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Recorder: PETER D. TILLEY

Summary: The panel discusses the characteristics of more popular forms of asset-backed securities, including receivables, home equity loans, home improvement loans, and manufactured housing loans.

Mr. Peter D. Tilley: I have a distinguished panel of guests. All three of these gentlemen are investment professionals who graciously have come to share their knowledge on asset-backed securities (ABS) with us in the actuarial profession.

Mark Corbett has spent the last 11 years with Great-West. He currently heads the structured finance group which has responsibility for investing in finance-related corporate bonds, ABS and mortgage-backed securities. Prior to joining Great-West, he was a chartered accountant with Thorn, Ernst & Whinney in Canada where he was responsible for providing a wide range of financial services to both small and large sophisticated clients. He is a graduate of the University of Manitoba.

Ernie Friesen, a chartered financial analyst (CFA), is an assistant vice president of structured finance investments at Great-West as well, and he's been with Great-West in the investment division in various capacities since 1987. He received his finance degree from the University of Manitoba and achieved the CFA analyst designation in 1991.

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Note: The charts referred to in the text are not available online. Please contact Linda Blatchford at 847-706-3599 or lblatchford@soa.org for a copy.

Anatoly Burman is a director of SunAmerica. He manages an asset-backed portfolio of public and private securities. Prior to joining SunAmerica, Anatoly was managing director at W. J. Meyer & Company where he helped to structure and distribute 144A collateralized mortgage obligations (CMOs). He's also worked at New York Life, focusing on public and private ABS, including home equities, home improvement, manufactured housing, prime and subprime autos, auto leases, CMOs, equipment leases, and others. Anatoly has a B.A. from Rutgers University in economics and computer science and an M.B.A. from Fairfield University.

As an opening note on ABS, my company has been active in this market for a few years and when the investment folks first started to invest in ABS, it certainly caught the attention of those of us in asset-liability management. I think in a different way than our board of directors, who seem to focus on credit issues. My emphasis is more on the prepayment side. I'm going to be particularly interested to hear what these gentlemen have to say about the prepay risk on these assets. I think we've all read about various kinds of ABS. They'll be covering the most popular kinds.

Mr. Mark S. Corbett: We're always excited to get out in the marketplace and tell the story about ABS. Institutionally, we have over 20% of our assets in these securities, so we obviously have a lot of faith in them.

I'd like to start with just a basic review of what an ABS is. There are three key components to creating an ABS. What we start with is an originator of assets, a seller/servicer. This could be a bank, for example, originating credit cards. A bank can either finance those assets on balance sheet, which means it is subjected to financing at its 'on balance sheet' credit quality rating, or it can go through the process of securitizing those assets and obtaining a higher quality rating through various forms of structure.

For a typical ABS, the originator of the asset sells the asset from his books into a special-purpose entity, which is a bankruptcy remote entity. It can either be a trust or a special-purpose corporation. In turn, the special-purpose entity issues debt securities to third-party investors and receives cash. The cash is then forwarded to the seller/servicer or originator. The special-purpose entity in turn has various forms of credit enhancement which we'll discuss later.

The advantage of doing this for a bank, for example, that originates credit cards is, mini-banks or smaller banks might have a B or BB quality rating. By moving the assets off balance sheet into a special-purpose entity and structurally enhancing them, you can get up to an AAA credit rating which dramatically lowers the financing cost.

We alluded to the credit enhancement. There are various forms of credit enhancements that you can use in the special-purpose entities. At the core of the trust or special-purpose entity is the obligors in the pool. If it were a pool of credit card receivables, for example, there would be thousands of obligors that owe money on their credit cards. Those would be put into the special-purpose entity

and the principal and interest collected on those credit-card receivables would be your primary form of repayment as you finance the special-purpose entity.

In addition there's a second layer of enhancement and it comes in various forms depending on the type of asset class. Excess spread is a very common form of credit enhancement. That simply is the difference between the weighted average coupon on the loans in the trust.

For example, credit cards might be generating a yield of 12-13% versus a weighted average cost of financing those assets in the trust. That might be around 7%. You can see that there are 500 basis points of excess interest flowing through this trust which is available to protect you against the losses in the actual trust. Therefore, with any credit card transaction, for example, there are typically some loans in the pool that will default and they generate losses. We need to cover those losses somehow in order to protect the investors. We can do it with things such as excess spread.

Cash reserves or letters of credit are another form of cash enhancements. Another common form of enhancement ultimately is monoline guarantee. These are companies such as Ambac, MBIA, FGIC, and FSA. They are single-line insurance companies that provide financial guarantees. Most of them are AAA rated and they provide a guarantee on the pools themselves. Finally, you also see a lot of transactions with subordination and we'll get into that later on.

Why would people issue ABS? I alluded to some of the reasons, but commonly you'll find that a primary reason is to lower your funding cost so if you're a BB or a B company, it's very expensive to finance on balance sheet. This is the way to structurally enhance and move assets off balance sheet and obtain lower funding costs.

Another primary reason is to diversify your funding sources. On balance sheet lending might involve 10 or 15 different lenders for a company. By moving those assets off balance sheet into a public offering, you can attract hundreds of investors and you dramatically diversify your funding sources as a company.

Finally, another common reason is to improve your financial position. Many of these companies recognize one-time gain on sale each time they move these assets off balance sheet. The present value of the future stream of earnings from those assets are realized as a one-time gain on sale for debt purposes, so that improves your net income. It also improves your return on asset and your return on equity numbers.

Why do investors buy these securities? We buy them for a number of reasons. The primary reason is quality. You can find AAA down through B investments in this sector so there's a wide range of quality to select from. Historically, spreads have been very attractive relative to a standard corporate bond, so we've achieved much better spreads with these securities than what we've achieved with our typical public corporates as an institution. We often do it to diversify across a number of

different asset classes. Finally, they have an excellent track record. There have been very few defaults or downgrades within this sector.

Table 1 looks at the growth of the public ABS market since 1991 and annual new issuance volume. In 1991 there were \$51 billion of securities issued in this marketplace publicly. That grew to \$179 billion in 1998, so this has become a very large market. The annual issued volume in this market is equivalent to that of corporate bonds. It's a very big and very diverse market. The primary driver to this market is really consumer credit and there's over \$1 trillion of consumer credit in the U.S. Historically a lot of that was financed on a bank's books or a special-purpose finance company's books. Moving those things off balance sheets exposes them to the public universe for investing and creates a whole new public market, but it was a sizable market to start with. It's just the form of financing that has changed.

TABLE 1
PUBLIC ABS MARKET GROWTH
ANNUAL NEW ISSUES

Years	\$Billions
1991	51
1992	51
1993	60
1994	76
1995	110
1996	156
1997	175
1998	179
2Q99	95

In Table 1 you will notice that the first half issuance of 1999 was \$95 billion. Table 2 summarizes this supply by major asset classes. You can see the four big ones are credit cards, autos, home equity loans, and manufactured housing. Those are four of the popular consumer sectors that get securitized.

