**California Debt and Investment Advisory Commission**

**Webinar Transcript**

# The Public Investment Portfolio: Understanding Structured Pooled Securities Asset-Backed, Mortgage-Backed and Collateralized Mortgage Securities

**Wednesday, September 2, 2015**

(Editor's Note: This transcript has been prepared by the California Debt and Investment Advisory Commission (CDIAC) and it believes it to be a fair and accurate reproduction of the comments of the speakers. Any errors are those of CDIAC and not the speakers.)

*Asset-backed securities (ABS) and mortgage-backed securities (MBS) are two potentially useful investment options available to local agencies. ABS are supported by the pooling of assets such as leases while MBS are supported by pooled mortgages. Collateralized mortgage obligations (CMO) are more complex financial instruments as the income received from the mortgages is passed to investors based on a predetermined set of rules, and investors receive payments based on the specific layer of mortgages (called a tranche) in which they are invested.*

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## Title Slide – The Public Investment Portfolio: Understanding Structured Pooled Securities Asset-Backed, Mortgage-Backed and Collateralized Mortgage Securities

**Linda Louie:** Good morning, everyone, and welcome to the California Debt and Investment Advisory Commission's webinar, *The Public Investment Portfolio: Understanding Structured Pooled Securities*, that's the asset-backed, the mortgaged-backed securities and collateralized mortgage securities. My name is Linda Louie and I'm the education manager at CDIAC. Before we proceed with our broadcast, I'd like to share some background and housekeeping tips. If you're experiencing any technical problems currently, please contact GoToMeeting at 1-800-263-6317. Again, that's 1-800-263-6317, or you can try the website at the address on your screen. *Understanding Structured Pooled Securities* is actually the eighth component of a

nine-part webinar series on public investments that we've scheduled to run through this summer. We delayed the sixth session on CDs, *[deposit]* placement services for September the 9th.

If you have been participating in this webinar series, you know that each of the nine webinars focuses on a category of statutorily authorized investments in a way that will help you understand many of the features and risks and how you might go about assessing whether or not a particular investment meets or fits your agency's investment policy objectives. We thank you for joining us today. And if this is your first broadcast, we hope you'll enjoy it. If you're continuing on the series with today's broadcast, we hope this webinar will continue to provide you with the fundamental understanding of the full spectrum of investment options for the public investment portfolio. And if your schedule has not allowed you to dial into every webinar in this series, CDIAC has a number of different resources and recommended readings available to you on our website. You can visit those on the CDIAC education webpage. The presentation slides for today's webinar are also available on the CDIAC website at the address on the screen. In fact, all of the webinars in this series are posted in sequence by the date they're offered to the CDIAC website, usually about two to three weeks following each of the broadcasts. In addition, may we point out that the 2015 edition of the CDIAC's *Local Agency Investment Guidelines* and the *California Public Investment Primer* are currently linked on CDIAC's main webpage at the address listed on the screen.

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**Skipped Slide 2**

**Slide 3 – Disclaimer** **(04:10)**

**Linda Louie:** Before I introduce our experts, we ask that you take a note of an important notice on the screen, it's a disclaimer. Today's presentation is informational and does not constitute investment advice or recommendation. There are many risks, policy, portfolio and suitability factors that must be considered by an agency prior to making an investment decision. So the webinar material is presented as today, Wednesday, September 2nd, 2015, and in current context. So keep in mind the replay of the webinar that will be posted will *[not]* reflect changes in the investment authority or market conditions which may occur after today and changes that may

affect the suitability of an investment. Today's webinar is designed to provide you with an overview and understanding of pooled securities under California code and the securities structures and characteristics for asset-backed securities, mortgage-backed securities and collateralized mortgage obligations. California code restrictions with regards to maturity, ratings and portfolio limits will be covered, and examples including evaluations and credit monitoring for those instruments. And you'll have discussion of the different types of risks and important analysis used, especially when considering asset-backed securities in public investment portfolio.

**Slide 2 – The Public Investment Portfolio: Understanding Structured Pooled Securities Asset-Backed, Mortgage-Backed and Collateralized Mortgage Securities (05:29)**

**Linda Louie:** So with these objectives in mind, let me introduce our presenters for today's webinar. It gives us great pleasure to introduce Marty Cassell, who is the chief executive investment officer at Chandler Asset Management and is a principal of the firm. Mr. Cassell is responsible for defining, planning and directing the firm programs and heads implementation of the firm's investment strategies and portfolio risk management. He designed the proprietary quantitative models that drive the firm's investment process. He joined the firm in 1991, from the City of San Diego, where he managed the City's $1 billion fixed-income portfolio. He began his investment career in 1987 managing the liquidity portfolio at World Savings and Loans. Mr. Cassell frequently speaks to association groups and the University of California, San Diego, Rady School of Management. He is a member of the CFA Society of San Diego and holds a designation of a chartered financial analyst.

Joining Marty is Jeff Probst. Jeff joined Chandler Asset Management in 2012 and is currently the vice president and portfolio manager. He works with portfolio managers performing analytics and fixed-income research and transacting securities. Prior to joining Chandler, Mr. Probst worked as an investment analyst at B of I Federal Bank in San Diego, where he analyzed mortgage-backed securities and structured debt. He started his career at Western Asset Management as a mutual fund treasury administrator in the proprietary funds division. Jeff also holds a designated chartered financial analyst.

Third, we have Garret Sloan, who is the fixed-income strategist at Wells Fargo Securities. Mr. Sloan produces a couple of newsletters, such as the Daily Short Stuff and the Money Market Monitor. He also contributes to various topical publications for short-term investors. He is a contributing author to the Frank Fabozzi textbook, *Structured Products and Related Credit Derivatives* and has been quoted in Bloomberg News, Reuters, The Washington Post, Crane's Money Market Fund Intelligence and iMoney*[Net]* Money Market Insight. He's been a speaker at various symposiums and forums, such as Crane's Money Fund and the iMoneyNet Money Market Expo. Mr. Sloan is also a chartered financial analyst and a member of the Northern California *[North Carolina, not Northern California]* Society of Financial Analysts Group. He holds his Series 7 and 63.

And Last but not least, we have Thomas Williams. Thomas is from the City of San Diego where he is an investment officer with the City, where he served there for the past eight years. He is responsible for the investment of the City Treasurer's pooled investment fund and other city bond reserve and construction fund. Prior to the City, Tom served as the fixed-income portfolio

manager for the Arizona State Retirement System, where he managed the fund's fixed-income program. And he began his career at Charles Schwab & Company, where he mostly managed an equity trading desk. Thomas is a past president of CFA Society of San Diego and a board member of the Government Investment Officers Association. He, too, holds a chartered financial analyst position and is a certified treasury professional designation.

So with these sterling introductions, let's turn over the presentation over to our speakers. And I believe we'll begin with Garret Sloan.

**Slide 4 – A Description of ABS, MBS and CMO… (09:15)**

**Garret Sloan:** Thank you, Linda. I appreciate the kind introduction. Full disclosure, while I would like to say that I was from Northern California, I'm actually from North Carolina. So, that's just one thing there, but I'm glad to certainly be here in California and to be speaking with my esteemed colleagues here and with this group. So let's just get right into this. The first thing that I wanted to talk about and what I've really been wanting to focus on is just giving you a brief overview of what asset-backed securities are, how they relate to mortgage-backed securities and collateralized mortgage obligations. We're going to be focusing the bulk of the time on the ABS market, but I do want to give you some context into what other secured or securitized structures are out there.

**Slide 5 – Securitization (10:09)**

**Garret Sloan:** So the first thing that I want to talk about really is what is securitization itself. What does that mean, the word securitization? We probably hear that quite a bit. What it simple is, is the process of taking an asset or a loan – a loan is an asset – and turning it into a security that can be more readily purchased or sold in the market. We generally think of two broad types of securitization: mortgage-backed and asset-backed. And, you know, securitization in general, the purpose is essentially to create market liquidity by introducing more types of opportunities for investors, or really introducing more investors to be able to purchase or to participate in the investment universe. Another reason is to really lower the cost of borrowing for investors. Historically, you know, if you think about the process of moving money from investors to borrowers, a lot of that was facilitated by banks. Well, you know, corporate bonds is one way in which, you know, banks have sort of been pulled out of that process, except for arranging. The securitization process is another way of being able to bypass in a lot of ways the banking function and really allowing borrowers to access the money that investors hold directly, with obviously some ranging in the middle. But another term for that is called disintermediation. But just like the corporate bond market, when a borrower can access the capital markets or investors directly, their borrowing costs tend to go down, making the market in my opinion more efficient.

The risks, obviously, there are risks in this process. I think many of us are familiar with the financial crisis was brought about, by in large part, by the securitization markets. There obviously is a lot more that goes into that. But securitized markets or the mortgage-backed securities take the brunt of that criticism. One thing that regulators have tried to do since the crisis is to attempt to align sponsors of securitized transactions, aligning their incentives with investor incentives by requiring that sponsors hold onto a part of every securitized deal that they

arrange. And that ensures, at least it is supposed to ensure in theory, that they are not just securitizing poor loans and transferring the risk to someone else. That did obviously happen in the past.

