

RECORD, Volume 22, No. 1*

Marco Island Spring Meeting
May 29—31, 1996

Session 64TS

Asset-Backed Securities

Track: Investment
Key words: Investment Products, Investments

Instructors: D. L. AUXIER†
FRANCIS P. SABATINI
Recorder: FRANCIS P. SABATINI

Summary: In this teaching session, various forms of asset-backed securities, e.g., credit cards, auto, home equity, commercial real estate, mobile homes, etc., are examined. A review of basic structures and a discussion of the risks and opportunities and critical parameters involved (e.g., what affects prepayments, extensions, defaults) is also made.

Mr. Francis P. Sabatini: We're here to talk about an asset class that hasn't really gained the favor of the insurance industry. Historically, the industry has tended to gravitate to asset classes that have generally provided yield opportunities. The industry still tends to be yield-driven in terms of its asset purchases to support the liabilities. We've seen that with commercial mortgages, high-yield bonds, and mortgage-backed securities, and we all know the experiences those particular asset classes have had. Asset-backed securities have been around for awhile. The market has evolved and continues to change. They haven't become what you would call a darling of the insurance industry, primarily because the yield opportunities haven't been there. The mortgage-backed market initially provided some extremely attractive yields, spreads over Treasuries, was a very high-quality instrument, and became very attractive to the buy side.

Asset-backed, although they generally are of similar high quality, just haven't, from day one, provided the yield opportunities. My impression, and there are no statistics available, is that the industry generally holds positions on an industry level or even on a company level less than 20% and probably less than 10%.

*Copyright © 1997, Society of Actuaries

†Mr. Auxier, not a member of the sponsoring organizations, is a Partner of Ernst & Young LLP in Memphis, TN.

Every company probably owns at least one, because the general inclination of most investment professionals is to own at least one of everything. So if you haven't looked at your asset portfolio, I would probably guess that there's at least one of these there.

There are many forms of these asset-backed securities, and they're increasing, not decreasing. The market's not mature in terms of the types of things that could get structured. Because they're a minor asset class in the industry, they're probably now the least understood asset class in the industry. They are least understood in terms of structure. What are the underlying dynamics of the collateral? For example, one of the asset-backed security classes you have is credit card receivables and auto loans. Those are probably the two most well known. Another is home equity loans. There's no prepayment experience or standard prepayment curves for most of those asset classes or at least there haven't been historically. In at least a couple of instances, they're just being introduced.

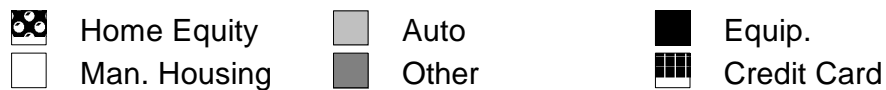
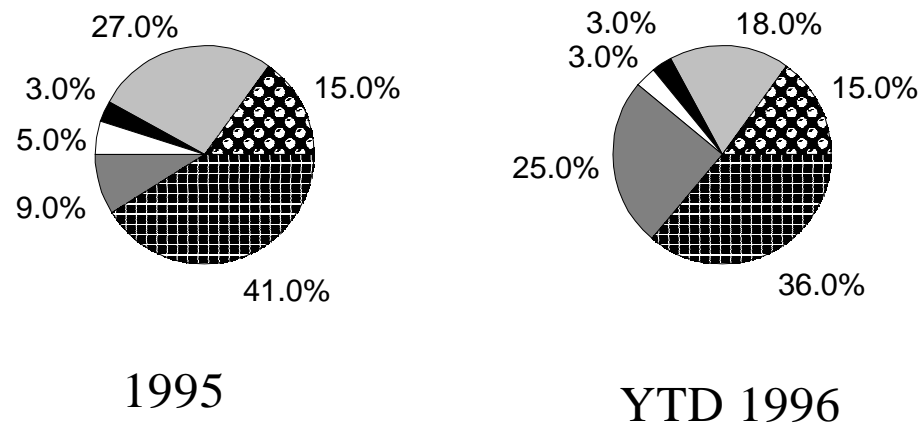
So this session has been designed as a teaching session to help expand the knowledge base of the audience in terms of what these things are all about, how they work, and how they're constructed. We're fortunate to have with us D. L. Auxier who is a partner with Ernst & Young. He's in the Capital Markets Group in Memphis. He is a certified public accountant, not an actuary, which makes him a good guy with a little more personality than I have. But his primary role, how he spends his entire life, is designing and structuring asset-backed and mortgage-backed security deals. It includes the entire deal structure, how the tranches are structured, how the deal is structured, and how much collateralization is put into each deal, including development of the offering documents. Other activities that also relate to the mortgage-backed security and asset-backed security markets include valuation, tax, and accounting advice. D. L. is going to be our primary teacher. When we sat down and decided how much I know relative to how much he knows, we decided it was better for me to keep my remarks fairly brief and to keep his fairly long.

Mr. D. L. Auxier: Some of my charts are going to contain some information that's kind of a recap of the growth of the market, but that has been a big part of the story this year with respect to the asset-backed securities market, because it has kind of been a banner year. We're estimating 1996 volume at approximately \$130 billion, which is more than double what we had in 1993, which wasn't so long ago. Much of this growth has been spurred by low interest rates. There's a large volume of collateral available to fund these deals. The bankers have been very active in promoting these transactions on the buy side, by working through structures to securitize receivables that previously, usually because of credit problems, would have been difficult transactions to get done. Investor acceptance has driven some of

this growth; so has low interest rates, and even some new emerging markets, particularly in the lower credit tiers. The lower credit-tier markets span both the auto and credit card areas.

Chart 1 shows the product mix in 1995. Of course, the credit card sector was the largest sector. Those are generally very large transactions with a very short duration. The receivables are very short duration through some structuring techniques. We've seen those deals get extended out for many years and we'll talk about that a little bit later. I'll get into the details of each of these segments. The auto industry follows closely, of course, so as you can see, the bulk of the asset-backed market is in fact in the consumer arena. In 1996, although the credit card and auto markets appear smaller percentage-wise, dollar-wise the numbers are very similar to 1995 when we saw a great deal of growth, though in the auto sector, it's just the number of transactions. The Big Three automakers, BMW, Toyota, and Nissan, are still doing their very large transactions, but there has been an incredible number of finance company transactions. These are deals that are generally less than \$50 million and at times are a lower tier as well. Home equity still comprises a healthy portion of the market. For mortgage investors, that's still an asset that they can get comfortable with. Manufactured housing is very similar. I equate manufactured housing as kind of a blend between the auto and the home equity market. Equipment loans and leases are a very small percentage, although there have been some very large individual transactions.