The private asset-backed market, which are not available for public purchase, has seen explosive growth from \$10 billion in 1991 to \$44 billion in 1998.

Some of the new developing sectors in these markets include stranded utility costs, intellectual property rights, and 12B1 fees. Those are the distribution fees on mutual funds, credit card C-pieces (which we'll hear more about later on), tax liens, and time shares. I hope none of you have been subjected to a time-share proposal associated with a securitization vehicle.

TABLE 2
PUBLIC SUPPLY BY MAJOR ASSET CLASS,
FIRST HALF 1999

Sector	Supply (\$ Billions)
Cards	21
Autos	23
Home equity loans	28
Manufactured housing	7 3
Slabs	4
RRB	9
Other	95
Total	

We started investing in the sector back in 1989 and most of the securities that initially were offered were privately placed. The public market wasn't that well developed yet and what happens over time is, as investors get more experience with different asset classes, they tend to migrate out of the private market into the public marketplace and the life cycle of these assets has gotten shorter and shorter.

We used to be able to buy privately placed ABS for two, three, and four years at very attractive spreads. Now we find that when the asset classes roll out, they might spend a year to a year-and-a-half in the private marketplace. Oftentimes you'll see them migrate over to the 144A or public marketplace and then the spread compression starts. Some of the newer asset classes that are emerging include intellectual property that we alluded to, the aircraft pool and 12B1 fees. The public commodity asset classes include home equities, manufactured housing, credit card, and student loans.

What are the risks associated with investment in asset-backed? There are a number of risks, and I will summarize some of the key ones. One of the things you really have to watch for is consistency in underwriting. You have these originators who originate thousands of these lines annually or even monthly and they use originating standards. Often they use computer-scoring models. They sometimes can use a manual underwriting process, but ultimately you have to be concerned with the quality of the loans that originated in these pools.

What we find is that quality can vary dramatically depending on who's originating the assets and the time period in which they originate them. As business gets more competitive, people stretch in terms of the quality of the obligor that they're willing to put on their books and ultimately in these pools.

For example, on some manufactured housing pools that we have in our portfolio, the expected lifetime net losses come in around 6%. That would be a Green Tree-type name. We have other pools in our portfolio with some smaller issuers and we're seeing losses that are expected to come in around 12%—double that of

Green Tree. That's purely a reflection of the underwriting standards and the differences between those two originators.

Another risk is financial insolvency of the servicer. Once they move these assets off their books into a special-purpose entity, the assets still have to be serviced in terms of collecting the principal and interest and there's some risk associated with the servicer. If the servicer files bankruptcy or has solvency problems, it wouldn't be able to collect on your behalf. What you have to put in place then is what's called a servicer replacement.

That's not easy to do, but it can be done. What you typically see happen is a temporary increase in delinquencies and defaults in the pool as you effect the servicer replacement. It's something you want to avoid if you can in terms of underwriting.

Finally, fraud is another risk. We've had some fraud in this marketplace. We've had fraud associated with some receivables transactions and we've also had some fraud associated with defaulted credit card or nonperforming credit card receivables. The best means against fraudulent assets being placed in a pool is to do third-party confirmation work with an outside auditing firm. That's one of the standard things that we do with privately placed bonds.

Structure risk is essentially the risk that the losses generated by the pool over their lifetime exceed the credit enhancement inherent in the pool. If we had, as an example, 125 enhancement in a manufactured housing pool and the losses on the pool over its life came to 20%, you're going to realize a loss in that specific class of securities.

Duration risk refers to cash-flow variability. For some of the assets such as manufactured housing, home equity, and residential mortgages, the obligor in the pool has the option of prepaying those loans at any time so embedded in the purchase decision is an assumption with respect to prepayment speed. Prepayment speeds can vary depending on different asset classes and the interest rate environment, so you have to have some assumptions about prepayment speed and have a good understanding of what drives the prepayment speed.

Now we're going to jump to a specific asset class sector, manufactured housing, and my colleague, Ernie Friesen is going to discuss that.

Mr. Ernie Friesen: As Mark said, we're going to look at a specific asset class now, and the fixed characteristics such as prepayment and credit risk. First of all, let's look at some of the basic characteristics of the collateral. According to HUD, a manufactured home is a single-family home, which constructed on a chassis at a factory, shipped in one or more sections to a housing site, and installed in a semi-permanent foundation or a permanent foundation. A typical single-section home can be 12-14 feet wide, 40-64 feet long. Multi-section homes are common now. These are created by joining two or more of the single section homes to create a larger home.

Manufactured housing is generally less expensive than single-family site-built housing and that's one of its major appeals. The savings are 15-40% if you measure things on a comparable basis. In 1997 the latest date of information flow, an average manufactured home of 1,420 square feet of living space costs about \$41,000. That averages out to about \$29 a square foot. In 1997 the average site built home had 2,150 square feet of living space, cost \$132,000, excluding the land. That works out to about \$61 a square foot. You can see the major advantage there.

While they are commonly called mobile homes, most manufactured homes are permanent residences. When you figure that transporting these units costs \$2,000-6,000, you really don't want to move them around too often.

The manufactured housing industry has changed over the last several years and it is pretty important to understand some of those changes when you're evaluating the collateral in one of the securitizations. Government regulations and advances in home design have greatly increased the product's quality and durability and consumer acceptance. Right now manufactured housing building codes are really similar to most site-built building codes in the country.

Comparative financing and changes in consumer demand have led to a shift in sales from the small less expensive single-wide homes to larger more expensive multi-wide homes. Interest rates for consumers have declined from mid-teens several years ago to 10% today. In 1998 manufactured housing shipments accounted for approximately 28% of the single family housing starts and over one third of the new single family homes sold in the country. It's a very major part of the housing market.

Issuers in the manufactured housing industry are very experienced securitizers. Green Tree Financial has been securitizing manufactured homes for over 10 years. We have a lot of data to look at from them. In 1999 Green Tree was the dominant issuer of securities.

Table 3 details some of the specific collateral characteristics we would look at when analyzing the investment opportunities. This was a pretty difficult pool in the marketplace today. Three quarters of these pools are new homes and a quarter are used homes that someone upgrades or if a home is repossessed and sold, it can be moved to a new location and occupied by the new homeowner. The multi-wides I've mentioned are two thirds of a typical pool.

The average loan size is just a little under the average I mentioned earlier, \$39,000. Most of these are placed on a private lot rather than in trailer parks. Land/home contracts are an important part of the marketplace today. These are contracts where the manufactured home is actually put on private land and the land forms part of the security interest or collateral for the underlying loan, much like a mortgage loan.

Table 3 also provides some examples of the geographic diversity you find in a pool. It's well diversified among states, but when you add it all up there's a lot of

concentration in the southeast part of the U.S., where this type of housing tends to be most prevalent.