**Slide 6 – Mortgage-Backed Securities (12:43)**

**Garret Sloan:** I would certainly say that the vast majority of securitized transactions were not that way, but certainly they've been painted with a broad brush. I won't go any further on that topic. So let's go and just give a brief background on what mortgage-backed securities are. Essentially mortgage-backed securities, or MBS, as we call them, are pools of mortgages that are converted to securities for sale to investors. They can be either residential or commercial mortgages. Generally investors in a pool of mortgage securities have a pro rata share, meaning, you know, depending on how much you invest in that pool, you have that – you have that amount of interest in the pool of mortgages itself. And that includes receiving, you know, your principal back and receiving interest payments based on how much you decide to invest. We also call these pass-through securities because the coupon rate or the average coupon – so if you think about a pool of securities, you average all of the – you average all of the mortgage rates of all of those mortgages, you come up with an average coupon for the entire pool, that average coupon rate on all of those mortgages is passed through to the investors. So unlike corporate bonds, mortgage-backed securities have prepayment risk associated with them as borrowers. As you and I both know, we decide to refinance our homes sometimes, and sometimes that's for a lower rate or sometimes we may sell our house. We need to get a new mortgage. All those are considered prepayments, and that's one risk that we need to monitor in mortgage-backed securities.

In both of those cases, if we decide to either refinance or we move, investors receive their principal back before maturity. And as such, the actual maturity on mortgage-backed securities is generally shorter than the final maturity. So if you take out a mortgage for 30 years, generally the pool of mortgage-backed securities, if you look at the – if you look at the average maturity of that pool is going to be much shorter than the 30 years that is on the stated final. And those maturities on mortgage-backed securities can fluctuate significantly with changes in interest rates because the incentive to refinance changes with interest rates.

**Slide 7 – Mortgage-Backed Securities (cont.) (15:09)**

**Garret Sloan:** You know, we split the mortgage-backed securities market into agency MBS and non-agency MBS. Agency MBS are mortgages that are guaranteed by one of the three agencies, or we call them GSEs, the government sponsored enterprises. And those include Ginnie Mae, Fannie Mae and Freddie Mac. Actually, Ginnie Mae is not actually a GSE. Ginnie Mae is actually an agency of the U.S. government. And so Ginnie Mae mortgage-backed securities are actually backed by the full faith and credit of the U.S. government. Fannie Mae and Freddie Mac securities are not explicitly backed by the U.S. government. And that's more traditionally what we've considered GSE mortgage-backed securities. But since the financial crisis, Fannie Mae and Freddie Mac are almost wholly owned by the U.S. government. They have the ability to borrow from the government and they remit all of their earnings that they make off of their loan guarantees and their mortgage portfolios back to the U.S. government. So they're very closely linked with the U.S. government even though they are not like Ginnie Maes.

**Slide 8 – Mortgage-Backed Securities (cont.) (16:16)**

**Garret Sloan:** Next slide we're going to look at is just the mechanics of the creation of a mortgage-backed security. As you can see here the characteristics of the pool of mortgages are very important to investors. So if we go from left to right, we first start with individual mortgages. Then we move into the process of securitization and creating of a pass-through. But the things that are important are: what are the characteristics of these individual mortgages? So not every mortgage is created equal, as the financial crisis certainly taught us. But even beyond just thinking through poor underwriting standards, different borrowers have different characteristics. So things like whether or not a mortgage is a 15-year or a 30-year, where is the geographic location of this home that I'm mortgaging? What is the loan amount to compare it to the value of the house? What's the actual size of the loan? What's the FICO score of the borrower? What about if the mortgage is on a vacation or a primary residence? What about the number of loans in a pool? So if one borrower defaults, smaller loan pools will obviously mean, you know, more of an impact on that actual security. So these all weigh on the value of the security to investors. And better underlying characteristics will cause mortgage-backed securities to be priced more favorably. I think we're going to get into that a little bit more in future slides.

**Slide 9 – Collateralized Mortgage Obligations (17:43)**

**Garret Sloan:** The next thing I wanted to talk about was sort of an iteration of the mortgage-backed market, which are collateralized mortgage obligations. If a mortgage pass-through is basically a pro rata structure, meaning basically everybody that invests in a pass-through is kind of equal with one another more or less, CMOs or collateralized mortgage obligations take this one step further. So if you think about it, certain investors may not simply want a pro rata share of a long dated mortgage pool. They may be prevented from buying longer dated mortgages, or they may just want more protection from prepayment risk, or the corollary to prepayment risk is extension risk. Or they may want a higher yield. So collateralized mortgage obligations actually take mortgage pass-through securities and they redistribute the principal and interest so that certain prepayment characteristics are transferred to certain investors and not to others. So investors who want maximum stability will receive a lower yield, but they will also have more certainty around prepayment. And those prepayment risks are then absorbed by other investors who want a higher overall yield but will accept the risk of more volatility in their cash flows. And structures will marry up those types of investors into a CMO so that different investors can basically take on different types of risk and be comfortable with that risk, whereas in a pass-through, all that risk is kind of shared equally amongst all of the investors in the same way.

**Slide 10 – Collateralized Mortgage Obligations (cont.) (19:27)**

**Garret Sloan:** So if we look at a CMO, what's going on here? Every CMO starts with a mortgage-backed security pass-through. The principal and interest are broken up and redistributed to investors differently. As you can see here, the A-1 tranche is designed to have the most – well you probably really can't see that there. It's a little too basic to see that. But rest assured what I'm going to tell you is the A-1 tranche is designed to have the most stable cash flows. And the A-2 and A-3 tranches accept more prepayment volatility for higher yields. In the

agency MBS market, defaults are considered prepayments like any other prepayment because Fannie, Freddie and Ginnie guarantee the repayment of principal and the accrued interest.

**Slide 11 – Asset-Backed Securities (20:21)**

**Garret Sloan:** So that takes us to kind of more of the heart of the presentation today, is the next sector that we want to talk about, which is the asset-backed sector. So turning to the asset-backed market, what are ABS? They are created from similar financial assets. So if mortgage-backed securities are created from pools of mortgages, asset-backed securities are created from pools of assets. When we say assets, we're also thinking loans, but just different types of loans, not mortgage loans. So instead of mortgage loans, ABS are created from things like credit card loans, leases, auto leases, auto loans, student loans, equipment loans. If you think about equipment, you could think of anything from like Caterpillar, you know, large industrial equipment, to agriculture, things like John Deere or Case New Holland. We also have things like home equity loans. So if you have a lot of equity in your home and your banker said do you want to have a home equity loan, that home equity loan is often sold to third-party investors. Dealer floorplans. So, you know, in Charlotte we have a big dealer, Scott Clark Toyota or Hendrick Motors. Those companies need financing just to finance their floorplan or their inventory of cars. And so they will go out into the securitization markets for that as well. Rental car agencies. And the list goes on.

So these loans are pooled into what we call a trust. And in the trust – or the loans and the assets are sold into that trust and investors can invest an interest in the trust itself. The trust may also be called a special purpose vehicle. You've probably heard that word before. So the word "trust" and the words "special purpose vehicle" are somewhat interchangeable.

**Slide 12 – Asset-Backed Securities (cont.) (22:27)**

**Garret Sloan:** If we go on the next slide, looking at the mechanics of the creation of an asset-backed security. Very similar to the creation of a mortgage-backed security. ABS security assets are pooled, sold into the special purpose vehicle, or "trust." The assets – or a trust is created and then assets are pooled and then that pool of securities is sold into the trust. You know, we often get this question, why do you have to create the trust? What is the whole purpose of this trust? Why don't we just securitize these one-offs individually? Well, the reason we create a trust is we need to have an arm's length relationship between the sponsor of the assets and the loans themselves. Why do we need to do that? It's really to ensure that the assets cannot be reclaimed by the owners of a company originating those assets in the event that the company defaults.

Let me give you an example. If you think about Volkswagen, they have an auto finance arm that helps them sell automobiles. So Volkswagen sold a number of its auto loans into the trust. You think about those auto loans, those auto loans before they're sold into the trust are assets of Volkswagen Auto Finance. That's a company. And those loans are considered assets. Just like a bank has assets, our loans are assets at the bank. So consider whether – let's say Volkswagen, and I'm not picking on Volkswagen, I'm just using that name. Let's say Volkswagen Finance went bankrupt or something went wrong, the loans that are existing in the trust, or the special

purpose vehicle, could not be seized or reclaimed by the creditors of Volkswagen Finance because they would be owned by the trust itself. So like a collateralized mortgage obligation, investors in the trust can buy different tranches, they can buy the A-1 tranche, A-2, A-3, A-4, all the way down to the very bottom, as you can see here, there is a bottom equity tranche. And in asset-backed securities, ABS trusts, the tranches are generally rated differently by the rating agencies because in ABS transactions there is also a component of credit risk involved. And the lower tranches provide credit support to the higher tranches. And what that means is that defaults in asset-backed securities are generally transferred first to the lower tranches until they're entirely exhausted before the higher tranches are impacted.

So if you look on this slide, one of the things you'll see is the equity owner at the bottom. The equity owner in an ABS transaction is going to absorb the losses first. Now, for acceptance of those losses, the equity owners are also going to require the highest return on their investment. So there is obviously a tradeoff there. So the highest investors in an ABS are generally paid the least, or their yields are the lowest because they're the least risky.

**Slide 13 – MBS vs ABS** **(25:38)**

**Garret Sloan:** Very quickly, if we look at a very simple comparison of the mortgage-backed securities market versus the ABS market in terms of size, it's important to note that the agency MBS market is almost ten times the size of the ABS market. One thing we haven't talked about is the non-agency MBS market. But you can consider that the non-agency MBS market is about the same size as the ABS market. Slightly bigger. And the non-agency MBS market consists of those types of mortgages that we call the nonconforming. So they are mortgages that Fannie, Freddie and Ginnie Mae have said these do not conform to our underwriting standards and, therefore, they cannot be guaranteed by us. So that's what we call the non-agency MBS market, and similar to the ABS market, the non-agency MBS market has a component of credit risk with it. So along with prepayments, there is also the risk of default in non-agency MBS.