CHART 1
MAJOR ASSET TYPES



I do have a category for "Other," which experienced a great deal of growth. The big component of "Other," is student loan securitization. The big entry into the market the last year was the Student Loan Marketing Association (Sallie Mae) and it is projected to continue to be the major player in the "Other" category. There are some large financial institutions that do \$250–300 million transactions, but Sallie Mae will be the predominant player much like the Federal National Mortgage Association (Fannie Mae), the Federal Home Loan Mortgage Corporation (Freddie Mac), and the Government National Mortgage Association (Ginnie Mae) are in the mortgage market.

I hope to cover characteristics of the market and the types of issuing entities we generally deal with. They have some structural complexity built into them, usually because of credit concerns. Bear in mind, when we're talking about asset-backed securities, we're generally dealing with an asset class that has no government guarantee, except for some student loans, and most of the structural complexity is there to deal with the credit issues involved so that the senior securities can, in fact, be sold with an investment grade rating. I'll talk a little bit about the types of credit enhancement that's used to accomplish these objectives. Again, the structures and credit enhancement are very closely related, because that's usually the issue that's involved, although some of the structuring component does move into tailoring bonds for specific investor needs, although that's not the driving force of the market right now in most of the asset classes. It's more of a credit issue. I'll talk a little bit about the characteristics of the major sectors. I've divided it up into four areas: credit cards, automobiles, home equity loans, and student loans.

There are some others out there. The others are very small market segments, but they will have the same structural attributes as at least one of these four segments. I've eliminated commercial securities from there. I may mention them from time to time. In my world, I deal with mortgage-backed securities which are generally a residential, first-lien-type product. I deal with asset-backed, which is everything else except commercial loans, and that's a whole other science by itself, primarily because of the amount of property level due diligence that's required to get comfortable with one of those transactions. There's generally little credit dispersion because of the size of each loan. You're not able to apply the prepayment, default, and delinquency curves and forecasts to a pool with that minimal number of or small population of loans. So the analysis is so different, I've eliminated them from this session.

Then I'll talk a little bit about pricing methodologies. There are three in general: spread to average life, which is the old-fashioned method of benchmarking it off the Treasury curve and spreading it to compensate for risk; Z volatility, which we're seeing more and more use of particularly in the asset-backed arena and even some

of the commercial loan arena; and then option-adjusted spread, which some of you may be familiar with.

The four basic issuing entities are grantor trust, owner trust, Real Estate Mortgage Investment Conduit (REMIC), and Financial Asset Securitization Investment Trust (FASIT). When you're investing in asset-backed securities it's important to understand the role that the tax and credit implications have in the structuring of the securities. Very often it affects the flexibility of the investment banks and how they can structure the debt side of the transaction. The first one is the grantor trust. In a grantor trust, all you're really purchasing is a pro rata share of the assets in the pool. For that reason, the grantor trust will always be a single-class-type structure. It can be a senior/subordinate-type issue, but generally you're going to see a single class issue come out of a grantor trust. It's very popular in credit card issuance and some automobile loan issuance as well.

The second one is owner trust (these are all legal terms). Essentially, it's the same mechanism, although it allows for multitranching. You see that often in automobile and home equity loans. The primary reasons for these trusts are that the buyer of the securities doesn't want to be subject to the credit implications of the issuer of the securities. Therefore, the assets are always transferred usually through a couple of layers, but they ultimately find their way into the trust mechanism so that they are isolated from the issuing entity. In the event that the issuing entity suffers a downgrade of its credit rating or other more severe operating problems, the rating on the securities wouldn't be affected.

Much of the work the investment banks have done on the investor acceptance of these kinds of securities has really focused on that component in that there was a great deal of reluctance from much of the investing public to buy into these asset-backed securities because of some of the scary stories that emanated from the mortgage market. The general line they've used is if you're looking at making an investment in corporate debt and you can invest in an asset-backed security with a higher spread, is it not easier to understand the credit risks embodied in a specific pool of assets than it might be in a corporate entity? Corporate balance sheets and income statements are sometimes very tough to analyze and subject to different analysts' opinions, but maybe it's easier to get comfortable with a pool of 2,000 automobile loans and the credit risk embodied there and pick up some spread as well. I think they've been successful in that approach in that there has been large investor acceptance, particularly in the lower credit automobile loan deals.

Real Estate Mortgage Investment Conduit (REMIC). Unfortunately, this is a business that's full of acronyms and abbreviations, so I've tried to use the full names here whenever I could. REMIC is some legislation that was actually passed in 1986. We

often call the collateralized mortgage obligations (CMOs) REMICs. Essentially that's just the tax treatment. It clarified that when these mortgages are transferred to this trust and the trust issues securities, this trust is not subject to federal income tax, because there could be some timing differences between the income on the mortgages, the debt deductions the trust has on CMO bonds it issues, and it could actually generate some taxable income. REMIC legislation just clarified that and said this is a pass-through entity. The impact is that taxable income will be passed through to the residual owner of the trust, not the trust itself. Obviously, if the trust had a tax liability, there would be a cash-flow problem because they're designed to pay all their cash flow out to the bondholders. REMIC obviously is used for real estate. It's mandatory. If you do a real estate deal, it must be a REMIC. It's a legal concern. The attorneys wouldn't want to stamp an opinion on a mortgage deal that wasn't a REMIC for fear that if it was declared taxable by the Internal Revenue Service, they may be called on to help with the tax payments.

The last issue is FASIT and that's a proposed treatment. If it passes, you may see opinions vary. It will be either widely accepted or totally ignored.

I would consider it kind of the wish list vehicle of everybody in the structured finance business. One of the major constraints with a REMIC and in the other vehicles as well, with grantor trusts and owner trusts for most respects, is that you can't substitute collateral. In the event that in a REMIC you deposit \$200 million of loans to the trust and a month later \$10 million have defaulted, the issuer can't take those loans back and put another \$10 million in and still keep the necessary accounting treatment, which generally is what they want to sell in the transaction. They want to remove the assets from their balance sheet.

FASIT would provide for that flexibility. We'd see revolving pools for whatever reason, be it for credit purposes or to extend the life of the securities as you see in the credit card business. But it would allow for that flexibility. It was in the budget this year and obviously the budget caused many other debates that are not financially related. This item was actually removed when they were paring the budget back, hopefully to the salient items where they could get something passed or compromised and it was eliminated. It is in proposals right now on both sides of the House, so if it passes, we would have another vehicle to use and I think we'd see some use of it.

A major constraint of the FASIT, though, from the issuer's perspective is that unlike a REMIC, the issuer of those kinds of securities really doesn't book a transaction at all until the REMIC interests are sold to third-party investors. In a FASIT, a very different transaction takes place when the assets are transferred to the vehicle. As much as we all love to market, FASIT is even more restrictive than that. When the

issuer transfers the assets to the vehicle, the IRS has provided a discount rate to use for the valuation of those assets, and it is said to be around 10%. Obviously, if someone had 18% credit card receivables, deposited those into the trust, he or she would have an incredible taxable gain immediately, which I think would preclude the use of FASIT in most quality asset cases. And FASIT is elective, too, so it won't be mandatory.