TABLE 3
MANUFACTURED HOUSING,
COLLATERAL CHARACTERISTICS

Weighted average coupon	9.5-10.5%
Weighted average maturity	260-300 months
Loan to value	86.0%
New	75.7%
Used	24.3
Multi-wide	67.7%
Single-wide	32.3
Average Loan	\$39,000
Private Lot	71.4%
Park	28.6
Land/Home Contracts	29.0%
Texas	12.1%
North Carolina	8.9
Georgia	6.0
Florida	5.4
South Carolina	5.4

Rating agencies look at this type of collateral data. They take information from the issuer's past securitizations along with all the pertinent data and evaluate it all to determine the credit enhancement levels that the securitization would need in order to achieve the desired ratings. The typical structure for manufactured housing securitization is going to involve the senior-subordinate structure with varying levels of credit quality and credit enhancement. The ratings range from AAA to BBB or BB for standard securitization. You can achieve AAA rating with as little as 17% subordination on a Green Tree transaction. However, for someone else who is a first-time issuer or a poorer originator of collateral, the credit enhancement for AAA can be twice that level or more.

Additional enhancement, as Mark previously mentioned, is in the form of excess spread. This arises because the weighted average coupon on the underlying loans is greater than the cost of the debt and fees in the transaction. Now, as you might have already guessed, the delinquencies and defaults in manufactured homes tend to be higher than other single-family home products. The primary reason for this is really the poor credit profile of the underlying obligors and we'll get into this a little bit more later on in the presentation. But despite these higher delinquencies and defaults, the securities themselves have performed very well. There are just a handful of securities that have faced downgrades from rating agencies and only the very lowest in the tranches face any significant risk of losses. The losses on a good quality pool have run about 6% for Green Tree so the 17% on an AAA gives almost three times coverage of expected losses.

Desirable credit quality we see in these bonds comes at a high cost in terms of prepayment risk. As with most single home loan products, manufactured housing contracts for loans can be prepaid at any time with no prepayment penalty by the borrower. This introduces prepayment risk into the evaluation of these securities. Our experience at Great-West has been very favorable and most of the research available also shows that the prepayment risk with these securities is similar or less than most other mortgage-backed or asset-backed alternatives.

The primary reason for the lower prepayment risk is the weaker credit profile of the obligor we mentioned. For example, the average annual income of the manufactured housing borrower is only \$21,500 and only 21% of these borrowers have annual incomes exceeding \$40,000. In terms of household net worth, the average is only \$58,000 and only 27% would exceed \$100,000.

The typical borrower is also very young and purchasing their first home. Prepayments are typically measured in terms of conditional prepayment rate (CPR). The CPR rate measures what percent of the pool is expected to be voluntarily repaid within a period of one year. CPR is often translated into a more specific curve for this collateral called the manufactured housing prepayment (MHP) curve.

What I've done in Table 4 is collect some prepayment data for two periods, 1996 and 1998, where we had similar lulls in interest rates to evaluate the prepayment sensitivity of these securities when interest rates drop.

Table 4 is a little busy and I apologize, but I'm going to make a few comments in order to clarify the information. On the left-hand side is the origination year for the manufactured housing loans. The second column is a breakdown into the first and second halves of the year. The next column is the weighted average coupon (WAC) of those respective groups and the seasoning, which is how many months those loans have been outstanding.

Then you get into the prepayment experience of the loans during this period. The three months CPR is stated for the period of 1996 and 1998 when interest rates dropped to similar levels.

You can see from 1993 there's not much difference in the prepayment speeds during those two time periods. As you look at 1994-95 data, you find that there's a significant increase in prepayments.

Part of that increase is due to different seasoning, how long those loans have been outstanding. But even with control for seasoning we find that these new originations are prepaying faster than the old originations. As this collateral changed to become more interest-rate sensitive, this presented a little bit more risk. We wanted to look at that further, so to control for seasoning and to isolate refinancings from this, we wanted to separate the CPR into two components, the first being voluntary prepayments, often referred to as conditional repayment rate (CRR) and defaults or conditional default rates (CDR).

TABLE 4
 CONDITIONAL PREPAYMENT RATE(CPR)
 BY ORIGINATION PERIOD OF MANUFACTURING HOUSING

Origination Year	Period	Weighted Average Coupon (WAC)	#months Loan Outstanding Seasoning	3-Month CPR		Difference
				3/96-5/96 (CPR)	3/98-5/98 (CPR)	(1996-1998) (CPR)
1993	1 st half	10.86	61	14	15	+1
	2 nd half	10.08	56	12	14	+2
1994	1 st half	10.24	49	12	16	+4
	2 nd half	11.36	43	13	18	+5
1995	1 st half	11.35	36	10	17	+7
	2 nd half	10.10	31	6	16	+10
1996	1 st half	9.95	25	-	14	-
	2 nd half	10.34	18	-	15	-
1997	1 st half	10.18	13	-	10	-
	2 nd half	9.85	8	-	8	-

Table 5 is similar to Table 4 but we have expanded the information. The first three columns on the left are the same information you had earlier. The next two columns show the conditional repayment rate or voluntary prepayments. Are these people more sensitive to interest rates today than they were in 1996?

TABLE 5
 CONDITIONAL REPAYMENT RATE(CPR)
 AND CONDITIONAL DEFAULT RATE(CDR)
 BY ORIGINATION PERIOD

Origination Year	Period	Weighted Average Coupon (WAC)	3-month CRP			3-Month CDR		
			3/96-5/96	3/98-5/98	Diff.	3/96-5/96	3/98-5/98	Diff.
1993	1st half	10.86	11	13	+2	3	2	-1
	2nd half	10.08	9	12	+3	3	2	-1
1994	1st half	10.24	9	13	+4	3	2	-1
	2nd half	11.36	10	14	+4	3	3	0
1995	1st half	11.35	8	12	+4	2	4	+2
	2nd half	10.10	5	11	+6	1	6	+5
1996	1st half	9.95	5	9	+4	2	5	+3
	2nd half	10.34	-	11	-	-	4	-
1997	1st half	10.18	-	9	-	-	2	-
	2nd half	9.85	-	7	-	-	1	-

When you look at 1993 you find two to three CPR difference in voluntary, which is a little bit more significant. As you get into the newer loans, 1994, 1995, and later, you find an increased propensity to voluntarily prepay. On the far right, the three columns, CDR, show the default rate. We find not too significant a difference in defaults in those two periods for 1993- and 1994-originated loans but then in 1995 and later, we find there is a significant increase in defaults. Most of that is due to seasoning we find. Once these loans become two to three years old, the defaults could begin declining.

When you look at this information more closely, you find that coupons and other factors that one typically looks at such as seasoning aren't the only factors affecting prepayment rates on this collateral. They're still faster in 1998 than 1996.

Another significant reason was that land/home contracts, we mentioned those earlier, are becoming a larger part of the newer pools, where the collateral includes the land on which this home is situated. These are a primary factor contributing to faster speeds on these loans. Even controlling for loan size, which just means that typically larger loans prepay faster than smaller loans.