**Slide 14 – Security Comparison** **(26:43)**

**Garret Sloan:** Looking on the next slide then, looking at the security comparison. If we think about the ABS market and how it compares to other structures out there, let's look at ABS versus mortgage-backed securities, versus CMOs, versus what I call generically "bullets," which could be anything from, you know, munis to corporates to Treasuries to agency bullets. What are we trying to compare here? Really what we're trying to look at is the ABS, the MBS and CMO markets are subject to varying levels of prepayment risk. This is really what we're thinking about when we think about these markets, whereas bullet securities are not.

Those of you that are callable buyers understand the idea of prepayments in some ways. You know, you could consider that a call, when you have your agency callable called away, that's a prepayment. It just all comes at one time. You know, prepayments in asset-backed securities and mortgage-backed securities and CMOs come in a different way. They come more slowly, the come generally month by month. And so it's what – we also can call it an amortizing security. So mortgages and asset-backed securities, most of them amortize, whereas bullet securities do not. And those are kind of the main differences that we're thinking about.

**Slide 15 – Asset-Backed Securities (28:13)**

**Garret Sloan:** Moving on to examples of ABS structures. So when we think about structures, we just mentioned that ABS securities are amortizing securities. What does that mean? Is every ABS structure amortized the same way? Well the answer is no. So we look at this table here. One of the things that we know about ABS structures is there's actually varying levels of amortization. All of us are probably – those of us that are homeowners are aware of just the process of amortization, where every single month we're making a fixed payment, but that payment is broken up between interest and principal. So some of the principal pays down and so the balance on our mortgage pays down every month. This is the concept of amortization and ABS structures have that structure built into them as well.

So the chart here shows that there's different levels of amortization. So we have fully amortizing, controlled amortizing. And controlled amortizing, what is that? Generally what we're thinking about there is mostly we see controlled amortizing in revolving debt, essentially like home equity loans or credit card loans, those types of deals have controlled amortizing features. Soft bullets. Soft bullets are also generally used in revolving assets, such as credit cards. In a soft bullet, the expected return of principal is announced or given as an expected date. And in most cases, most ABS deals do achieve that soft bullet maturity date, but there is a possibility that the accumulation of assets could extend beyond the soft bullet date. And so if you think about a credit card structure, you know, credit cards are paying off and borrowers are, you know, taking, extending or borrowing more from time to time, so in a credit card transaction, one of the things that we see is that the trust as borrowers pay their credit card balances down, new credit card balances are purchased into the trust. So it creates kind of a stable level of credit card receivables in there for a period of time. They call that the revolving period. And then there is a period that's called the amortization period, where they basically stop purchasing new assets into it and they just start accumulating the principal payments into an account so that they can pay back investors on this "soft bullet" date. But there is the possibility that the accumulation of those assets could actually extend beyond the soft bullet date. That's why they call is a soft bullet, not a hard bullet. Hard bullets actually do exist from time to time in ABS structures, but they're very rare. The reason is mainly because most investors in these sort of credit card programs are comfortable with the soft bullet structure because they have performed very well.

ABS can be issued as fixed or floaters and they can also be issued as sequential pay. Sequential pay is a situation where the shortest and highest tranche in the structure receives all the principal before the next tranche receives any payment. Whenever you see potentially an ABS deal in a money market tranche, money market tranches are often sequential pay, where that receives all of the prepayments and all of the repayments before the next tranches get paid out.

**Slide 16 – Asset-Backed Securities (cont.) (31:58)**

**Garret Sloan:** Looking very briefly at – sorry, I think I just scrolled ahead. So looking at the different types of trusts, you know, I think this is just kind of to give you some background into it. I don't think that we necessarily need to dig deep into the different types of trusts. But it is important to know that there are different trusts that exist and they provide different flexibility

for different types of ABS deals. So a master trust is something that's used for credit card transactions, and owners trust is used for auto and MBS programs, and a residual trust is generally used for home equity backed ABS. One other trust structure that has become popular is something called the issuance trust, which is used by many credit card companies. Each trust structure basically allows different flexibility into the ways that principal and interest can be distributed to investors. And I think that I don't need to probably say much beyond that.

Give you a very brief example of two trusts, American Express here. So Amex has two trust structures, one is a master trust and one is an issuance trust. You can see at the bottom of this example, hopefully – sorry, I haven't moved on yet. My apologies.

**Slide 17 – Asset-Backed Securities (cont.)** **(33:31)**

**Garret Sloan:** Okay. Here we go. We're on the same slide. Okay, so slide 17. You can see at the bottom of this cut-out that we took of the American Express ABS trust, that the amount that the seller has invested, and you can see the amount that the seller has invested in the trust, the amount that is sold to investors. What else can you see here? So if you look on the issuance trust, on the right-hand side, $1.3 billion, this is a $6 billion program. $1.3 billion has been sold to investors, and $4.7 billion has been retained by the seller. And then in the master trust on the left-hand side, it's a $27.3 billion program. $17.2 billion has been sold to investors and $10.1 billion has been maintained or retained by the seller.

Another way of what is the seller interest, the seller interest is basically the residual interest in the trust that the credit card issuer holds. In some cases, they're required to hold that or in some cases they choose to hold over and above what their required interest may be. And what you can see here is American Express shows the eligible assets that are in the trust. So on the master trust, the Amex credit account master trust, they're able to purchase consumer credit card loans as well as small business loans. And on the right-hand side, they have an additional asset class. They can actually also do corporate card member receivables. So if you have like a P card program at a large organization you're working for, the issuance trust can actually purchase those, whereas the master trust cannot. And then the assets that are actually in the trust, you can see below that. So the master trust is only purchasing consumer loans, whereas, the issuance trust is purchasing both consumer and small business loans. So this just gives you an example that different credit card companies will use different trusts for different reasons. Different assets can go into the different trusts.

**Slide 18 – Asset-Backed Security Issuers** **(35:43)**

**Garret Sloan:** Moving on to the next slide. One thing that I wanted to show you was who was participating in this market. Who is this market? A lot of times when someone is showing you a piece of asset-backed or an asset-backed security, it has a really strange name to it, and the reason is each one of the trusts has its own name. Don't ask me why they call the names that they do. Some of them are really bizarre. But the sponsors of all of these programs of these trust vehicles are generally names that you recognize. So if you look in 2014, who were the top issuers in 2014? Well, the number one is Ally Bank. Who is Ally Bank? They have some pretty cool commercials these days. But Ally Bank is actually the old GMAC, so General Motors

Acceptance Corp. So Ally Bank is essentially, for the most part, an auto loan receivables company. Obviously, Ally Bank, they've moved beyond that, but that's kind of their history. Number two is Ford. Number three is Citi. Citi is a very, very large issuer of credit cards. The top two are auto deals and the third is a credit card deal. Number four is Chase. Chase is primarily credit cards. Santander, number five, is primarily auto. We call it the drive program. It gives you some sense of who is out there in the market. I mentioned earlier CNH, you can see number 21. Who is CNH? CNH is Case New Holland, which is a big agricultural manufacturer. Number 18 is Nelnet, which is a big student loan company. So these are all giving – it gives you some context of who is participating in this market.

**Slide 19 – Asset-Backed Securities (cont.)** **(37:35)**

**Garret Sloan:** Why do companies issue asset-backed securities in the first place? Is it just to really obfuscate? Is it to sort of to get things off the balance sheet? A lot of people can – when they think of asset-backed securities, especially when they think about the word special purpose vehicle. What does that remind us of? That reminds me of Enron. Whenever I think of special purpose vehicle, I think Enron. Jeffrey Skilling with really smart guys tried to shove all these bad assets into special purpose vehicles. Well, you know, those gentlemen obviously used special purpose vehicles for very, very poor purposes. But special purpose vehicles themselves, and asset-backed securities more generally, can be used for very, very good purposes. They are used to free up balance sheet. We talked previously that, you know, any time you can sort of remove that bottleneck of the banking system out of some of that borrowing and lending function, you create efficiencies. And asset-backed securities are one of those efficiencies. Main reason for these auto companies and the credit card companies to issue securities in the ABS market is to free up balance sheet. The reason they want to free up balance sheet is so they can sell more cars, or they can sell more equipment or they can offer more credit card lines of credit to consumers. So instead of, you know, basically holding all of those assets on balance sheet, they can sell those to investors that are willing to invest in those assets and actually, you know, increase economic activity or make more loans. It's also another way to achieve lower cost of funding for borrowers. So if you think about it, if a company were not able to sell the loans into the asset-backed market, they would likely charge more money to make those same loans because they'd have to hold them on balance sheet. It would tie up large swaths of their balance sheet, which means more use of their equity. And they would probably charge borrowers more for those same loans. There are some efficiencies there that we see.

**Slide 20 – Examples, Valuations, Transactions, and Credit monitoring…** **(39:55)**

**Garret Sloan:** So let's look at a couple of examples. And I'm just going to very briefly touch on these because I do know that my colleagues are going to touch more in-depth on these topics later on.