Let's talk a little bit about the different structures that we see in the asset-backed market. There are four commonly used cash-flow mechanisms that impact from the investor's perspective both economic return and help structure out of the equation for the investment grade investors some of the credit problems that might otherwise affect them, although they would have an impact on the average life or duration of the security.

The first one is a prefunding account. We see the use of a prefunding account quite often with issuers who are in the normal course of business originating receivables. They see a market opportunity right now to do a transaction and want to build in a way to not only execute that transaction with the receivables currently on their balance sheet, but also the receivables they're going to originate over the next six or 12 months. Say they want to do a \$100 million transaction to take advantage of today's interest rate environment. They might have \$80 million of collateral on their books right now. They would do a \$100 million transaction, actually sell the securities with a \$100 million face amount, and put \$20 million of that money into the prefunding account. As they originate loans over the next six or 12 months, they would pull the money out of the prefunding account and essentially the trust would buy the loans from the issuer as they were originated. Some loan guidelines are structured into the documents so that these \$20 million of loans approximate the same characteristics of the \$80 million that was initially deposited. But there is some uncertainty there. There could be a downturn in the business for competitive reasons. They may not be able to originate the \$20 million, and in that case the securityholders would have to be redeemed early and it would greatly shorten the life. So one of the risks to be acutely aware of is that when you're looking at a transaction that has a prefunding account, have the originations gone as expected? Usually when these deals are modeled upfront, there's an expected case scenario, and what they think is going to happen.

You might want to even analyze a scenario—which is maybe more stressful—where only half of the prefunding account can be originated and the other half has to redeem the securities and see what impact that has on the life of the bonds. It's a very popular structure in the credit card and the automobile sector. We've seen it in the home equity sector as well. It allows for a larger transaction, which obviously has some appeal to both the issuer and the investor. Generally, if everything goes

as expected, the issuers can issue securities further out on the yield curve than they otherwise would be able to, because they have that six- or twelve-month extension on the origination of some of the assets.

Revolving pool structure is what you're used to seeing in the credit card business. You might have an initial deposit of collateral to fund the securities and as that collateral pays off, the institution just deposits additional collateral. That greatly extends the life of the deal. Usually the offering document would have some language that would describe how the securities will ultimately be redeemed, either by schedule or by bullet. Again, you have the same risk there as you do in the prefunding account. There's an assumption that the institution's going to be able to continue to originate receivables at a comparable interest rate to the original receivables and continue to fund the transaction. Obviously, if those things don't happen, there are some triggers built into the deal that would allow for early amortization.

There have been only a couple of cases so far in the market where those triggers have been hit; rating agencies are watching very closely. Those of you who subscribe to Bloomberg or some of the other services can see much analysis with respect to the monitoring of the large credit card issuers as they beef up their marketing efforts and are starting to penetrate into market segments that the rating agencies admittedly aren't as comfortable with and feel like some of these default and delinquency triggers might cause a problem. Also, the large credit card issuers are competing very heavily with one another for the same charge accounts.

There is one issue that the revolving pool adds to the function of safety. Because it has a revolving nature, there's nothing to say that the initial \$200 million of collateral will even be from the same borrowers as the second \$200 million that extends the transaction. There is a large amount of credit dispersion if things go as planned. So from that perspective, the balances are relatively small as well, and there's a great deal of safety there.

The senior/subordinate structure has probably been with us the longest. There are a number of ways to do it. The old loan participations were probably the earliest form of senior subordination where at least one participant would agree to absorb losses before the others got hit. It's essentially your simple waterfall of cash flow. As cash comes in from the collateral, it'll go to the senior class. The senior class gets its interest first, then the subordinate class gets its interest, and then the senior gets all the principal to the extent that it's available until it gets paid off. The subordinate tranche is usually retained by the issuer as a credit enhancement to allow it to sell the senior piece in the market at a very attractive yield level. It's very

common in the automobile issuance market, for credit cards, and home equity loans. It's used really across all the sectors.

The subordinate size, to a large degree, is driven by accounting rules. There are some rules that dictate the amount of subordination the issuer can retain to still get what we call sales treatment for the transaction as opposed to it being treated as a financing for the issuer. Therefore, the assets would stay on its balance sheet. The subordinate size can be engineered down by combining the senior/subordinate structure with other forms of enhancement, the reserve account, or something of that nature. I'll get to enhancement in a little bit and talk about the interaction of these various structuring techniques and how they're used to maximize the economics of these types of deals. But the subordinate piece is usually, based on my experience, between 2% and 20% of the transaction, depending on the credit rating of the underlying deal.

Multitranching is probably what most of you are familiar with on the mortgage side. It's where most of the investor complexity arises from a cash-flow predictability. It's used in really all the sectors now. We're starting to see some planned amortization classes in some of the automobile loan transactions, which add some stability, particularly as the auto deals get extended out to seven and eight years through the use of a prefunding account, we have enough duration to work with there to actually customize some bonds for investors as opposed to a straight four- or five-year auto deal that's all funded up front with an average life of maybe two-and-a-half years. You can't do much tranching. I don't know how many of you have seen prospectuses before, but there's usually some very detailed language about the direction of the cash flow once it comes into the trust. It'll be directed to the ABCD classes in this case, in whatever order the structured finance analyst dreams up.

Usually interest has a priority and then the principal gets distributed. It allows you to create floating bond rates out of fixed rate collateral. Of course, for every floater, you're going to have an inverse floater. It allows you to create interest only strips. It's very popular in automobile loan transactions now. Many of the multitranching structures are more investor-driven than credit-driven. The credit mechanisms are really below this. This is a means of maximizing the issuer's economics from the issuance by identifying individual investors who have a specific need for a specific performance. Usually it's the source of a great deal of conversation and negotiation, but it's more investor-driven than issuer-driven.

Let's talk a little about credit enhancement, which is the driving force behind the asset-backed market, particularly as the market matures. This applies to the bank-issued credit cards, the bank-issued auto loans, the captive finance company auto loans—that market's maturing very quickly. The spreads are very narrow. As the

bankers and the investors look for sales and yield, respectively, they're moving into a lower credit tier, and this is the part of the structuring where most of the effort is being placed.

We'll need to divide the enhancement up into two areas—internal and external. Internal means the transaction is going to retain the credit risk in some way. Someone's going to hold a piece of the transaction that's going to absorb the credit risk. The first one is a spread account; it's very common in the automobile loan transactions. A spread account is nothing more than a reserve fund that may be partially funded up front with proceeds from the sale of the securities. The rating agency dictates that it needs to be additionally funded up to a certain amount, usually a percentage of the bonds or the collateral, to sufficiently maintain a rating on the transaction. The way that's accomplished is, for example, a typical automobile loan transaction may have a finance charge rate of 15%, whereas the debt that's issued against that is only at 8%. Nearly all or a portion of that additional 7% of spread, nearly all or a portion of it, would be directed to this spread account initially until it is fully funded up to the necessary amount. You'll start dealing with loans that have a 15% rate, and you're going to have some charge-offs and delinquencies right out of the blocks. So there is some modeling to do there to understand the realistic funding of that spread account and when that might occur. It's not uncommon for the spread account to also be used in conjunction with a prefunding account, and all the other mechanisms are commingled, so it can get complex very quickly. It's more common in the automobile market than the others.