These land loan contracts still prepaid faster or exhibited a stronger response to interest rates than our typical manufactured housing collateral. Why is that? We found that for these 1994 and 1995 originations, by the time 1998 rolled around they had built up some equity because we had seen a very strong house price appreciation that had even trickled down into the manufactured housing sector. Thus the depreciation factor, this collateral usually depreciates over time, was not as prevalent as the land underlying the loan which typically doesn't depreciate.

With the improved product quality that we mentioned, depreciation is less of a factor. We had a greater universe of refinancing opportunities, especially for these land-home contracts, because for a lot of them if they're permanently affixed to a foundation they can be qualified as true mortgage product and thus qualify for an agency loan at a significantly lower financing rate. From this analysis we learned to look at a lot more pool characteristics than you might look at initially when we're estimating the prepayment rates.

How does the market price these credit and prepayment risks of these securities? There is a nominal spread on three competing products; agency mortgage-backed securities, (6.5% CMO sequentials), home equity loans (HEL) and manufactured housing. Manufactured housing bonds are priced 5-25 basis points wider than similar agency-backed bonds, but 15-25 basis points tighter than home equity loans with the same average life.

When we look at spreads on a zero volatility basis, that is, with each cash flow from the securities yield spread over the spot treasury rate, we find the same situation, manufactured housing bonds are again priced kind of in-between the two alternatives.

When we look at option-adjusted spreads (OAS), you get a different story. OAS are simply the average spread earned on a bond under a number of interest rate

scenarios. The scenarios are projected from the current treasury rates and then the subsequent prepayment rates predicted by the model give you the cash-flow scenarios that are used to develop the OAS. The manufactured housing bonds generally have an advantage in terms of OAS over both competing alternatives. In July 1999 the advantage ranged from 11-31 basis points.

The option cost is simply the zero volatility spread minus the option adjusted spread. The option cost or prepayment risk of a manufactured housing bond is the lowest of each of these three securities evaluated and it's true for all of the average lives. You combine that lower option or prepayment risk with the previously mentioned high-credit quality, and you can get an idea of why we like these securities.

One last thing I'd like to address is the impact of the clean-up call on the manufactured housing bond. To do this I looked at a typical Green Tree manufactured housing securitization and what the impact would be on the last cash flow of a sequential transaction. The call is exercised as opposed to not exercised and the call of the tranche of the sequential transactions will have its average life reduced by 0.68 years or 5%, and also has its modified duration reduced by 0.14 years or 2% and has its payment window reduced by about 8 years.

When you look at the average life and duration, all of those had pretty significant impacts due to the clean-up call. One thing we use when evaluating Green Tree transactions is every transaction that they've issued has become subject to the clean-up call. They have actually exercised it so there is a little bit less variability in analyzing it when you know that they're going to exercise it.

Overall we conclude that the manufactured housing securities provide a low credit risk and reasonable prepayment risk, which makes the security an attractive investment alternative.

Mr. Anatoly Burman: One of the things I do have to note is that investment people have greatly contributed to the economy of other countries by actually trying to securitize some of the assets they have. One of the deals we did when I was at New York Life was to set up a Pakistan telephone deal for phone calls made from U.S. to Pakistan and Pakistan to U.S. After the coup in Pakistan, apparently the bonds have not been effected yet so that's a good thing. Actually, I was feeling much better because there are a lot more phone calls going back and forth!

Another deal is the securitization of future receivables on credit cards in Mexico. We've tried to do various other deals with other developing countries, including Russia and I have a great deal of interest in that because I am originally from there. It's tough to set up because the infrastructure isn't there yet so we're going to rely on you guys to create the infrastructure before we go in.

What I'm going to talk about is a little less creative to start with, which is credit-card transactions. Credit-card transactions are very simple. I'm sure all of us have a credit card. What's interesting is that it's a very simple transaction. One of the things that Mark had mentioned is that for some of the companies that are less

creditworthy, whose credit rating is a lot lower, this is one of the best ways to borrow money at a much lower rate. For the company like Advanta to go out and to borrow money as BB-rated company, they would have to pay anywhere between 9-12% to borrow money. This way, if they have a credit card portfolio to securitize, they only would pay between 5.5-6%. As you can see, this is a very, very profitable way to raise money.

The way the securities are structured and the way the money comes in is that you create a master trust and you deposit all the credit-card receivables into a master trust. All the fees that come in on the credit cards go into the trust and then are paid out to the investors.

Does anybody actually know what interest rates they pay on their credit cards? What's more interesting is that when you start looking at some of these transactions and you realize what people actually pay, it's totally mind-boggling. If you take originators like MBNA, Citicorp, or First USA, consumer interest rates vary between 12-19%. Then there are other issuers like Cross Country Bank, which is located on the East Coast. It's a very small bank. The yield on their receivables is close to 38%.

Now what does that mean? It means that they charge anywhere between a 25-28% rate on your credit card. You have to pay \$100 to process your application. You have to pay something like \$25-50 a year to have the credit card. They charge you fees if you're late or if you go over your limit. All of this comes into what creates an overall yield. Now that seems to be a lot and actually it is.

However, the mitigating factors are that the people who actually go for these credit cards are the people who are less creditworthy and probably shouldn't have credit cards to begin with. Their default on their credit cards is a lot higher. Even though you're earning a huge rate, a lot of it gets eaten away by the defaults on the credit cards and that's what distinguishes among the first-, second-, and third-tier credit-card receivables. As investors, it's very, very difficult to make sure. One of our jobs is to go in and make sure that we understand what these credit cards are and where the receivables are.

If you consider a First USA deal, for example, which has been around for a long time, they have combined many other receivables in their portfolio. Their portfolio at this point is worth something like \$48 billion. That diversification in the portfolio and fairly high credit of people within their portfolio creates a fairly safe investment. The yield on their portfolio is anywhere between maybe 16-18%. However, default rates on their portfolio is anywhere between 5-7%.

As Mark mentioned before, what you look at is an excess spread. Excess spread in this case becomes something between 3-500 basis points, or 3-5%, which is for them very good. However, if you look at the companies like Cross Country or various other third-tier people whose yields are huge, anywhere between 30-38%; their default rates are between 18-19%.

If you look at default rates alone, how can we invest in them? Well, you realize that the spread between the default rate and the yield and what they're paying out to an investor is actually a lot bigger than it is on First USA or MBNA credit cards. Then it becomes a race between the liquidity and the yield. People who are investors, concerned with yield, and need to put more yield on their books will go after more yield and less liquid securities. They go after the less liquid because there is less of it issued; they're a lot more difficult to follow than you would any of the MBNA, First USA, or any other deals. Yet, they offer you a higher yield, so if liquidity isn't one of the things you need to worry about, you'd probably go after these kinds of securities.

Some of the transactions that are being issued, because of this credit tiering, are structure deals in a senior substructure and some of them buy insurance from companies like MBNA, AMBAC, FGIC and others.