**Slide 21 – Asset-Backed Securities** **(40:09)**

**Garret Sloan:** So the first thing that I want to point out is – well, we're going to use this as an example – is a Carmax deal. The only thing that I want to point out here is just look at a couple of things. There's four columns here. We have the classes in the first column, the amounts of –

this is one credit card ABS deal. So if you add up all of those amounts in the second column, this is the size of the entire deal altogether and then each one of those tranches has an amount allocated to it. And the third column we have the ratings of these different tranches. You can see that the A-1 through A-4 tranches are all rated AAA. Except for the class A-1, it is actually rated A-1+/F-1+, which is a short-term rating. In the third column what you see is the weighted average life. WAL stands for weighted average life and it's quoted in years. And you can see that class A-1 tranche is extremely short. So 0.3 years, which is somewhere around just shy of 4 months. It's a very, very short class of security. We would generally call that a money market tranche. And then you can see the principal window. So this is kind of setting the parameters of the deal. It's saying you know what, this could in extreme cases, this class could pay off in a month, or it could not pay off for up to 6 months. And so that kind of gives you the bands of prepayment. How much volatility is there in my actual payments? For the class A-1, it's very, very minimal. It could be a 1-month, it could be a 6-month. It's likely to be about a 0.3-year or just shy of 4 months. It gives you some context there.

**Slide 22 – Credit Enhancement** **(42:00)**

**Garret Sloan:** The next slide that I wanted to talk about in terms of like looking at ABS securities in general is credit enhancements. So unlike agency mortgage-backed securities, where it's backed by the government or backed by a GSE, we have to think about credit risk in ABS transactions. What are the different ways in which we are supported? And on the previous slide, one of the things you saw, is you saw the A-1 through A-4 and then you saw B, C and D. And those B, C and D tranches actually support those A tranches. So what do we mean by support? We mean – and there's different types of support here. What do we mean by support? You can see that we can have one type of support is excess spread. So what is excess spread? Excess spread is the difference between what you as a borrower will pay on your car loan and the payment that is made to the investors. So there is a difference there. So you're paying one interest rate. Investors are getting another interest rate. The difference between those is what we call excess spread. And that excess spread may be collected and held as a support tool in case there are troubled loans, in case there are shortfalls, in case there's liquidity difficulties. That excess spread can be maintained in an account. That's one form of support. A cash reserve account may also be established to provide liquidity in case payments don't come in as expected. That's another type of support. And all these types of support you'll be able to read about in the specific offering documents.

Over-collateralization. So one of the things that we saw in the American Express deal a couple slides ago was that the seller has a certain portion and the investor has a certain portion. Well, if the seller has that much interest in the deal, some of that, or if not all of it, could be considered over-collateralization of the deal, assuming that the seller's interests are subordinate to the investor interest. But over-collateralization is a situation where the seller has an interest in the deal over and above the amount sold to investors. So you could say that the deal is over-collateralized by X. So it's similar to saying, you know, when you go into a bank and you're borrowing 75% of the value of the home and you're putting 25% down. The bank looks at that saying, you know, I'm over-collateralized by X amount assuming that everything works out as it should. And then subordination is one in which the lower rated bonds absorb losses before the higher rated bonds. So, again, going to that A-1 to A-4 versus the Bs, Cs and Ds, you can see that

the Bs, Cs and Ds would take losses before the A classes would take losses. And that's a form of credit enhancement that we see in ABS deals.

**Slide 23 – Security Comparison (44:58)**

**Garret Sloan:** Looking at different securities, just very generally here. The two charts below really are just designed to show how an amortizing security would repay principal and interest versus how a bullet security would pay principal and interest. So very, very high-level. All we're trying to show here with the red circles, those are your interest payments. So on the right-hand side at the bottom, a bullet security is paying every six months you're getting an interest payment and then at the maturity, you're getting a principal payment. In the amortizing security example on the left-hand side, one of the things you see is that interest is paid all along and generally paid monthly, you know, along with the payments that are expected from the borrowers. And then there may be a period where there are no principal payments made, i.e. we mentioned that in the master trust situation. And there may be a period where you're seeing a declining principal balance that's being paid down. And that may ramp up toward – those principal payments may tail off towards the end of the life of the security as you approach maturity. And so you can just see the differences in how you will receive your cash flows versus a corporate bond or versus a bullet security.

And one of the reasons why I think ABS, you know, some clients struggle with ABS in general is the accounting of it. Some accounting departments are not interested with, you know, coming up the learning curve. I don't think it's a long learning curve for accounting, but you just have to recognize, you know, there's obviously going to be some accounting differences that you're receiving principal periodically versus just getting it at one time. And that becomes a bit of a stumbling block for some investors.

**Slide 24 – Prepayment (46:50)**

**Garret Sloan:** You know, so if we look at prepayment in the ABS market, it's generally much more stable than in the MBS market, the mortgage-backed securities market. And the reason is that credit card and auto loans are generally much shorter in terms of total duration than mortgages are. And borrowers generally don't refinance these assets very often. So if you think about ABS prepayments, they're generally precipitated by credit trends or economic conditions affecting consumer behavior rather than, say, changes in interest rates, where changes in interest rates would really, really factor into whether a mortgage is going to be prepaid or not. In the structured products markets, generally there's three prepayment speed scales that we generally will look at. I think these might be discussed a little bit later in the valuation section, but I will just introduce the concepts here. We have constant prepayment rate, which measures prepayments as a percentage of the outstanding balance. And then we have another method called the absolute prepayment rate, which measures prepayments as a percentage of the original dollar balance of the pool. And then we have something called the prospectus prepayment curve. And that's a prepayment vector, and it sets a baseline prepayment curve of 100. And things that are above 100 are paying more quickly and things that are below 100 are paying less quickly than that baseline curve. I think that will be discussed a little bit later on in the presentation. So I'll just leave that there.

**Slide 25 – ABS Rating Transition (48:38)**

**Garret Sloan:** In terms of historical performance, so this is in my mind where ABS really starts to shine as an asset class. It shines not only versus corporates, in my mind, but it also shines versus mortgage-backed securities, certain types of mortgage-backed securities. And I do think that the ABS market more broadly has been painted with a very broad brush with some of the subprime difficulties. But definitely the portions of the ABS market or the vast majority of the ABS market has performed very well. So this is a chart that shows the 30-year history up to 2013 from a ratings transition standpoint and from a jump to default standpoint. Obviously, ratings transitions are very important, but I think for public entity investors the default risk is probably the primary question that we have.

So if we look on the left-hand side, what we have here is the original rating. So if you look at that AAA rating level, the original rating, you know, they were over this 30-year time period, there have been 5,274 individual AAA ratings assigned by S&P. And of those AAA rated tranches, if you go all the way to the right, the very end of the blue column that says how many of those have defaulted. The answer is 0.2 percent of those originally AAA rated securities have defaulted. And you can certainly pull up S&P studies for the corporate bond market and compare those two. And, you know, it's actually not even close. I think, if I'm right, and I don't think the study period is exactly the same, but S&P did a corporate study from 1985 to 2010 looking at defaults and the original AAA rated corporates, I think the default history was over one percent. So the propensity to default in the ABS market is actually very attractive and I think that from a relative value standpoint, that really is one of the cases that I always make to clients considering this market.

**Slide 26 – Asset-Backed Securities (51:02)**

**Garret Sloan:** The next slide, I will just kind of briefly touch on. The only thing that I really want to say here and I just wanted to show an example of a prospectus – and I think we are going to get into prospectuses more in depth – is that we really do need to look at prospectuses in ABS deals. We need to understand who the issuer is, like I said. Different companies are issuing with really strange names. It's hard to really kind of understand who is behind this unless you're, you know, you're in this market frequently. So it's important to look at the prospectus and different ABS deals do have different structural features that we do need to be aware of. So this prospectus is going to include the size of the deal, the sponsor, the type of trust, the credit enhancements and the risk factors of the deal, which are all important.

**Slide 27 – Measuring Performance (51:53)**

**Garret Sloan:** The next slide I wanted to talk to is measuring performance. So after you've read the prospectus and you want to purchase the security, how do we monitor the performance of the deal? Well, that comes in something called a remittance report. It's something that outlines important information that's helpful to determine, you know, the performance of the security not at the start of the deal, but over time. So get remittance reports periodically. And the remittance reports highlight the factors that allow you to really look at how the deal has performed over

time. It's similar to a balance sheet. So if you're looking at a corporate bond, it's a snapshot of the current characteristics of a deal. Really, it's best to consider the trends in multiple reports, multiple remittance reports, to look at deterioration or improvement rather than looking at one report, just like you would on a balance sheet. The remittance reports will generally show the current state of the credit enhancements in the accounts. You know, we mentioned some of the accounts previously that, you know, help with liquidity support, if there has been any realized gains and losses on assets that are in the trust, and how much of the pool is left compared to the original amount. We call it the factor. And that will help you determine the actual prepayment speeds versus the estimated speeds. And that's really – certainly prepayments are one huge factor in determining value of the security itself. So that's very important in monitoring these, is very important as well.

**Slide 28 – Current Market** **(53:31)**

**Garret Sloan:** So, you know, as we saw in the slide on current issuance, the benchmark sectors and the consumer ABS space remain the prime autos and the credit card issuers. These have been the largest and most liquid sectors historically and the other asset classes in many cases rely on price discovery in the prime auto and the credit card space to find prices for their asset classes. The student loan market is the largest sector outstanding in terms of just total assets outstanding, but that's mainly due to slow repayment rates and accumulated balances over time. So in that context, student loans are a benchmark asset class because they're not really that size for really positive reasons, apart from helping students get an education obviously. But slow repayments and high default rates in the student loan sector certainly would not be considered to be a benchmark versus the prime autos and the credit cards.

