a lot of their ratings committees with people from other disciplines. A corporate rating is the same as a municipal rating. I don't mean to minimize the rating agency work at all. In fact, I believe that when something has jumped over those hurdles, I don't look to try to pierce through it any further. I accept those ratings at face value. Whatever

kind of chemistry it takes to engineer them up to those levels, I believe they've been stressed to those levels, and probably even maybe conservatively.

Mr. Steven P. Miller: Pat was talking about making sure that your CBOs got reported some way as exposure to the high yield market. In an asset allocation model, would you consider CBOs, or for that matter CMBSs, as a different class from the collateral where it actually has the first losses. This is opposed to the collateral that's protected from the first loss or that's leveraged by taking all of the first losses. Or would you on an asset allocation model, say, throw all of your CBOs in with high yield bonds?

Ms. Wilson: We do look at CMBSs and CBOs separately and distinctly. We aggregate the CMBSs with our commercial mortgage exposure. We've done that for quite a while. We have also gone through the extra step of rating all our commercial mortgages internally because that gives us an overall feel for our exposure to the mortgage market. We feel we're buying protection to diversification. The underlying pools that we couldn't get at otherwise, and we look to see whether that's fair value or it isn't.

Most of the CBO activity has been in the last year and a half, so we are still deciding which ones we want to count. We are definitely going to count the equity into the exposure, but we're not sure how we're going to treat the BBB piece. It becomes a sticky issue because, with the spread levels and capital treatment, this is a very desirable asset. As soon as we put it into high yield, it will be constrained fairly significantly because it will have to compete against everything else that's in high yield.

We're still thinking about it and might have to come up with some new answers. We feel pretty confident that we at least have some of the fat tail risk of high yield bonds in that asset class. The empirical information we've gathered suggests that we do. How do we incorporate that into our flow and risk limits? That's a tough question and we're still thinking about it.

Cindy L. Forbes: Following up on that question, how are you going to come up with a dollar exposure for the equity in the sub-debt pieces? It's a big challenge to figure out how much of your high yield limit you're going to give to those pieces.

Mr. Wilson: Right now, it's a big challenge to figure out how much high yield you want. In terms of a dollar limit, our limit structures are set up a little differently from others. We actually have four limits and can only buy so much of anything in any given year. That's an actual dollar limit. Then we have position limits set on a percentage of assets. As a percentage of assets, the position limits aggregate not to a

legal entity, but to an enterprise level. We take all the Allstate entities, roll them up together, and the sum is less than the whole.

Right now CBOs fall under the private placement asset-backed limit structure, which gives us more room in those limits than in a traditional private placement. But we may end up scaling these particular assets back one rating notch for limit purposes. When you do this, at least in our shop, those limits then become a compliance issue. Therefore, before we change a limit, we want to be sure we can conform to that compliance level. We're scaling it back to a BB instead of a BBB. Considering the amount of BBBs that are in any one CBO, it would probably work just fine. Whether it would still offer good relative value versus other competing alternatives in your high yield pool is another question, because there will be a natural tendency for those spreads to come in if this asset class is successful. High yield spreads have come out a lot in the last two weeks, but if you go back a month before that, BBs were in the 150 range, and you would have gone into these and out of BBs. So that will be a more interesting problem.

From the Floor: I was wondering what percentage of the high yield market is currently being held by CBOs and, if that percentage increases, what potential ramifications might that have?

Mr. Anderson: The high yield market is about \$500–600 billion. There's approximately \$120 billion in rated CBOs and CLOs. If I were to take a stab as to what portion of that is CBOs, I'd say probably half, so you're probably looking at 10–15% of the market being held by CBOs.

What are the ramifications? In terms of a CBO dumping its portfolio holdings in the market, it's not going to happen. These are cash flow deals, so this is not an issue. Market value CBOs could be a problem, according to what we're hearing from banks and investors. But if the market value CBO deal starts going downhill, there's a requirement to start selling assets immediately. In a cash flow deal, which is the bulk of what we're seeing, if the assets hit the tank, you just sit on them and sell them as defaulted assets. You have time to work it out and sell them.