First USA, as an example, structures their deals in such a way that you have an A tranche, you have a B tranche, and you have a C tranche. The combination of B and C tranches are about 12% to the A tranche, which means you have a B tranche at about 6% and you have a C tranche at about 6% or those provide the credit enhancement to a AAA tranche. If there are losses or defaults on the credit cards that extend beyond the 6-7%, they eat through. You also have the excess spread that's left underneath, so once you eat through the excess spread and eat through the C classes, you then have more protection for the A class. Therefore, anyone who invests in an AAA part of a security is pretty much different. Recall that tranches are subgroups of portfolios with prepayment treatments.

That's how the rating agencies like Moody's, S&P, Fitch, and Duff & Phelps look at these deals. They look at the history and performance of the originator. They assign the levels of credit enhancement based on that. For newcomers to the market and the less creditworthy, it is far cheaper for them to buy insurance from companies like MBIA, AMBAC, or FSA than it is to create senior substructures with tranches. Because of their poor performance, credit-rating agencies would penalize them and would make them create much larger subordinate levels to protect the AAA investor, because supposedly in the market all AAA's are alike. It is much cheaper for them to go out and buy that kind of insurance.

What does it mean to have a security that is MBAA-insured? MBAA will insure after the company is able to provide up to BBB level of protection. They guarantee that they will pay timely interest and they will eventually pay off the principal on these bonds.

In a market where investors like ourselves participate in these credit cards and invest in them, the market volatility is very important. You try to follow as much as you can and make sure that you stay ahead of the game. The securities that are being issued come either in a fixed or floating form. From the insurance company's point of view, we have fixed and floating liabilities.

The spread on those securities or their performance in the market varies greatly. The spread on those securities widened quite a bit in 1998. Then if you have good times and the market is doing fine, the spreads do go down.

From the Floor: What about collateral being deposited into a master trust?

Mr. Burman: Collateral that is being deposited into a master trust can be both floating and fixed, depending on with whom you deal. First USA may issue credit cards that are both floating and fixed. Advanta does that all the time so the underlying collateral could be either. The securities that are being issued are issued either as fixed or floating. It's driven by the demands of the market.

If the market is very strong and people want to be in fixed rate securities, that's what is being issued. If the market is very volatile and people are not sure what they want to do, most of the time floating rate securities are being issued. And that's when the issuer come to investment banks that issue the securities for them and ask, "What should we issue; what is the demand?" Very often the securities are done under reverse inquiry which is when a very large client comes to the investment bank and says, "I have a need for \$500 million for a 5-year floater, what can you do for me?" They go to various issuers and say, "We have an inquiry at this level, would you like to issue?" They issue those securities based on that need.

From the Floor: How do introductory rates affect the securities?

Mr. Burman: There was a huge article indicating that three companies were going to issue cards with rates of 9.9%. Everybody looked and said, "Well, wait a minute. If we have defaults that are 5%, there isn't very much room left for excess spread or to pay the investors."

I was one of the first people who got on the phone and said, "What does this really mean?" They said, "Don't worry, we're only going to do that on maybe a couple of hundred accounts, we're just trying to see what it's going to do." The idea for the portfolio overall is not to exceed more than 2-3% of those accounts.

The originators keep those particular securities or those receivables on the books until they mature or get up to full rate. Then they deposit them in a master trust. What I'll say is that First USA, which owns \$50 billion of receivables, is on a continuous flow. They create this master trust for pure idea of depositing them all the time. However, they have a lot more securities on the books, so what they do is, if they do have introductory rates, they mature that collateral first before they deposit them in a master trust. By the time they get to the master trust it's fully indexed to current interest rates.

Let's move on to a more complex asset, auto loans. Auto loans are broken out into three categories: prime, non-prime, and sub-prime. Prime is pretty much people who have impeccable credit, 70% of them originated on new cars. When you go to Ford, GM, or BMW and you want to buy a car and you have credit with a FICA score of 680 and above, you can get a prime loan. You can personally get that score get that score for free once a year, if you call TRW or any of those companies to find

out what your score is. Those are high quality people whose credit is pretty much clean, where you haven't been 30 or 60 days late on credit-card payments, mortgage, or things of that nature. Those loans are called prime loans.

Non-prime loans are the people who have a little bit less credit and people who have been late a couple of times in the last 12 or 24 months on their payments. Again, it's both on new cars and used cars, but they will end up paying a lot higher rate on their loans. Sub-prime is a category of people that really have fairly poor credit, whose FICA scores are well below 600 and who on average have a very difficult time either getting a credit card or any card at all. However, the industry believes that there is a lot of money to be made in this sector and this is one of the main reasons why this sector was originated. If you go back 20 years, this sector probably did not exist.

Prime sector, again, is the companies like Ford, Chrysler, and other large originators that come on a monthly basis to the investment market. These companies issue loans on their own cars or huge banks that give out loans to their prime customers where you can go out and get a rate between 8-9% on your car loan. These are usually 3- to 5-year loans, pretty standard and pretty clean data. The losses on those loans are very low.

If you look at either Ford or Chrysler deals, their losses are less than probably 0.2%, again due to the credit quality of the people who borrow on those cars. Prepayment rates range anywhere between 1.5% and 1.7% ABS which is the measure that's used specifically in the auto business. This is fairly stable. That range is essentially the percent of a pool that gets paid down except that those numbers arithmetically increase as the pool matures. The pool has fairly short maturity, up to five years maximum. It's a fairly stable, fairly easy investment from the point of view of investors because not much can happen to it. If you're looking for a little more yield than credit cards, this is the sector you buy. It's very liquid, it trades very well and is a fairly safe investment.

Before I move on to the sub-prime, I will say something about non-prime. It's fairly similar to prime loans except for a little higher risk and a little higher interest rate. Other than that, it's pretty much the same as investing in prime, except it's a little less liquid from the point of view of the investor.

Sub-prime auto loans are where it gets really hairy and fairly interesting. One of the things that I did when I was at New York Life was to go around and visit quite a few of these people, because when you invest in sub-prime, one of the most important things in this particular sector is to understand servicing.

Can these people service these loans? It's very easy to go out and walk over to anybody on the street and ask, "Do you want to buy a car and get a 25% loan?" For the guy who really doesn't have any credit, it's probably the best thing since sliced bread. Frankly, the way they actually get the loans has nothing to do with the interest rate. You look at the portfolio and say, "Can they afford to pay \$350 a month on a \$5,000 car?"

If you do the quick math you realize it's a huge amount of money and huge interest rate, so that's how they determine whether a person is able to buy the car or not. People who actually borrow this money have no idea most of the time what interest rate they're paying. However, they're happy because they're able to buy a car.

That's easy to originate. You can go out and originate billions of dollars of sub-prime loans in about a month. The problem becomes servicing. In 1995-96 when this sector was becoming hot, everybody and their brother were breaking into this sector because they're earning 25%. You're selling the loans because investment bankers are saying, "Listen, we can get you a great execution on your loan. Just originate as much as you can. We can get you financing at something like 6%."