**Slide 29 – Current Market (cont.)** **(54:31)**

**Garret Sloan:** If you look at spreads in the ABS market, this is kind of where I think I'm going to finish. I've got one more slide that will be very quick. If you look at spreads in the ABS market, there's obviously multiple ways in which you want to think about relative value. But if you just look at, you know, like for like in the AAA rated sectors. So what is AAA rated? Well, in the corporate space, we've got things like Exxon. We've got things like Johnson & Johnson and Microsoft. If you look in the government space, we've obviously got U.S. Treasuries and we've got agencies, which I know a lot of you are large buyers of, and then we also have ABS. Well, if you look at, you know, sort of prime autos right now trading one-year AAA prime autos trading at swaps plus 32, if you look at the equivalent agency bullet, a one-year AAA or really split rated, agency bullet, it's trading close to swaps plus 1 or maybe swaps plus 2. In the, you know, when you look at the credit card space, we're looking at one year swaps plus 29. So the pick-up is attractive, even in these sort tenors. And I think, there again, if you compare the credit history as well as the, you know, as well as the spreads that you're receiving, it makes a compelling argument for at least considering it or thinking about it and getting yourself up the curve because this is a very strong asset class in my mind.

**Slide 30 – Asset-Backed Securities** **(56:08)**

**Garret Sloan:** So just to wrap up, I do think that ABS securities, they do satisfy a number of investor needs, diversification obviously away from, in my mind, financial risks, which most short-term investors are overexposed to. You know, there is liquidity in consumer ABS. There's no question. It's certainly not as liquid as the Treasury market, but there is liquidity there. The securities that we would recommend to clients, these would be the AAA rated sectors first before sort of dipping your toe into anything below that. But, you know, on the consideration side, obviously prepayment risk is a big factor as well as credit risk. But, again, from a credit risk standpoint, I do think that they've performed very admirably. So prepayment risk is an issue and that's the main issue in my mind for the ABS sector. And with that, I will turn it over to Marty, who will talk about legal code.

**Slide 31 – Legal Code Restrictions for the Use of ABS, MBS and CMOs… (57:14)**

**Martin Cassell:** Great. Thank you, Garret. We'll go over some of the issues regarding California state code and these securities.

**Slide 32 – Guiding Principles (57:24)**

**Martin Cassell:** And the important thing to keep in mind is that mortgage-backed securities, asset-backed securities and CMOs fulfill the basic tenets of public agency investing – safety, with most of the securities that would be suitable being AAA, very high credit quality; liquidity, as Garret mentioned, although less liquid than corporates. MBS, ABS and CMOs have active secondary markets to provide liquidity for those securities. And from a yield perspective, the return on these securities are very attractive when compared to other AAA rated investments.

**Slide 33 – California Code (58:02)**

**Martin Cassell:** So California state code Section (o) addresses MBS, ABS and CMOs and the important aspects of this is that this section of code states a specific five-year maximum maturity. So a little piece of possible confusion here regarding agency MBS securities, under Section (f) of state code, there is not a specified maximum maturity for agencies. So if a governing body were to approve agency purchases longer than five years, it would allow you to do that under Section (f). However, since Section (o) specifically states for all MBS, ABS and CMOs a maximum maturity of five years, even with that governing body of approval of agency securities longer than five years, this would prevent a local agency from purchasing MBS, ABS and CMOs longer than five years. So it's an important distinction there. Of course, the other part of this is that the issuer needs to have an A rating and the security itself a minimum of AA rating. And the maximum percentage of this asset class and portfolios is 20% of the total portfolio.

**Slide 34 – Issuer Comparison (59:36)**

**Martin Cassell:** So there is also a little bit of a gray area and confusion concerning the issuer rating and particularly ABS securities. So that notion of issuer, as Garret talked about before, the actual issuer is a special purpose vehicle or trust. But we believe that the intent and the spirit of code really requires an investor to look beyond the issuing trust to the sponsor who services and originates the trust. So that's an important element here. So in the table here, you can see the

ratings for several different issuers. Here we can see the Honda, A-1/S, A-1, short-term ratings. We go down to Ford, the issuer, or sponsor of the agency is a BBB by Moody's and Poor's – Standard & Poor's and Moody's. And so in our view, that would certainly not qualify for purchase for local agencies. And Carmax was utilized in earlier examples does not have a rating by an NRSRO. So similar rating structure looking at the underlying corporate ratings for the sponsor/issuer of the ABS particularly, is critical to review.

**Slide 35 – Security Rating** **(1:01:13)**

**Martin Cassell:** So keep in mind here that there is a wide spectrum of ratings. And the underlying collateral and structure of each of those tranches really needs to be examined for the appropriateness, regardless of the rating. An important aspect of that is that some issues may be a subordinate issue which brings it further down the capital structure of the trust. And understanding the characteristics of the collateral is really important. We talked earlier about Sallie Mae as an example or subprime collateral. Interestingly is that the rating agencies rate issuers in some different ways. The federal agencies do not always have a credit rating for the specific issue. But the rating agencies provide a rating for the entity as a whole. Fannie Mae and Freddie Mac are common for that. And other types of government-backed collateral may be holding an explicit rating, such as the Freddie Mac Series K bonds, which would be commercial mortgage-backed securities.

**Slide 36 – Maturity Characteristics** **(1:02:35)**

**Martin Cassell:** So maturity characteristics, again we touched on that, the final. What is important regarding the maturity of the securities is to look at the final or legal final maturity of the security. A lot of these structured deals have a variety of different maturities there, the projected maturity, when it is expected to mature or the average life as to the average time to receive all of the cash flows. And also as touched on earlier, the principal window is to the time frame when you would expect to receive the principal payments, that period of time. So ultimately, although the projected or average life in the principal window may be less than five years, you've got to turn to that legal final to ensure that that is less than the five-year maximum.

**Slide 37 – Restricted Investments** **(1:03:35)**

**Martin Cassell:** And then the other thing to keep in mind with these securities is that code prohibits certain structures, such as interest only securities and inverse floaters or range note type floaters, so particularly ABS and CMOs may have this variety of different types of structures associated with them. And so 53601 Section 6(a) and (b) specify limits there.

**Slide 38 – Other Considerations** **(1:04:06)**

**Martin Cassell:** So other considerations to keep in mind, again as mentioned earlier, is the maximum you can have combined for all three of these categories is 20% of the portfolio. And, again, with that distinction for government securities in particular is that agency-backed, mortgage-backed securities or CMOs would fall under the limit, the concentration limit for ABS, MBS and CMOs. I touched on this for the corporate webinar that we did a week or so ago, and

an important aspect is private placement or 144A type securities. So 144A securities are not permitted the way that the SEC has defined qualified investors for private placement securities. And CDIAC has a great piece discussing that, an issue brief, and a link to that is on the webinar download that you have here.

**Slide 39 – Analysis Required… (1:05:20)**

**Martin Cassell:** And with that, I'm going to turn it over to Jeff Probst to discuss the analysis that's required to determine that pooled securities meet your investment objectives.

**Jeff Probst:** Thank you, Marty. I will be giving you guys a slight overview of Chandler's process as we analyze suitability of asset-backed securities for our clients. We're also going to look at some specific security evaluation methods that we will look at.

**Slide 40 – Analyzing a Structured Security for Appropriateness (1:05:54)**

**Jeff Probst:** As well as we will first look at a couple of Bloomberg descriptions screens right here that will show how you implement code's rules that Marty just talked about to see if a security is suitable. So in this case right here, I have a description screen on the left of a Synchrony credit card trust. This is the previous credit card financing arm of General Electric. They now are a separate entity. And we notice a couple of things. We notice there is a AAA rating. We're looking at the left screen. It's AAA rated, so that fits the code requirement. But when we dig down deeper to who do we feel is the issuing entity, we think it's Synchrony Financial. So on the right DES screen, the description screen from Bloomberg, we can see that they are rated BBB- by both S&P and Fitch, which we feel would be a violation of the code.

Secondly, we can start looking at the maturity requirements. This issue was – this specific credit card issue was issued as a 2.9-year security. That's the blue circle on the left screen. So you may think, hey, it's a 2.9-year security. That should comply. But when we look at the two green circles, the final maturity is April 15th of 2021. And then you can see that the expected maturity is April 16th of 2018. So this is showing how you could potentially get in a bind if you only look at the expected maturity. A couple of other things that secure description screens will also help you identify is if they are 144A, if there's other structure characteristics that you need to be aware of – as Marty noted, interest only, principal only, or subordinated bonds. You can find that information within the Bloomberg description screen.

**Slide 41 – High Level Trading and Valuation (1:08:11)**

**Jeff Probst:** When Chandler looks at the appropriateness of asset-backed securities for our clients, we take a very top-down approach. We first look at what type of strategy are we trying to implement for this client? Are ABS securities appropriate? There are many different questions you can ask when you are doing that. But what if a client has large expected cash flows or a volatile account balance? Asset-backed securities might not be the best holding for them because they are less liquid than Treasuries, agencies and some corporate bonds. So they're not the easiest things to sell if we expect large variations within our cash balances. Also risk. Garret talked about some risks, and I know Tom will be talking about some in his presentation, but there are

risks with holding ABS. We noted that your maturity can extend, your expected maturity. We can have a spread widening if there is a time of stress in the economy. The valuation can be adversely affected. Or if you're a very cash flow driven account and you need to sell, you know, they're less liquid. Also, we will look at the portfolio structure. So if the account needs to have more duration or other needs, ABS may not be the best holding because of their unique characteristics of being a more short-term asset.