Excess servicing is akin to the residual in a REMIC. There are interest charges coming in off the collateral. You have debt you have to pay interest on and servicing fees being collected by the service. Net of that, there's some cash left on the table at every payment date when you're dealing with consumer receivables generally. It's not uncommon for the rating agencies to require that the bondholders have a first lien on the excess servicing before the issuer gets that back in its hands. It could be a portion of the excess servicing. It could be all of it. It could be that a portion of the excess servicing is going to be used to retire the senior debt ahead of time. You're paying bond principal with collateral interest. It accelerates the class, and it's more unpredictable than just a return of principal on the loans.

Reserve fund. It could be fully funded up front or the spread account mechanism could be used with the reserve fund. Generally, when I think of a reserve fund, I envision an amount funded up front at the rating agency's direction. It will rate the pool of collateral and determine what level of reserves are needed to cover cash-flow shortfalls: that amount will be funded out of the proceeds up front. All of these internal mechanisms are the property of this trust we spoke about earlier and are really bankruptcy proof from the issuer and are really available to the

bondholders in the event that they're needed. But you do have to carefully read the offering documents or term sheet to understand when you're able to dip into those reserves and what impact that's going to have on the investment, both from an economic perspective and an average life perspective.

From the Floor: Regarding excess servicing, does that build up to the first couple of servicing payments so it's not needed to tap into the trust? If they don't need that, does that accumulate so that they can tap into it, or is it just what's available from that cash flow?

Mr. Auxier: The question was, does the reserve fund build up over time or, once you've released it to the issuer, is it gone forever and you cannot get it back again? That's true. You can't go back. Once it's released, it's the issuer's property. Bear in mind that from the issuer's perspective, if you look at a very simple securitization where it has deposited its collateral into a trust and issued securities, the excess servicing may be the only credit enhancement. It could be that's what it is when it books the transaction. Its gain in the transaction is effectively this anticipated stream of excess servicing its going to get over time. That's its profit in the deal, so to speak.

The accounting rules read that it can present value using delinquency and default assumptions and a market discount rate, and that's the gain it books on the transaction. But it's a deferred gain with respect to cash flow. So in the relationship with the investment bankers, it's hard to tell whose side they're on. It depends on what point in the transaction you're dealing with them. The issuers, obviously, are wanting to get that excess servicing back as quickly as possible. If the investors have read the document, they will want it made available to them forever. The banker is in the middle trying to get a transaction executed. Somehow through this negotiation process, you come up with some middle ground where everybody's happy. But generally, I see the issuer understanding those ramifications more than the investor. Historically, the asset-backed market has not been involved with many defaults or credit problems. So maybe the investors are safe looking at that history.

From the Floor: How long, on the average, does that excess servicing stick around? I thought of it as building up like a spread account.

Mr. Auxier: The spread account is more common.

From the Floor: The account would sit there perhaps until the deal was retired at which point it would revert to the issuer. But I got the impression from the questions he asked that you'd lose absolute control of the fund. If you need it, fine, otherwise it's gone.

Mr. Auxier: That's true.

From the Floor: And it's probably some short-term account. Is there a typical or average—like three or four months or something?

Mr. Auxier: Yes. Usually you're going to see a small reserve fund held, particularly in the lower credit quality deals. You're either going to have overcollateralization or a small cash reserve fund. Much of that's driven by the interest gap the transaction has engineered into it, and by that I mean the gap between the net finance charges coming off the receivable pool and the debt expense the trust has. The larger that gap, the more comfort the rating agency will have that there's going to be enough there to cover the debt. That's really all they're concerned with. The excess servicing would only be used to the extent that it could be used in that month by definition. After that, it goes back to the issuer and the issuer can't have any obligation to give it back or it wouldn't be a sell for them.

The spread account is a more common mechanism and is popular because it maximizes the issuer economics. There's less out-of-pocket expense upfront, and they can fund the reserve fully over time with the collateral, so it makes the deal work a little better for them, but not necessarily as well for the investors if there are early problems in the transaction.

External credit enhancement is very popular and very easy to understand. It's very easy for the investors to analyze. If one of these firms is insuring the bonds, the rating agency doesn't even look at the transaction. It looks at financial statements of the entity insuring the bonds. It's a very simple analysis. If you're dealing with an AAA-rated insurer, the bonds must be AAA. That's not to say that there couldn't be some cash-flow anomalies for the investor, though.

You should pay careful attention to how these organizations would pay their claims in the event of a default. It could be that they're only obligated to pay the bonds by their stated maturity, which would be kind of a zero prepayment scenario. That would obviously extend the life of the deal enormously. It could be they have the option to do whatever they want to do: pay it immediately, wait until the stated maturity, or do whatever is in their best economic interests. The ones that we commonly see used are Capital Markets Assurance Corporation, the Financial Guarantee Insurance Corporation, the Financial Security Association, and the Municipal Bond Insurance Association. There are others. These are very popular in the larger transactions. You generally won't see them on the smaller deals. It adds a bit of marketing ease to the investment banking side in that they have to deal only with these insurance companies.

A typical transaction with FGIC would require the banker to get the deal rated single A. They would extract a fee and wrap the deal and cover it up to a AAA rating. So they have that gap exposure, but it's a very popular mechanism. This process allows the bankers to work very quickly with the analysts there who are very familiar with the credit concerns. It probably provides for a quicker, more efficient execution of a transaction, rather than dealing with individual investors on structural concerns and customizing the bonds, etc.

From the Floor: What's the usual charge for the insurance coverage?

Mr. Auxier: It depends on the perceived credit risk involved. The insurer's fee is generally between 10 and 50 basis points. If it starts getting to be any more than 50, it's really taking a gamble, because it's insuring a deal that it admittedly has some concerns about. It's not in the business of paying claims, so it wants to insure deals that it's going to collect the fee on. Under its analysis goes the same prepayment concerns an investor would have. It is essentially an investor in a single A or BBB deal when they buy into one of these.