Well, if you do your math, that's a huge amount of money supposedly, until you realize that this sector is where people default the most. If you go to any of these companies, the average repossession rate is 40%. That means 40% of the cars you finance get repossessed. That's a huge amount of money because once you repossess, if you can find the creditor, you have to then look at the car and make sure it hasn't been totally destroyed. You must make sure that your book value on the car can be recovered. If you can't sell it for that amount of money because the car has been totally destroyed, then you have to refurbish it and try to resell the car off.

The cost of servicing is huge. If you lose that person within the first 10 days and can't find them on the payment, you might as well just write them **OFF??**. You've got to understand the borrower.

You have to know who you're lending the money to. Is it people who shouldn't have credit in the first place? Most of them don't have credit cards, which is probably an amazing thing to hear. But that's the most important thing, so when it comes to dealing with these kinds of companies, when it comes to investing in that sector you need to be aware and look at the servicer. That sector shrunk from a huge amount of originators in 1996-97 to basically three or four originators that are now doing this business. It's very difficult to put your money into that sector because numbers speak for themselves. Servicing is critical.

Moving on into a little more exciting thing: home equity and home improvement loans which are a lot more volatile. It's a much longer duration loan. Ten and 20 years ago, when somebody said, "What's a home equity loan?" I would have said, "That's easy. I need to build a pool. I go out and get a home equity loan. It's a second loan, so it's nice and easy. So you say, "Home equity, I know what it is." All of sudden, that definition is not even close. We're back to that sub-prime sector and that's where you realize a very interesting line and very interesting connection between sub-prime autos and this particular sector.

Again, these are loans to people that probably shouldn't be able to borrow. These are loans to B, C, and D creditors or people that have less than perfect credit. These loans are first lien, not second or third lien. A first lien means that these are loans to people to buy homes. That's when it gets interesting because these are the loans for someone to go out and buy a house, not to improve an existing home.

This is not an improvement on your home, home equity. They call them equities, but they're not. Then you start thinking, "Wait a minute. I just spent 10 years in the single-family business." It was nice and easy, then I'm starting to look at this and that should be the same thing, but it's not.

It's a totally different business and the reason is the nature of the loan and who it is issued to becomes a lot more credit intensive and a lot more interesting to examine. I look at this particular sector not from the point of view of science and mathematics, which we're all used to in investments, but from art. You really have to understand what you're doing before you dive into this sector.

It's more art than it is science because to truly understand the prepayments and defaults in the sector, you can run as many models as you want and I can show you any research you want to see because Wall Street loves pouring millions of dollars into models. Ninety percent of them have been wrong for the last five years on predicting the prepayments, calculating OAS's, and everything else in this particular sector because you cannot take a person who is not willing to pay and try to put a mathematical formula around them.

This sector, at least up to a certain point, is not interest-rate sensitive. The yields or the Treasury yield curve can do whatever you want. The issuers continue to charge 9-10%. We can have swings of 200 basis points. They're still able to charge that and more regardless of what interest rates are doing because people who are borrowing need to borrow. It's not like they can walk across the street to somebody else and borrow at 5% less. The market is fairly tight. Now the reason you do have huge prepayments, especially later on in time is because you have so many originators and people do tend to cure their credit and upgrade. To start with, this sector is very interest-rate insensitive and these are first lien loans to people that really shouldn't be borrowing.

Now, home improvement loans are actually what we're used to seeing. Home improvements loans are loans to improve your home, to fix your house, or to build a pool. The way these are structured is, again back to the technological state of this particular sector, senior substructure versus insured. This is very similar to the way it's done in the auto business or the way it's done in a credit card. If it's already a seasoned originator and they've been around for a while and you can fairly track their performance, then the rating agencies can go out and say, "Okay we'll give you 16-17% subordination up to a AAA level." Underneath that you have your AA, A, BBB, BB, and sometimes B-rated securities. If 16% is less than what the insurers would charge us, people would go with that.

However, if you're a new originator in a market and you want to be able to issue securities, then, when you go hot, what you do is get insured by companies like MBAA, MBAC, or FGIC. As Mark pointed out earlier, it's a heck of a lot easier and cheaper to borrow money than trying to raise debt on a company that's not even rated yet. Another reason why you insure is the market perception, which is very different from the way it used to be a couple of years ago.

Actual transactions that were done, probably in the last 6-8 months, were insured on what we call second tier names. They want to make sure that they're actually going to get paid off, so there is that preference to get insured deals versus senior substructure deals. However, for the companies like G.E. or Chase and a couple of other companies like Green Tree that issue their deals very often, people are used to them, they have a fairly long track record, they actually are comfortable and people will invest in them in the senior substructure.

A lot of characteristics that Ernie had described earlier that apply to manufactured housing apply to this particular sector. You have your breakdown of interest rates that are between 10-15% depending on the credit of the person. Most of these loans had migrated from being 12-15 years old up to 30 years. A lot of it has to do with competition. The quality of the loans has been all over the place and that's why they grade them between B, C, and D and a lot of people who used to be D issuers are no longer around. Fixed versus floating and a variety of other characteristics of loans are pretty much common or very similar to the ones in manufactured housing.

The interesting thing is the breakdown between B, C, and D credits. No issuer assigns those ratings the same, so the loan from Chase that is rated a D loan for those particular characteristics is very different than a loan from G.E. that's rated a D, or some other issuer that is less creditworthy. As investors we look at these pools to understand what we're being sold. It's very important to actually look at these loans and ask, "What is a D loan? What is a C loan? Do I really want to buy any D loans?"

Going through that is very tedious. It's not like investing in single-family mortgages where everything is nice and easy, it has a 30-year history and everybody's been around forever and they do a very good job. Those loans have the breakdown, you have to pay attention, you have to understand where these loans are coming from, and you have to realize whether the person who's originating them has an ability to service this lower credit deal.

Another interesting thing that happened over time is that some of these issuers are no longer around. Now the problem with that, back to one point that Mark addressed, is that if the servicer is no longer around, what happens to the loans? Can they be transferred? Who's going to take them over?

Can the servicer who has declared Chapter 11 actually continue servicing it or do you transfer it to somebody else who may actually know what to do with these loans? The good part of it is that we don't have to look and try to figure out who is a bad or a good servicer because people who are surviving so far are the bigger companies that actually know what they're doing.

Most of these companies are bigger and these are the people who have a lot more capital to work with and are a lot easier to understand. For example, RFC has began late but they're doing a great job in originating those loans and actually servicing them and presenting the information.

One of the biggest problems was in 1995-96. If you went to any of our conferences where you get the information, we weren't able to get information from anybody because people were afraid that if their competitor looked at it they'd be able to steal their model and duplicate what they're doing. Getting the information on loans was one of the most difficult things to do. All of that information that I just mentioned and all of the loan characteristics do lead to your prepayment information and connects that information.