The next one is liquidity needs. ABS offer a very unique, some unique characteristics. Auto loans and equipment loans, they amortize over their given window. We noted that the A-1 tranche starts amortizing almost at the first payment. This can actually provide an investor some cash flows without having to sell securities. It's a great way to have cash flow coming every single month, though not completely predictable, but it's going to be some cash that you could use to cover different expenses. And the next one is the asset concentration. So how much ABS do they currently own? Are they heavy in other types of credit? If they are heavy, we may not, we may shy away from those types of assets as it is more of a – you're adding more risk to the portfolio.
And the sixth one, specific security characteristics. Is it a fixed rate security, floating rate security? Is it amortizing with a sequential structure or the hard or soft bullet, as mentioned earlier? All these choices need to be made on the single security level. Also what fits best for the client. And then the very last one is the valuation. Some clients are able to purchase a much broader range of securities, thus ABS may not provide the absolute best value. So if you have alternatives, you can go do that, but valuation is also a key consideration.

**Slide 42 – High Level Trading and Valuation (cont.) (1:11:58)**

**Jeff Probst:** On the next slide, in terms of trading and valuation, ABS securities are traditionally sourced through the primary market, the new issue market, or you can do it from brokers' inventories that you can see on a daily basis. Most commonly it's done through the new issue market. We talked about the new issue market. Issuers like Ford or Toyota, they typically issue three to four times a year, you know, once a quarter roughly. So there is a little bit of a calendar that they follow, but it is not completely predictable if they're going to issue on the first of every single quarter. The way it works is, you know, usually three or four major broker-dealers, like Wells Fargo, J.P. Morgan or Morgan Stanley will underwrite the deal and present it to investors, say, on a Monday morning. Investors will input their order with their broker, and then at the end of the process, you'll figure out, they will tell you how many bonds you received. So just because you maybe wanted 1 million bonds, you may not actually receive 1 million bonds. So sometimes these deals get heavily oversubscribed, where that means there's a whole lot more demand for the bonds than there is actually bonds to offer. So everybody gets a little bit or less than what they originally wanted. So if you get less than you really wanted, you could go to a broker who may have some in inventory from somebody who sold, because they needed to raise cash and you could buy them. You could ask a broker to go to somebody else to see if they want to sell them if you wanted that exact same bond, but you'll tend to have to pay a premium for that type of request, because it's, you know, these bonds are a little bit less liquid.

There's also a third way you can source bonds, and that's through the act of secondary market. Large institutional clients like BlackRock or Fidelity, and other types of individuals, they will

put out lists of bonds that they are looking to sell on a certain day. As an investor, you can get that list from your broker or other people, and you can put a level of where you would entertain buying those bonds. And that would allow you to compete with other people who are looking to buy them, as well as banks, or as well as the broker-dealer community. So with buying bonds that way, it's a lot more difficult because you have to be very in tune with how the market is trading on a specific day. We've seen historic volatility the past two weeks, you know, from day to day, the spread on the bonds will be – it can vary greatly. So that's a little bit more of a difficult way to trade asset-backed securities.

When we look at the valuation of asset-backs, we take a very mosaic approach. There's several different things to look at when you decide, hey, if you decide that that bond is cheap or too expensive or what even is a correct value for that bond. Typically, an ABS, they don't trade that exact, specific bond doesn't trade too frequently, so it's difficult to see where it last traded and what it should be valued at. And each deal is very unique. There is different collateral in each deal. As Garret showed that Carmax deal earlier in his presentation, that specific Carmax deal is unique to the next one and the one before that and the five that were before that. The set of loans are unique. There's different things that need to be looked at: the collateral, how fast it's prepaying and things of that nature. And they have typically, you know, rather small deal sizes. So valuing ABS securities can be a little bit more difficult than the Treasury, agency or corporate market.

**Slide 43 – New ABS Deal Structure and Pricing (1:16:35)**

**Jeff Probst:** This slide right here represents a new issue from Toyota Motor Credit back in June. So this is what would come across a Bloomberg screen or a broker could send to your email if you had interest in buying a Toyota ABS. Very similar to the slide that Garret showed. So we see at the very top that Toyota is issuing $1.25 billion of a trust. It's labeled 2015-B. That means it's – it was issued in 2015. And B represents it's the second one of the year. The one before that was 2015-A. So different companies have different acronyms. We can see below that the lead people on this deal, so the people that you would want to put your order to, is Citibank. They are the lead who actually created the deal. Bank of America and Credit Agricole. So those are the three main people that you would want to put your order into. We may look down to the notes that are being offered in this transaction. A little bit different than the one we saw in Garret's slide with Carmax. The A-1 tranche is actually being held by Toyota. They decide to keep that to themselves. They have different internal valuations and different opportunities. So they decided it makes more sense for them not to offer it and for them to keep it. When we see the classes, we see there is a class A-2a, A-2b, A-3 and A-4. So it's very interesting with class A-2a and A-2b, there is $360 million of offered bonds, but Toyota said that they can split that amount and make some at a fixed rate and then some at a floating rate. So they're trying to match investors' preferences to the types of bonds they want to issue.

Continuing looking to the right, we see Moody's and S&P both have all four of the tranches rated AAA. The next column over, the weighted average life, we see that both the A-2, a and b have the same average life. The only difference between there is that the coupon that you will be receiving is either fixed or floating, depending on your preference. We look down to the A-3, we can see that it has a two-year average life bond. And then the A-4 is a three-year. When we look

at that A-4, let's continue looking to the right. You see the expected final maturity is December of 2018. That works for code, but when we look to the legal final, it's September of 2020, which even as of this date, still would not comply within code's rules. So you need to look at those dates very carefully to make sure there are no issues.

And then the next two columns: the benchmark and then the pricing guidance. This is where you start doing your valuation of this security. Maybe it is the pricing that they are offering is not very competitive. Maybe it's cheap to the market. But that's going to take in some more analysis which we will talk about in a little bit. But in order to determine the price guidance, we need to understand what are they – what is this pricing against? You can see the benchmark for the A-3 is pricing against a swaps rate. So that says it's – this tranche, the A-3 is going to price at roughly 22 basis points above the swaps rate. So you may want to think about what is a swaps rate? Well, that is a spread level that is being paid above the Treasury rate. And then in this case you will be receiving 22 basis points above the swaps rate. So there's three moving points in this valuation process. You have a Treasury rate at the bottom. There is a swaps spread. And then you have the spread that Toyota is offering extra above the swaps spread. So there's three different moving parts in order to determine if you want to participate, if you think the value is there, if the yield is enough for your portfolio, or, you know, other characteristics that you are looking at. If you have the Bloomberg at your desk, you can type in IRS. Just like the Internal – the government, IRS. That will show you the swaps and where they're trading at different points on the curve. So a swaps spread is not a constant spread. So it might be lower for shorter maturities or higher for longer maturities. So these are all different considerations one must consider while they are evaluating their purchase.

Looking below the tranches, we see the ticker. It's going to be TAOT 2015-B. So as Garret said, kind of a funny acronym. We see that it's SEC registered, so that means that it is not 144A. That's a good thing. There are some expected ratings from both Moody's and S&P. There is a pricing speed, Garret touched on that earlier. And we see that the minimum denomination is 1,000 by 1,000. That means you have to have an initial investment of at least $1,000 and then at $1,000 denominations. So it's pretty flexible for all investors. There's not a high minimum investment in this case.

**Slide 44 – Determining Value and Best Fit** **(1:22:55)**

**Jeff Probst:** When we start looking at determining value for – determining value and best fit for the securities, when we are presented with that, say, Toyota deal, we will take a look and first look at the portfolio structure. Do we need some cash flows that are shorter or maybe longer? In this case, we can only consider the A-2 or the A-3, since the A-4 was not a class that we can consider. So if we project a rate that we like the swaps curve at the one-year point compared to the two-year point or the spread that Toyota is offering is cheap at a certain different, at the one or the two-year point is better, we will then choose which one is there. But we need to look at the portfolio first. Do we need, you know, front-end securities or ones that are a little bit longer? So that's the main driver of the issue or the tranche that we would choose.

Secondly, we need to look at the relative value. This is where skill takes place and experience in the market takes place, because, just because Toyota is offering them, offering their bond at a

certain spread compensation, that may not be enough for you to participate. You could go out on the market and look at different comparable securities. You could look at a Honda security. You could look at a Volkswagen security. You could look at a Hyundai security that are being offered in the secondary market that are very, very, very similar. Sure, there's going to be some slight differences, but you could start backing into understanding: is this bond being offered to me cheap or expensive? Could you just go and buy it off of an inventory from a broker or should you participate in this issue? So given that this market is very fragmented, you have to look at a wide array of information of different issuers, maybe some older deals that maybe an A-3 tranche that is now one year old and now it's looking just like a shorter A-2 tranche, you can start judging if you are being fairly compensated on that new issue market. It's always smart, you always want to know if you are getting, you know, a good deal or not.

The third bullet point: collateral composition. This is a very interesting point because, you know, in the auto industry, loan characteristics can change rapidly or gradually over time. Each deal is unique. So when those new issues come out, like the Toyota one in the example, a prospectus will be issued. It's about 100 pages of paperwork, but there's some really key tables in there that talk about what are the statistics of the collateral in there – the average FICO scores; the distribution of the FICO scores, so how many low ones, how many really high ones; the LTVs of the loan; the types of loans. Are they four-year loans? Are they five-year loans? Are they six-year loans? What you really want to look at is the story between all of the different collateral characteristics because if LTVs, loan to value ratios, are going up and the loan terms have longer maturities, that could be a starting sign that there is going to be more risks within that pool of loans.