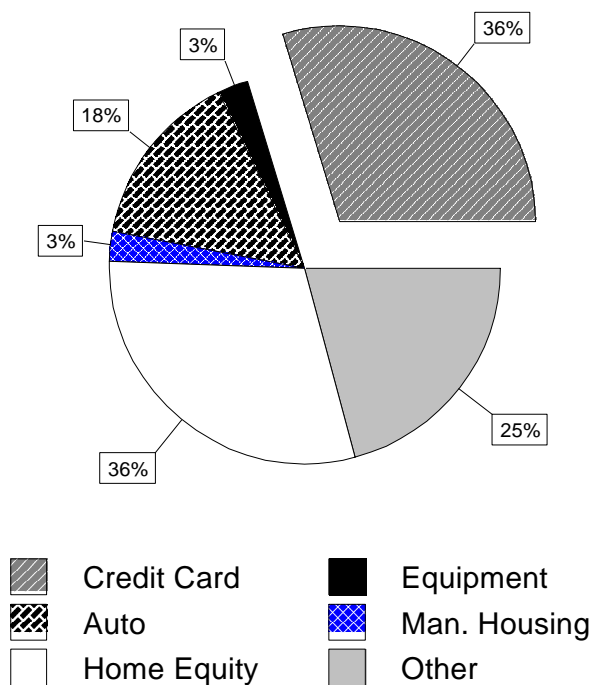
You have insurance on the collateral that guarantees payments on the collateral. A surety bond generally wraps the bonds. It has nothing to do with the collateral. An old-fashioned letter of credit isn't used very often to insure whole issues. It's a very popular mechanism within transactions to cover cash-flow shortfalls and short-term liquidity concerns a transaction might encounter.

We'll move into the four major sectors that I spoke about earlier. We can see in Chart 2 the year-to-date major asset types in 1996. Credit card has been 36% of the market. It's the biggest segment by far because of aggressive marketing. There are many types out there now. We can categorize them into these four categories. They're each very unique. We're all familiar with Visa and MasterCard. A good percentage of borrowers still use that as a borrowing device, or they use it as a cash, or an ease of payment mechanism. Many retail card deals have been done through retailers that carry their own charge accounts. Those are scrutinized a little more closely. Obviously, in any asset-backed securities transaction, the service's ability to collect the money is very important and rating agencies tend to have a little more confidence in financial institutions than they might have in a department store or a retailer of that sort.

Generally a back-up service is involved. This is not a situation that you, as an investor, would want to get involved in. Don't buy into a deal that requires a transition of the servicing. My experience is those have been generally ugly. Usually the litigation starts flying early on. If you have questions as an investor about a deal with respect to the service or the ability of the issuer to continue to

service, that should be built into the transaction up front. Make it clearly understood who's going to be the back-up service. Many times the trustees will accept the responsibility to find a back-up service in the event the original service ceases. But that hasn't worked out very well in the past. It has been an ugly exercise that has taken years and, generally, the investors have had interrupted cash flow.

CHART 2
MAJOR ASSET TYPES
YTD 1996



The teaser cards are the ones that generate the nightly phone calls at home. People want us to transfer our balances at some low rate. As an accountant, I always use the line that we audit them. I can't have any debt with them, so it gets me off of the call really quick. Anybody can use that, though. Just as you would expect, most people transfer their balances like that. Most of those teaser cards have a provision where the low rate is going to go back up to a market rate very quickly. I think many people have gotten savvy at just transferring their balances around and maintaining a low rate. You have a lot of prepayment sensitivity in a deal that has many of those types of cards.

The newest entry is the affinity card. Some of the Atlantic coast banks have been very aggressively marketing the affinity cards. That's the credit card that has the picture of your pet on it or your favorite sports team or your university or whatever. I'm fairly sure the lending institution's name doesn't even show up on the card.

This is a major concern of the rating agencies right now, primarily because they feel like most of the credit screening criteria that consumer lenders would normally adhere to is really being detoured and more focus is put on attaching themselves to a specific group of individuals with a common interest. Also, there's a lack of credit dispersion. It's one thing if you start marketing to all the Harvard graduates. Those might be dispersed very well. It could be a problem at a smaller university, like the University of Memphis, for example. I'd surmise a good number of those people are still in Memphis and they're subject to their local economy. So it's not as healthy a deal in that respect. The rating agencies are doing a whole lot of writing right now, and there are many publications available from the major agencies on some of these concerns.

Let's discuss characteristics of credit card deals. The major bank issuers have been around awhile. The market has matured very well. There are very standard, cookie-cutter-type deals now, except for the new cards they throw in from time to time. They continue to push out the maturity of these deals. In 1994, Citibank surprised everybody with a 12-year transaction. Discover did a 15-year deal in 1996. Even in a 15-year Discover card deal, the AAA-rated tranche, which was \$1 billion, was sold. I think it was about 37.5 basis points over London Interbank Offered Rate (LIBOR), so it was a very tight spread for a 15-year transaction. The A piece of the deal, which was the subordinate piece, was \$55 million and it was offered at 55 basis points over LIBOR, which is not too much spread for a single A investment. Obviously, Discover has been around a long time, and many investors have confidence in its ability to originate new receivables and keep the deal healthy.

Mr. Sabatini: What kind of pay down would you expect if you had a stated maturity date of seven years?

Mr. Auxier: I think your typical deal is going to be about a seven-year bullet. You're probably looking at a four-year payback, unless there's a structural mechanism there to actually extend the deal. Some of these deals have been done with what we call hard bullets. They mature in five years, but there are some refinancing risks there.

The pay down characteristics usually have either a bullet or some type of controlled amortization where, at some point, the deal triggers automatically. As an investor, you start getting principal back, much like you would in a planned amortization class (PAC) or target amortization class CMO. So it's something where they schedule a term or a sinking fund-type mechanism. They can be fixed rate or floating rate. Usually the issuer is going to take advantage of any arbitrage in the market between fixed and floating rates by issuing the deal that best benefits them.

If they need to do an interest rate swap to either fix it or convert it to floating, they'll do that outside the transaction.

We talked about an early amortization event earlier, when you have a revolving pool or a prefunding account. Credit card deals commonly use those, and that could trigger early amortization if the institution is not able to originate loans per the terms of the offering document to fully fund the transaction. That could shorten the life of the deal dramatically. All of the competition and the bank quality card issuers are causing a real concern for everybody right now.

Delinquencies and defaults often come with a cumulative default trigger. If they bust through that, then they must start paying the securities off more quickly.

It depends on how the yield curve is shaped, but the trend has generally been to continue to lengthen these transactions out. I don't think that is as much arbitrage-driven as it is investor-driven. As you move out the yield curve, you're availing yourself to other investors who might otherwise have with a two- or three- or four-year transaction you wouldn't have access to. Obviously, if Discover is doing a 15-year deal, it is talking to insurance companies. If there's a very short transaction, there would be little interest or not as much interest by insurers.