Prepayment on this sector is very similar to prepayment in the manufactured housing sector. If you think back about what I said about the kind of people who borrow for these loans, understanding prepayments is very different. It is not straightforward mortgages where you can say, if interest rates are down by 100 basis points, everybody is going to refinance. My prepayments are going to go from 10% CPR, which is 10% of my pool, to 40% of my pool and I'm basically out of luck. Now I'll have to take that money and reinvest it at a lower rate.

That's what negative convexity is all about. These loans are very different. These loans are the loans where people are unable to refinance because they're already borrowing at 11%. They're going to have a hard time going out six months later if interest drops 300 points and refinance 100 or 200 basis points lower. It won't happen.

However, what will happen is competition because there are 100 people who are originating these loans. If I just borrowed a loan at 10% and I'm paying \$1,000 a month on my loan, somebody can come to me and say, "Listen, I can save you \$100 a month and you'll pay \$900 a month as opposed to \$1,000." The way they do that is a combination of down payment and basis points, but less interest rate, so the competition drove the prepayment, not necessarily interest rates.

That is one factor that affects it. Another factor comes into effect if you're good for 12-18 months and you haven't had any delinquencies on your loan. You then become an A credit or B+ credit, which allows you to borrow at a much lower rate. Again, this has nothing to do with the interest-rate environment. The interest-rate environment stayed the same, but now you're able to borrow at a lower rate. That adds another notch to prepayment, so creating a prepayment curve or prepayment theory for these people is very difficult. That's the reason I say it's not a science, but it's an art. You have to understand what's going on in order to understand the prepayments of these people.

The other problem you have as you move on is defaults. What Ernie was pointing out is that people default and in the prepayment number that you receive very often you don't know whether those prepayments come from default or voluntary prepayments. You do need to dig a little further and try to understand what those differences are, that's another component of prepayments. Once you look at it, you have numbers that went from 20-25% CPR in 1995-96 which are going up to 40% CPR in 1997-98.

A lot of it has to do with various characteristics that I already described. Just looking at interest rates or trying to understand the way you would look at regular loans is impossible. You can't. Look at the convexity characteristics of these loans.

These loans are not negatively convex per se, due to the fact that these loans are not interest-rate sensitive.

Old names versus new names goes back to the fact that some originators are no longer around. ContiFinancial, a huge originator in this business, issued billions of dollars of loans, is no longer around due to Chapter 11. Southern Pacific, the company that was on the west coast, is no longer around. A couple of other small mom-and-pop shops that were originating are no longer around. It's good for us as investors because there was a natural fall-out, so to speak, where the stronger companies are left standing.

The bad part was trying to figure out who will be the originators that are going to end up standing? These are different things that we as investors need to look for when the brokers are knocking on our doors and saying, "Buy this security or buy that security." We need to stick to the good companies.

The characteristics of the spreads on home equity securities are shown in Chart 1. The good times were 1996-97 when the spread was really fairly stable. This is spread on what we pay when we buy securities over the treasury. There was a spike in 1998. They all look like they follow the same pattern. Then you have quite a bit of tightening in the beginning of 1999 because there's a huge demand for securities.

Then you have, again, the problems with Y2K and the fear that there is going to be a huge issuance in the third quarter, which frankly didn't materialize. If you look in August, September, and October, these spreads have actually tightened because investors need to invest, but the supply that was supposed to hit us didn't.

Chart 2 shows that for home improvement loans there was some kind of problem with the data. It looks like the two-year was trading at a wider spread, which means a higher yield than a five-year. That actually did happen. The reason for it is because in that particular time period securities didn't trade, which goes back to liquidity problems. When there are no trades, it's hard to report what the spread could have been. The two-year did trade and it traded wider than the five-year because the five-year wasn't traded.

Mr. Corbett: Commercial mortgage-backed securities (CMBS) is a very large marketplace that really started at the turn of the decade. It resulted really from the Resolution Trust Corporation (RTC) and S&L crisis.

The RTC really started off this whole marketplace. They were a big issuer of defaulted, nonperforming commercial mortgages out of S&L portfolios. It expanded from there to become a common form of investment for performing commercial mortgages. They're very simple structures.

As an example, you take in 100 loans with a \$10 million average balance. You'd have \$1 billion of whole loan commercial mortgages. What you essentially do to securitize this is move it to the special-purpose entity. You have \$1 billion of CMBS

and you tranche it up from AAA down through to B and unrated investments. We'll get into how you do that.

The principal collected on the underlying commercial mortgage loans is used to pay the principal due on the investor note balances. Interest collected on those same loans is used to pay investor note interest.

As I mentioned, this is a big market. Commercial mortgages represent over \$1 trillion. It's almost as big as the corporate bond marketplace at \$1.5 trillion and the other big segment that you see in financeable credit is consumer credit asset-backed market flows.

Table 6 looks at the percentage of refinanceable commercial mortgages each year that end up being securitized. You can see that this form of financing for commercial mortgages has been increasing each year on a penetration rate basis going from 11% in 1995 to an estimated 40% or so in 1998. It is becoming the dominant form of financing for whole loan commercial mortgages. Historically, banks and insurance companies were the primary source of funding for those assets.

TABLE 6
CMBS ANNUAL ISSUANCE VOLUME (\$ BILLIONS)

	1995	1996	1997	1998
Total CMBS	\$19.0	\$30.0	\$44.0	\$78.3
Estimated Balloon Maturities	\$173.0	\$149.0	\$156.0	\$180.0
Market Penetration	11%	20%	28%	43%

Who are the big players? Insurance companies, money managers, and banks are major investors in CMBS securities. The dominant Wall Street houses involved are Lehman, Morgan Stanley, and Credit Suisse First Boston.

I want to run through a generic CMBS transaction in Table 7. We picked a pool originated by Nation's Bank and it's called Nations Link 1998-1. This is a billion-dollar pool and you can see that the collateral gets tranced up into securities with ratings from AAA down through AA, A, BBB, BB, and B right down to an unrated first-loss piece. If you look to the far right you can see the credit enhancement levels by each tranche. Essentially, AAA classes represent 70% of the pool balance. The other 30% of securities in the trust become subordinated to the AAA and act as a form of equity. They bear all the losses first and they work their way up on the basis of quality. The nonrated class at the bottom bears the losses first. Then you go to the B, BB, and BBB. That's how you get these different tranches of quality across different security classes.