So there is a whole lot more characteristics that you can also look at. You know, what's the composition of new and used cars? And many different things. Reading the prospectus, understanding the trends of the collateral between, you know, Toyota's deal previously and the ten different deals before, you can see if they are borrowing to higher credit individuals or if they have been going to the lower level people, thus potentially leaving themselves open to higher default rates. So as I said, the historical performance of the issuer, you can look at all of the different deals that they've done to see how they have done as well. Interest rate forecasts, curve positioning, this is something that if you feel interest rates are going to rise really quickly or other things, you may want to go to a shorter security or go to a longer security. That's all depending upon a personal decision. And then you can also look at what is a comparable asset. If there is a Toyota security, you can also look to the Toyota corporate bond market to see what a two-year corporate bond would potentially yield. For some people this doesn't really matter because they may be full on corporate bonds, the full 30 % and they just want to add more credit risk or credit to their portfolio. So comparing the two doesn't really matter because it's not a trade-off. But that's also a good analysis to do, is to look at what are other products that have corporate bonds, or corporate risks at.

**Slide 45 – Post Trade Diligence** **(1:28:48)**

**Jeff Probst:** Post trade diligence is also a very important thing to do after you purchase a security. As noted earlier, there are remittance reports that are released by the trustee of the deal. And these remittance reports will tell you, you know, the levels of default, how the payments are

being made as a whole on the structure. Also, Bloomberg aggregates the data. So in this deal right here, this screen is a screen from a much older Toyota deal. It's from 2012. And it shows monthly data that is important to analyze of this security. So what we can see here in the first three lines is the reserve balance. So the reserve balance we can see is $2.5 million. And that hasn't changed in this window, this history of the security. That's a really good sign. That's telling you that the reserve was never needed to help pay for delinquencies or other things. So that's a very good sign.

The second point I would like to bring your eyes to, is about the middle of the sheet, is the delinquency level. So the delinquency, that's that 30-day, 60-day and 90-day. This will give you an idea of what's the trend of the collateral. Are more people starting to go delinquent? Are less? Delinquencies are a great predictor of future repossessions of automobiles, less liquidation and losses to the trust. We can see that 90-day delinquencies are very low and, you know, 30-days are about one percent. That's a pretty healthy level that we're seeing right there. And it's not a very strong upward trend, a slight but very minimal. Another really good thing to look at towards the bottom of the screen is the cumulative loss percentage. We see that the total cumulative loss in this deal for the past three years or so is 24 basis points, so very minimal losses to this trust.

Another thing that is very important to do is to monitor the specific industry. So there are many different sources that can be called upon from reports from different rating agencies, brokers, Wells Fargo, Citibank, they issue weekly reports about topical information in the industry, as well as going to some industry conferences, where you can meet with the actual representatives from Toyota, Honda, Ford, whoever you decide to purchase from, and you can hear from their mouth their process and other things. You can also look to see how that structure is performing. Is it paying as expected? Is it not paying as expected? And what are maybe some of the reasons behind that? So there is a lot of resources available to the investor in order to see how things are going.

**Linda Louie:** Jeff, I have a question for you, Jeff. Back on your table, where are folks pulling these remittance reports? And if they don't have Bloomberg, where could they also look at some of these post trade?

**Jeff Probst:** Yeah, you can log on to Toyota Motor Credit or Honda Motor Credit and you can go to their investor resources part on their website and they will have a section, I've seen it there, I've been there before, that talks about ABS securities. And once you can navigate through there, there will be a list of all of the current deals that are outstanding. And you can go in there and download the actual reports without having Bloomberg. You can read – it's not really much in writing. There is a lot of just numbers. And it shows how much money they've received in the trust from payments and then how it goes down to, you know, them paying interest payments to the outstanding securities. But yeah, they're available on their public website.

**Linda Louie:** That's helpful. Thank you.

**Slide 46 – Types of Risks Associated with Structured Pooled Securities (1:33:21)**

**Jeff Probst:** Perfect. So now I'll toss it over to Tom and he'll discuss some more risks associated with structured pooled securities.

**Thomas Williams:** Thanks, Jeff. It's actually probably pretty appropriate time to talk about investment risks considering everything going on in the financial market.

**Slide 47 – Risks of MBS/ABS/CMO Investments (1:33:38)**

**Thomas Williams:** As I go through this I'm going to focus really on the risks specific to the A tranches because that's really, I think, all anybody is allowed to buy anyway. I may skip some points that have been covered already, and after the risks, I'll talk quickly about the City of San Diego's process in buying asset-backed securities and managing the investments. So this page has a list of kind of the main risks in investing in asset-backs and mortgage-backs. And I didn't do this intentionally, but when I was listing these from top to bottom, it worked out that the duration risk really applies to almost all fixed-income investments. And as you work down the list, you get the servicer/sponsor risk, which is really, kind of specific to asset-backed securities.

**Slide 48 – Duration Risk (1:34:23)**

**Thomas Williams:** So I'll start off talking about duration risk, otherwise known as interest rate risk. As most of you probably know, duration is a measure of the interest rate sensitivity. And it's often expressed in terms of years. As an example of duration, an investment you buy has a duration of five, for every one percent move in the interest rates, you know, up or down, the price of the bond will move generally approximately five percent in the other direction. Now if you manage on a total return basis, you're probably more concerned about this than if you manage on a yield basis, because on total return, you're more apt to want to sell the security prior to maturity, whereas on a yield basis, you'll let it mature. So intermittent price swings aren't quite as important. In mortgage-backed space, 30-year mortgages have a higher duration than 15-year mortgages. And hybrid arms will generally have a lower duration than 15-year mortgages because borrowers may refinance before they hit their five-, seven- or even ten-year rate reset periods. One of the reasons CMOs work out for some investors is because you can kind of target a specific duration band, as opposed to a mortgage-backed where it can swing pretty wildly. Now, floating rate securities, just like for other types of bonds, will generally have a lower duration than fixed rate securities because you have the periodic rate resets. And lastly, in an auto securitization, the A-1 tranche will generally have a lowest duration, since it pays down first followed by the A-2, A-3 and A-4 tranches.

**Slide 49 – Liquidity Risk (1:35:50)**

**Thomas Williams:** I'm now going to talk about liquidity risk. And liquidity can really be defined simply as the ability to transact quickly without exerting a material effect on prices. One of the best ways to measure liquidity of a security is to look at the bid-offer spread or the bid-ask spread, and that's the difference where you can sell a security at a given time and where you can buy the same security at a given time. Typically, a tighter bid-ask spread usually signifies higher liquidity than a wider bid-ask spread. Some of the legislation passed recently after the financial crisis, specifically things like Dodd-Frank and Basel III have lowered liquidity from many fixed-

income instruments including asset-backed and mortgage-backs. And this is because broker-dealers aren't carrying as much inventory as they did prior to the crisis. So it's more difficult to source bonds and they are probably less likely to want to buy bonds from you unless they know there is a buyer on the other side. Now, securitized bonds have varying degrees of liquidity. At the bottom of the page, I have listed out kind of in order of liquid to least liquid the degrees of liquidity on some of these asset-backed and mortgage-backed securities. So obviously agency mortgage-backed securities are extremely liquid and probably the most liquid asset-backed or mortgage-backed type. And, moving all the way down to the right side you have some more esoteric ABS, which is things like time-share securitizations, whole franchise securitizations things that aren't traded very regularly. One thing to note, too, is that electronic trading of mortgage-backed in particular, but even some asset-backed types, have increased liquidity in the space through the years.

**Slide 50 – Credit Risk** **(1:37:23)**

**Thomas Williams:** Moving on to credit risk. Credit risk is a risk of a failure to pay by an issuer and a potential to loss of principal as a result. One of the key benefits of asset-backed and mortgage-backed securities is that instead of relying on the ability of one borrower to repay its debt, you're relying on a pool of hundreds of thousands of borrowers to repay. You have definitely some diversification there in who's paying you back. Agency mortgage-backs carry the guarantee of the underlying agency, and as was mentioned earlier, Ginnie Maes have the underlying guarantee of the government itself, U.S. government. Certain federal student loan ABS are guaranteed to 97% of the principal and the private ones aren't obviously. Garret already discussed some of the various credit enhancements, so I won't go into those. But at looking at asset-backs, one of the things to looking at a pool is look at the average FICO score of the borrowers. Obviously, higher credit borrowers are more apt to repay than lower credit borrowers. Drilling into specifically the auto asset-backs, you look at things like new vehicles versus used vehicles. You want more new vehicles typically because who buys new vehicles, typically higher credit borrowers. So you'll get better credit performance than a pool that has more used vehicles in it. Also beware of pools of large concentrations in specific geographic areas or states. This may be an issue going forward, if you have a pool that has a lot of borrowers from oil producing states, like Texas and North Dakota, given what's going on in that industry, you might see a good degree of defaults on some asset-backs from borrowers in those states.