Credit quality erosion is a big concern for the rating agencies. Moody's Investors Service did a graph of the trend of total portfolio yields in the credit card industry since December 1994. The portfolio yield section peaked back in early 1995, and since then it has gradually been coming down. These movements are very slight, but keep in mind this is a business that thrives on basis points. We've seen that index come down to roughly 17% from a high of almost 20%. At the same time, the excess spread, which is the difference between these finance charges and the costs of the security coupon and other costs, including servicing costs, has also tended to come down. It's down below 5% now, which has an impact on the transaction. There is not as much excess cash flow to help cover the charge-offs and delinquencies. Delinquencies actually peaked a little bit above the charge-off section, but in both cases, you can see charge-offs and delinquencies both tended to be on the rise. So we have two factors there: the available excess cash-flow declining at the same time delinquencies and charge-offs are increasing. So the concern by the rating agencies is probably real, and eventually we're going to see one of these big deals that have one of these triggering events that will cause even greater concern.

Mr. Sabatini: Just for clarification, D.L., is a charge-off when you write off a loan as uncollectible?

Mr. Auxier: That's right.

Mr. Sabatini: Does a delinquency mean that the payment that was due wasn't made, but it's not necessarily unrecoverable?

Mr. Auxier: That's right.

Mr. Sabatini: So it primarily has a cash-flow impact.

Mr. Auxier: It's not available to pass through to investors. Most of that's competition-driven. Some of it's volume. Obviously, as you start servicing credit cards, it's a gain just like mortgage servicing. You must service many of them. There are some economies of scale to be gained by being huge. As these financial institutions become competitive and rob each other's accounts, it causes some operating problems.

Let's talk about automobile loans for a second. Banks, captives, and finance companies are the breakdown of issuance by type of issuer. In 1995, banks increased their share of automobile loan transactions dramatically to 28% from 7% in 1993. The captives have actually shrunk in size from 86% in 1993 to 49% in 1995. Much of that may be driven by just auto sales. Finance companies have grown dramatically from 7% in 1993 to 23% in 1995. Finance company growth is really skewed a little bit, because the number of transactions has probably increased tenfold. They're very small transactions.

A growing subprime market consists of people who can't go to a bank to get a loan. There are many used car loans as well. There's also a growing lease market. Leases, of course, are getting very creative now. Many people, who previously did not, are leasing cars. At the same time losses are growing dramatically. With lower rates, there's a great deal of competition to try to access the lower credit; everyone feels that the lower quality borrower market is a huge, untapped market, and many of the finance companies are being formed to access that.

There are general characteristics that you'll see in these different segments. Prime A is a bank quality automobile loan, with an annual percentage rate (APR) somewhere between 7% and 9%. Opinions differ on what you categorize as A, B, C, and D. The servicing fee is generally around 1%, and the balance will be available to pass through to the securityholders, of course. Moving to the subprime arena, these are people that just don't qualify for a bank loan. Maybe they've had a bankruptcy but had it fixed. Perhaps there are unemployment problems. A "C" is someone who currently is in bankruptcy. A "D" is someone who just has no credit whatsoever, which is very common. Of the C and D segments, the Ds are generally very rare.

Most of your transactions in the subprime market are going to be Bs and Cs, and much of that's dealership-originated paper that's bought by finance companies indirectly. APRs can get very high. I've worked on some transactions with APRs as high as 40%. The servicing fee, of course, is very high. A great deal of collection effort has to go on in those deals.

Mr. Sabatini: Although they tend to be smaller deals, another type of issue is dealerships.

Mr. Auxier: Yes.

Mr. Sabatini: That wasn't on the first chart, because they're just a small part of the market. And that's where the lower credit comes from, right?

Mr. Auxier: For much of the C paper you need to use your common sense on as you're looking through the offering document. If you see a deal that has weekly pay auto loans, you can bet that's the kind of transaction where the person has to go by the dealership and make the payment. Those are generally very low quality loans. The dealers admit that one of the ways they make their money on those deals is they sell the car, the person makes a couple of months' payments and they repossess the car and resell it. So by turning the car several times, they make a great deal of the profit. It does not really come from the finance charges. So now Wall Street has been very creative, and we've been able to securitize those kinds of loans, but there's a lot of excess cash flow to cover losses. We haven't had any problems yet.

In the deals backing automobile loans that are subprime, you're generally going to see very high subordination levels, as high as 50%, with all the various kinds of credit enhancement outside the bond insurers. They're generally not going to get involved in this kind of deal. You're going to see higher defaults and losses, smaller issuers, and much concern about the ability of the service. Much of the time the service is not the originator of the loan, it's merely the purchaser of the loan in the wholesale market. You'll want to see many statistics on what they've done and how they've gone about collecting loans.

Mr. Sabatini: What kind of spreads do the soft, subprime deals generate?

Mr. Auxier: The lock under the AAA tranche will come out of those, but it'll still sell at 110–120 basis points over maybe the three- or four-year Treasury. There's a great deal of spread there compared to the bigger deals.

There's a great deal of concern because of this kind of curve. Losses and timing of cash flow are very unpredictable. It could get extended way out simply because of

trying to collect the loan, chase the loan. There is a risk that you could eat through the subordination in the event that happened.

It's still AAA, but the reward is not that much greater than a captive finance company, like a General Motors Acceptance Corporation. They're going to be a little more straightforward in structure, but you're probably looking at another 10 or 20 basis points. They're generally private deals, too, so just the fact that they're a private placement and lack liquidity is going to add something.

Duff & Phelps did a compilation of gross losses based on initial receivables balances. I think there are about 35 subprime deals buried in this. In roughly the third or fourth month, the annualized losses peak at a very high rate, then they tend to trend down from there, not unlike a prepayment curve you'd see in a mortgage deal. There's a longer time period involved, but right off the bat you have many defaults taking place. That should clue you in right away that maybe some of the loans shouldn't have been originated in the first place. A and B credits have very low default rates in this sample, so again it's a business that's driven by the excess cash flow also of the performing loans.

Home equity loans are a little easier to get comfortable with, especially for people who are familiar with the mortgage market. That's because the same types of measures are used there to analyze the deals. Loan to value is very important. These deals are usually done as senior subordinate structures and are sometimes multitrancheed. It's not uncommon for there to be both floating- and fixed-rate classes. We generally have three different kinds of home equity lines. We have the closed-end in loans, either fixed rate or adjustable rate, and then the lines of credit that are either accessed by what used to be plastic. Many of them use checks now. For the line of credit loans, \$4 billion worth were originated in 1995. Generally those are securitized and issued as LIBOR floaters. The closed-end, adjustable rates generated \$3 billion, and the closed-end, fixed rates created \$8 billion. It's a very healthy segment of the market. Most of the players in that market are very conservative. If it was a larger market segment, I think it would have matured more by now, and maybe some of the engineering that goes on in the single family first lien market would be in these deals, but I think it's constrained a bit by size.