TABLE 7
Example of CMBS Transaction
NationsLink 1998-1

Tranche	Rating	Average Life	Amount (Millions)	% Pool	Credit Enhancement
Class A1	AAA	5.01	\$199		
Class A2	AAA	7.29	82	70.0%	30.0%
Class A3	AAA	9.46	434		
Class B	AA	9.76	54	5.2	24.8
Class C	A	9.81	56	5.5	19.3
Class D	BBB	9.81	48	4.8	14.5
Class E	BBB-	9.81	26	2.5	12.0
Class F	BB	9.83	51	5.0	7.0
Class G	BB-	9.89	26	2.5	3.5
Class H	B	9.89	26	2.5	3.5
Class J	NR	9.91	12	1.2	2.3
Class K	NR	9.91	23	2.3	-
			\$1,021		

Table 8 shows some typical characteristics of a commercial mortgage-backed pool. This particular pool had a weighted average loan to value (LTV) of 72%, so the standard-looking mortgage might have \$70 of debt against \$100 property value. Debt service coverage ratio (DSCR) is just net operating income divided by principal and interest due on the underlying mortgage and typically you see 1.3-1.5 times on that measurement basis. The average loan balance in this pool is about \$5 million.

TABLE 8
EXAMPLE OF CMBS TRANSACTION
NATIONSLINK 1998-1

LTV		DSCR		Loan Balance	
Initial Pool Balance	LTV Ratio	Initial Pool Balance	DSCR	Initial Pool Balance	\$ Balance (Millions)
2.3%	27-40	2.0%	2.0 and >	0.5%	\$0.6-0.99
7.6	50-59	1.4	1.80-1.99	11.7	1.0-2.4
4.3	60-65	15.6	1.60-1.79	29.3	2.5-4.9
15.6	66-69	33.0	1.40-1.59	11.2	5.0-7.4
26.8	70-75	42.6	1.30-1.39	7.4	7.5-9.9
38.3	76-79	5.3	1.19-1.29	5.5	10.0-14.9
5.1	80-83			15.4	15.0-19.9
				15.4	20.0-29.9
Weighted Average	72.2%		1.47x		\$5.1

These pools offer a number of advantages versus just generating whole loan commercial mortgage collateral. Obviously you get a number of loans in the pool, but you have good geographic diversity often. You also get a number of different property types within these pools. You're not just making a single loan, multi-family transaction-type investment. This one had 50% multi-families, 28% retail, and 6% offices, as the biggest categories.

They all have very strong prepayment protection. It's really a nonevent in this sector. They act more like bullet corporate bonds from a prepayment risk standpoint. There's very good relative value in this sector when you compare it to public corporates. In the AAA classes, there is 5-10 years in average life. CMBS spreads are currently around 130-140. This compares to 70 off for an equivalent quality corporate. It's obviously a lot tighter than what you get in the commercial whole loan mortgage marketplace.

If you're just originating one off mortgages you'd get anywhere from 200-260 off, but you'd have all the credit risk attached to originating one off commercial mortgages and the credit quality of those loans, would probably be more like a B or BB. Most of those would not even be investment grade.

The next thing to look at with this sector is the sizing of the credit enhancement in the sector and whether it's adequate. The way the rating agencies approached this sector, given that it's got such a volatile history, is they went back and looked at the 1980s experience which is probably one of the worst periods for commercial mortgage performance next to the Great Depression.

What they did was look at loans originated in the 1980s by a number of insurance companies and they tracked them on a static pool basis out to the present. What you do is you just take this discrete block of originated loans and track the default performance each year, and the recovery rates on the repossessed and defaulted loans. You then look at what the cumulative net losses are over that time period right to the maturity date of the loan.

These were very large studies. The Fitch Agency looked at over \$15 billion of loans originated from 1984-87, and there were 1,500 loans in their study. What they discovered was that on those loans originated in this very depressed period, 30% of the loan pool defaulted and they recovered \$0.55 on \$1, which led to a loss severity of \$0.45 on \$1. This led to an estimated lifetime cumulative loss experience of 13.5%.

Mark Snyderman, who did his study on behalf of a number of pension advisers, came up with an 11.5% expected cumulative net loss rate. On average between these two studies you might expect 12.5% cumulative losses in a really bad cycle. Table 9 compares that to the credit enhancement levels that we see in the sector. You can see for the Nations Link 98-1 transaction, AAA's had 30% credit enhancement, i.e., 30% subordination underneath them.

TABLE 9
1980S LOSS EXPERIENCE VERSUS
TYPICAL CREDIT ENHANCEMENT

		Fitch and Snyderman	
Expected 1980s loss experience Average		11.5-13.5% 12.5%	
NationsLink 1998-1	Credit Enhancement	Projection Multiple of 1980s Experience	
AAA	30.0	2.4x	
AA	24.8	2.0	
A	19.3	1.5	
BBB	14.5	1.2	
BBB-	12.0	1.0	
BB	7.0	0.56	
BB-	3.5	0.28	
B	3.5	0.28	
NR	2.3	0.18	

When you compare that to the 12.5%, that's 2.4 times protection of expected losses under a very worst case scenario. At the AA level it declines to two times; A is 1.5 times. When you get down to the BBB minus level, you can see that you cover that 1980 worst case experience only one time. When you get down to the below-investment-grade classes you see the coverage has dropped to 0.56 for BB and 0.28 for the BB minus and B.

What you're doing when you buy those B and BB classes is you're essentially arguing that we're not going to go through a 1980s commercial real estate experience, at least during the holding period for those securities. There's an implicit bet being made there. The reason people are willing to buy those securities is where we're at today with the commercial mortgage marketplace.

There are historic delinquency and foreclosure rates for commercial mortgages. Right now we're under 1%, which is about a 25-year low in terms of delinquencies and defaults for this sector. We have a very healthy real-estate market right now.

One of the concerns that a lot of people have with this sector is how the Internet is going to impact retail commercial mortgages. We will see what happens over the next decade. Retail represents a huge portion of the commercial real estate market.

With regards to the basic reverse engineering on one of these transactions, I wanted to point out that as you move into different asset categories, the rating agencies require much higher levels of enhancements. The reason they do that is they studied the default performance over time for each one of the asset categories, whether it's hotel, retail, multi-family, etc.

For example, on the hotel category, even though it has only a 67% average loan to value ratio for that component of the pool, it actually requires 61% credit

enhancement. That's based on the historic studies of defaults and losses on hotel loans. Obviously, they perform very badly.

In summary, why buy CMBS? Well, we invest in the sector for a number of reasons. One of the big reasons is from a portfolio standpoint it diversifies us away from the consumer credit risk we have in our asset-backed portfolios. It diversifies us away from convexity risk that we have in our mortgage-backed portfolios. It's another form of diversification away from corporate credit risk, because the real estate markets, when you look at the historic data, perform on a different cycle basis than corporate credit. I mentioned that it's very prepayment insensitive.

Another good reason to buy these securities is that they allow you to invest in the real estate market on a credit-enhanced basis. You also have much better liquidity with these securities than what you'd find owning say a single property in a single town in a single property type, so liquidity is a big factor as well.

The capital charges are substantially lower. These are treated as bonds for NAIC capital purposes. They are not treated as whole loans and there's an immense amount of re-underwriting and scrutiny of the assets in these pools. In addition, there's a lot of public information because Wall Street is heavily invested in these securities and needs to open up the sector to the broader marketplace.