There's one thing that's interesting about these transactions. I always thought of home equity loans as second mortgages. It's not uncommon to see third and fourth mortgages in these deals, so much of the analysis goes into the combined loan to value of all the liens on the property to get an idea. These are generally seven-to-ten-year-type deals. They trade much like a private issue first lien REMIC by, say, a Pru-Home or a registered future's contract. The largest deal so far was from

Beneficial at about \$1.2 billion. So it's a good piece of the market and much easier to analyze than some of the other consumer areas.

There's been some movement into the B and C sector for lower quality borrowers. Loan-to-value tolerance has been moved up a little bit. The trends could lead to higher losses and, from the security buyer's perspective, a loss is a prepayment. That's going to be an acceleration of the senior class of securities in one form or another.

Several factors go into evaluating the loans. First there's property type—is it a single family or a four-family dwelling? What is the occupancy type? Obviously it's better if the dwelling is owner occupied than not. There's underwriting guidelines, which generally are spelled out in the offering document. In a couple of pages you can find out a great deal about the lending practices of the sponsor of the deal. There's lien status, as we talked about first through fourth liens. Another factor is combined loan to value—this was a second lien loan to value. It might be a fourth lien loan to value. This shows you just how subordinate you are to other lenders. Those are the types of things that are usually disclosed in an offering document in a tabular format along with some maximums and minimums laid in there.

The last category is "Other." As I mentioned, student loans play a big part there. The problem with student loans, particularly from a modeling perspective, is there are so many different kinds and all of them have different cash-flow characteristics. Some are government insured and some aren't. Again, on each of the insured ones, the government may have an option on how it decides to pay the loan off. From the investor's perspective, it's important to understand that. The challenge here is dealing, though, with the multiple types of collateral. Sallie Mae is the big player this year. I was kind of caught off guard.

I think the first student loan deal I worked on was bar exam loans only. Maybe it was bar exam and law access loans. These were all law school loans. We received a magnetic tape and there was something like 360,000 loans on there. I was surprised to see that many people in law school. It's a frightening proposition. In 1995 \$3 billion of securitized loans were issued. It's going to double in 1996 primarily because of Sallie Mae. Whenever the government gets involved, it's a big deal. The government has been very active and its deals obviously put much competitive pressure on the other common student loan issuers.

Table 1 shows some of the issues that have been in the market prior to Sallie Mae. They'll all feel some pressure from Sallie Mae's presence. Hopefully the result won't be like what Fannie Mae and Freddie Mac did to the other mortgage

conduits, but I think there's still going to be some issues there to be dealt with with respect to investor spreads. Key Corp leads the pack there. It had a very large market share. It's one of the innovators in the market as well and its deals generally contain all of those types of loans. It's very challenging to model.

TABLE 1
STUDENT LOANS (IN MILLIONS)

Issuer	Principal	Market Share
KeyCorp/Society National Bank	\$1,865.3	17.3%
Banc One Student Loan Funding Corporation	1,223.8	11.3
Student Loan Marketing Association	1,000.0	9.3
Student Loan Funding Corp.	786.0	7.3
Nebraska Higher Education Loan Program, Inc.	745.0	6.9
University Support Services, Inc.	737.3	6.8
Secondary Market Services, Inc.	608.6	5.6
Brazos Student Loan Finance Corporation	598.2	5.5
The Money Store, Inc.	564.6	5.2
Illinois Student Assistance Commission	395.0	3.7

Mr. Sabatini: Aren't these soft bullet-type issues for the most part?

Mr. Auxier: It's generally a pass-through structure. You'd probably see a seven to ten-year life on those kinds of deals.

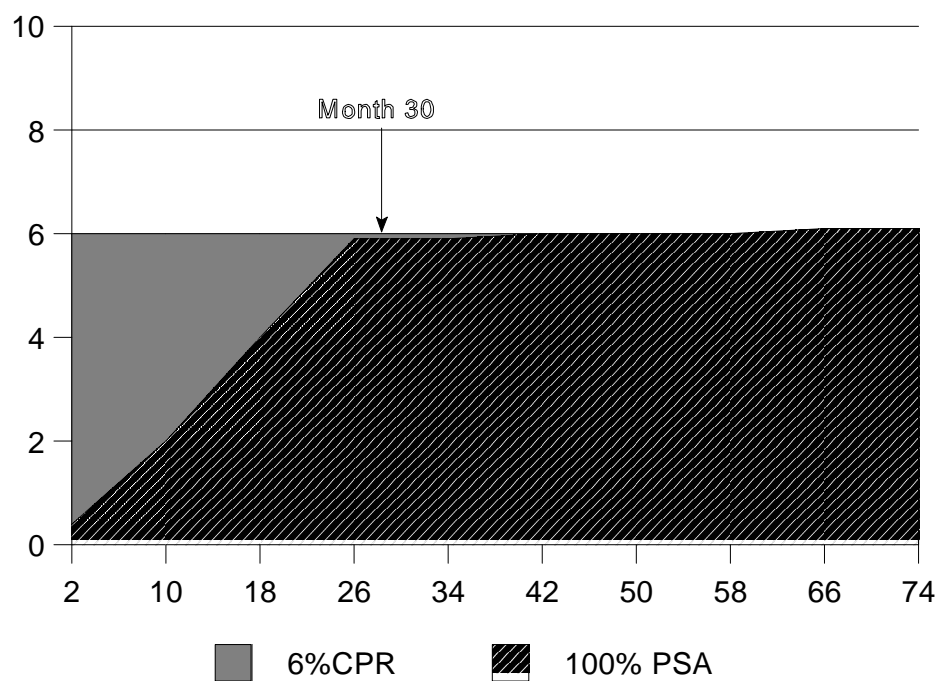
Mr. Sabatini: What kind of spreads are there at issue?

Mr. Auxier: They usually do a floating-rate class for the initial tranche, kind of a money market tranche. It's generally issued at about 30 or 40 basis points over LIBOR. The other classes are fixed rate and 50—70 basis points over the curve, depending on the term.

Let's discuss prepayment methods. Some of you are familiar with some of the terms I'll discuss. The conditional prepayment rate (CPR) is just a flat percentage per year. It's kind of the utility player in the prepayment methods. When you can't figure out what to use, most people default to some kind of CPR methodology to at least hold their thumb in the air and get somewhere. It's very common to use that in asset-backed securities, for any of the mortgage products. There's the Public Securities Association (PSA) model, which is primarily for mortgage loans. There's also the absolute prepayment rate (ABS) used for asset-backed securities. That is what it was made for. There is a home equity prepayment curve now and a manufactured housing prepayment model to be applied to those specific types of loans.

Let's compare CPR and PSA. Roughly 6% of CPR per year is equal to 100% of the PSA model, except the PSA model does have that ramp up front, of course, that we call the honeymoon period. In thirty months, the honeymoon is over. And there's a way to convert CPR to single monthly mortality, so if you're trying to model that, you have to understand the exponential function or you'll miss the cash flows by a little bit. It's a very common mistake. Chart 3 is a graph showing the difference between CPR and PSA. As you can see, 6% CPR is 100% of the PSA model at the 30th month and later. Prior to that, it just ramps up 0.2% a month.

CHART 3
CPR AND PSA



If you are modeling mortgage loan deals, and if you are working with a seasoned pool of mortgages that's less than 30 months' seasoned, it's important that you hit the curve at the right spot when you pick up the prepayment model. So that's commonplace for people. You might have some difficulty, particularly in a spreadsheet environment.

Let's compare CPR and ABS. ABS is used some in the asset-backed market. It's not as popular as PSA is in the mortgage market. CPR measures prepayments based on the full balance at the beginning of the month. Of course, it changes as it goes forward as the loan amortizes and has curtailments. The absolute prepayment rate is like CPR, but it measures prepayments based on the original balance of the pool. Table 2 shows an example over six months. ABS actually pays—the percentage or

the decimal equivalent of the pool that's outstanding. ABS actually pays down a little faster than CPR (1% of each), primarily because the ABS always references back to 1% of the original pool balance every month, but CPR is based on the declining pool balance. That's why you always see ABS expressed as a relatively low number. Most asset-backed deals are going to be priced somewhere between 1.2 or 1.5 with ABS. If it's done any faster than that and you would start paying the thing off in just a matter of months.

TABLE 2
SIX-MONTH CPR AND ABS

Month	1	2	3	4	5	6
ABS	1.0000	0.9900	0.9800	0.9700	0.9600	0.9500
CPR	1.0000	0.9900	0.9801	0.9702	0.9606	0.9510

There's not much correlation between interest rates and prepayments for auto loans. From an investor's perspective, I think what's going to have more impact on the life of the security might be losses and defaults on low-quality deals, because, from a structuring perspective, a default is like a prepayment, and that will accelerate the class very early. There's very little data on the student loan segment. Sallie Mae would probably be the best source of information, but I don't think it has kept data over the years. A good project for it would be to compile its historical experience, because I think it would be very valuable to the marketplace.

For credit cards, historical experience would probably be a better determinant than interest rates. As this credit card sector moves into new territory with more competition and different types of products, those trends may not yield anything of value. The nice thing about most of the asset-backed market is we're still dealing with assets and deals that have a relatively short duration relative to a 30 year mortgage. It's difficult to get hurt or to miss your guess by very much, just because we're dealing with a shorter period of time. Home equity loans and manufactured housing are areas where Wall Street has developed some specific curves that deal with interest rate changes and seasonality, particularly in manufactured housing. There is some correlation to interest rates. In the offering documents you'll see, particularly for securities that are mortgage-backed—a home equity loan transaction—a yield table showing the performance of the security under different prepayment scenarios, and that will give you an idea of the sensitivity.

Mr. Sabatini: I would imagine on credit card and auto loans it's the deal structure as well as the composition of the underlying collateral that matters. There's not much consistency in collateral.

Mr. Auxier: That's right. There's very little consistency.

Mr. Sabatini: That also impacts the way it prepays.

Mr. Auxier: The most commonly used valuation method is just spread the Treasury curve, run the transaction at what you think it's going to do, both with respect to prepayments and bearing in mind that defaults and delinquencies might have an impact on that. Calculate an average life or a duration and point to the Treasury curve. Interpolate a yield if you have to, and spread it to Treasuries. That's what most people do. It's very straightforward.

We're seeing some movement in the market toward a Z-volatility analysis, which actually involves creating a spot rate curve for that particular security and discounting each cash flow at the spot rate. We're seeing some application of that in the commercial loan market as well. Then, of course, there's the option-adjusted spread (OAS), which has a multiscenario analysis. In the option adjusted spread, I think the Z-volatility analysis is probably going to be used more frequently, with respect to asset-backed securities, simply because the validity of the assumptions are obviously a question in the option-adjusted spread model. Everybody has a different model. The Z-volatility model is very straightforward.

From the Floor: How would you know for the analysis whether the spread over the Treasury is constant as it is in the OAS? Or is it the same spread over every spot or if points of spreads vary with different spots?

Mr. Auxier: You vary the spreads. Each cash flow is valued separately.

Let's discuss an example of a simple spread to Treasury versus a Z-spread. I'll give you an idea of how that might differ. Again, this is a market that's driven by basis points, so in this case we ultimately made a four-basis-point difference. We picked up a PAC bond with five-year average life that is very similar to an asset-backed. We created a Treasury spot curve, and I think this was a spread where this deal actually traded, too, spot 95 basis points over the five years. Its Z-spread was a little less at 91 basis points, but that's a valuation method that, I think, deals with the unpredictability of the cash flows. It's more of a theoretical term structure, I guess, using that on the cash flow. An actual term structure would probably reflect a little more supply and demand pricing for each cash flow. But everybody feels like that's a fairly good measure.

Let's discuss emerging markets. Again, the subprime auto loan market is going to continue to grow. I would expect that as it matures we'll see consolidation in that marketplace, so you might see some larger deals. Automobile leases will continue

to be a growing market. Much of the automobiles coming off the new car lease programs are going to find their way into securitization as used cars. Equipment leases are very popular. For small business loans, we see a great deal of what I would call inventory loans, a very popular vehicle. You see a great deal of that in the commercial paper market, but now those are starting to get extended some. There have been a few tax lien deals by different municipalities. The international market, of course, has not yet found its way here totally. There are a few timeshare deals but they are quite risky. And then, of course, there are life insurance viatical settlements. Only a few people have done those deals. I haven't been involved in any of those myself.

You want to draw parallels between the mortgage market and the asset-backed market, because many of the people who are doing asset-backed deals now used to be in the mortgage market. The same type of structural issues they've used successfully there I think will ultimately find their way into the asset-backed market in one way or another. Indexed amortizing notes are a mortgage product that aren't tied to the prepayments on a specific pool of mortgages. They might index exactly with all of the Fannie Mae eights. Rather than predicting a specific pool, you're predicting similar coupon payments as a whole. It's a little easier to predict. We might see some of that type of technology coming to the credit card market or the automobile loan market, particularly with the very large issuers. Rather than issuing directly or debt backed by cards, they'll issue a synthetic that's just indexed to their total portfolio or some type of credit card index.

For most of the structured products, the secondary market has always been a big question. One of the primary complaints I hear is that you can get plenty of information up front as an investor when the deal is being offered, but on an ongoing basis only the largest investors are capable of providing current pool information and keeping you apprised of how the pool is performing to alert you to problems. That's probably the issue that's going to be dealt with the fastest, because the firms that are able to provide that kind of information through Bloomberg or some other service are seeing that they're able to enjoy tighter spreads. It's easier to go back to those same investors again when the investors know they're going to get updated information periodically. So technology is making that available, too. The secondary market's quite limited for that reason. It's just hard to get updated information other than by going back to the trustee in the deal. They were never really hired to do that anyway.