**Slide 51 – Spread Risk** **(1:38:57)**

**Thomas Williams:** Spread risk is something that's common really to all non-Treasury securities, not just asset-backs and mortgage-backs. In the case of securitized bonds, there really aren't many that trade at a spread to Treasuries, instead they are priced off of things like Libors, swaps, or the Euro-dollar curve as mentioned earlier. With securities that prepay, some of the common spread measurements that are used are OAS, which stands for option-adjusted spread, and that takes into account the prepay option that the borrowers have. There's also the Z spread, or zero volatility spread, that doesn't take that into account. Now, just like duration risk, you may not be that concerned with spread risk if you're a yield based investor. Again for the same reason spread may move around a little bit and the price moves. If you're going to hold it to maturity, it doesn't really matter what happens in between. If you're total return, though, it does because you

benchmark to an index. If you're benchmarked to an index, say Treasury only, like I know a lot of us are, anything with spread you have to watch that carefully because any spread movement will affect that relative performance. Now, spreads are affected by many factors: supply and demand, ratings downgrades or upgrades, and the current market environments. This graph at the bottom of the page shows the spreads of 3-year credit card and auto asset-backed over the past ten years. As you can see, spreads are normally fairly stable, but certainly aren't immune to extreme moves like we saw during the financial crisis, which is the big mountain peak you see there back in 2008 and 2009. In fact we've seen a little bit of widening recently in asset-backs because of all the supply that has been coming out and also the market volatility.

**Slide 52 – Extension/Prepayment Risk** **(1:40:32)**

**Thomas Williams:** Prepayment and extension risk. Really what they are is the risk of receiving cash flows earlier or later than you expect. Garrett went over with prepayment risk, faster speeds on a pool can result from underlying borrowers refinancing their homes, selling their homes or in the case of autos, trading their car for a new one. Extension risk is really a risk of not receiving your cash flow as quickly as you expected when you purchased the bond in the first place. And these risks affect both yield base and total return buyers. Because mortgage-backs are longer, they affect them more, especially when you're buying things like high coupon bonds, which price at a pretty good premium to par, and discount mortgages, which price at a discount to par. In those cases if you're buying premium bonds or high coupon mortgages, you really want prepays to come in fairly slow to get enough income from those coupons to justify the higher price. And the opposite is kind of true with discounts, you want them to prepay faster than you thought because what happens is that the price of the bond moves towards par as it gets to maturity, so that move to par enhances your yield. You know, Garret went into some of the things that affect the prepay, so I won't go over those.

With CMOs, again one of the main advantages is the ability through structure to buy a mortgage-backed bond with a more stable maturity and cash flow stream. Auto asset-back speeds are usually pretty stable because borrowers don't usually refinance their auto loans. They will trade a car in, but they typically won't go and refinance those loans, like they do with home mortgages for instance. One little quirk with auto asset-backs, the A-4 tranches typically price to what they call a clean-up call. And what that is, when a total deal size gets down to less that 10% of the original size, the issuer will call the entire issue, and so you get prepaid at that point. Now, since you're buying to that prepay or to that call, if they don't, you know, exercise that call, you have extension risk on the bond. And it's rare they don't. I think most issuers typically will call those clean-up calls. Most of them even during the financial crisis, I think most of the big issuers hit all of their clean-up call dates.

With credit card asset-backs, as mentioned earlier, we have an expected maturity and a legal final maturity, and say you have a three-year expected and a five-year final, most issuers will exercise that call at the expected maturity date. But if not, you have extension risk because now you held the bond, you're expecting to get paid on and you have to hold it for two years or you have to sell it.

**Slide 53 – Servicer/Sponsor Risk** **(1:43:02)**

**Thomas Williams:** And the last risk I'll cover is servicer and sponsor risk. Now servicer, what they do is collect payments from borrowers. They are the point of contact for the borrowers who hold the loans, and they may advance payments to the investors in the case of a cash shortfall. What the servicer risk is basically the entity no longer exists or is not able to service the loans during the life of the bond. This doesn't typically happen, but if it does I think almost all of these trusts have provisions where there is a back-up servicer to step-in and take over if that does happen.

Sponsor risk means that the underlying sponsor of the trust, such as the auto manufacturer or retail chain, goes bankrupt or ceases to exist during the bond. This shouldn't really affect the trust directly because these are set-up almost all of them have bankruptcy remote vehicles and their receivables themselves aren't available to creditors in the event of bankruptcy proceedings. However, some indirect effects that can happen can be that new receivables stop coming into the pool in the case of some revolving trusts, and what that does is it leaves the less creditworthy borrowers remaining in the pool as some of the newer, better credit borrowers stop making purchases. It kind of deteriorates the quality of the pool overall. There are only a couple of times I think with some of the smaller retail card programs where an issuer has caught a loss of the pool in bankruptcy issuer. One of the last things to be aware of when you're looking at total exposure to an issuer, include your asset-backs, your commercial paper, your bonds, your CDs and anything applicable.

**Slide 54 – City of San Diego Securitized Investments (1:44:32)**

**Thomas Williams:** All right. Lastly, I want to talk about how we, the City of San Diego, included asset-backs in our investment pool. First off, consistent with government code and I'm sure most of your investment policies, our primary investment objectives are safety of principal, liquidity and yield. We certainly factor those in when we buy or look at any asset-backed securities. Our policy is consistent with code, but we're actually in practice a little more restrictive than code dictates. For instance, when we're looking at an issuer, we require all A ratings from an underlying sponsor as opposed to just one. Also, like I mentioned earlier, we add up all of our asset-backed securities, commercial paper, CDs and bond positions when calculating the five percent issuer limits. So we don't go over that. Toyota is a good example of that. And since we manage on a total return basis, we're also very mindful of duration and spread moves when considering asset-backed investments. Since we do managing of the treasury on the index, we don't want to buy things where spread is going to move against us adversely. Lastly, when we buy any investments, we look for pretty good cash flow certainty to meet our outflows.

**Slide 55 – City of San Diego Securitized Investments (cont.) (1:45:39)**

**Thomas Williams:** So the two types of asset-backs that we currently buy are auto loan ABS and credit card ABS. In auto loans, we buy paper from the large A rated auto issuers, names like Honda, Toyota and Volkswagen. We only currently buy new issues because of the par or near par pricing. And that makes the prepay speed a little less important if it's priced right around par. We also only buy the A-1 or the A-2 tranche and we use them really as front end Treasury surrogates. In credit card space, there is only one large issuer we currently buy because of the

underlying ratings issue, and that's the Chase issuance shell, which is issued by J.P. Morgan Chase. I'm not making a recommendation to buy this shell, but we like it because it has fantastic collateral characteristics and it's performed really well for years. We buy both floating and fixed rate pools for autos and credit cards depending on what we need duration wise and where we see rates may be going. And obviously we only buy things that have a five year legal final or less. We currently don't buy any retail card asset-backs even though some would qualify by the ratings requirement. And the reason for us is that they're not quite as liquid as the benchmark bank credit card asset-backs, so liquidity is a big deal for us so we look really at those.

**Slide 56 – Ongoing Monitoring** **(1:46:54)**

**Thomas Williams:** Now, Garret and Jeff really went over this on a couple of slides, so I'm not going to go over this much except to say that we, too, take the post-purchase monitoring very seriously. We look at the reports monthly and we look at all the things I have listed here, like the accumulative losses, delinquencies, excess spread, and really monitor them to make sure that they're still performing as we'd like.

**Slide 57 – MBS/ABS Paydowns** **(1:47:19)**

**Thomas Williams:** And the last thing I wanted to mention quickly was the operational aspects of owning asset-backs, especially those that prepay. Again, unlike bullet bonds like Treasuries, agencies, you have that prepay option on things like autos. And one important thing to keep in mind, if you have to sell one of these and it started paying down, you want to make sure that you and the broker both know the same original face amount or current face amount because what could happen, if you're saying you want to sell 5 million of a current face, they think you're talking about 5 million of an original face and the two aren't the same, you could wind up selling an amount that you don't have. And then depending on the accounting system you use, you will have to possibly do a manual entry for pay down after each pay down happens. In our case we use SunGard, and so we have to do that and also we have to enter manually the factor after each pay down. And what the factor is it's essentially a percentage of the original face remaining expressed as a decimal. So, for instance, if a tool had exactly half left, the factor would be .500000, so we have to plug those in. You can get those by either going to Bloomberg or if you don't have Bloomberg, you can calculate them manually dividing the current phase by the original phase. Also, what we found with our custodian is that on the last day or the final pay down is that that principal payment comes in pretty late in the day, sometimes for us in the afternoon as opposed to when it's usually in first thing in the morning. With that last pay down there is sometimes a residual amount left over of a few pennies either way. So we don't quite match up with our accounting system versus our custody bank system, so just something to think about there. And that's really all I had, and I believe that's the end of the formal presentation. I'm not sure, there may be time for questions.

**Linda Louie:** Thank you, Thomas. We really appreciate it here from CDIAC, the City of San Diego taking the time to go over what you put to your portfolio and your investment policy. I think it ties in very well with the concepts that Garret had brought forward about the pooled structures and of course the important considerations that the Chandler group had covered in this presentation. We have a lot of information, everyone, to cover in this pooled securities webinar.

And our goal is probably –a cursory understanding of these instruments and as we pull this through into a seminar to summarize some of the various components of our webinars, we'll probably go into a little bit more analysis to help you understand how you're going to value asset-backs into your investment portfolio, but we appreciate the City of San Diego's example.

**Skipped Slides 58-60**

**Slide 61 – Questions** **(1:50:00)**

**Linda Louie:** We didn't have any questions floating in. So what we would recommend that if anyone out there has questions in questions land, just email CDIAC's education at cdiac_education@treasurer.ca.gov. And we'll be sure to respond to those questions, and post any of those onto our web page when we have the transcripts and the post-recording posted in a couple of weeks.

**Slide 62 – Public Investment Webinar Series** **(1:50:29)**

**Linda Louie:** We would really like to thank our speakers for the time and dedication and their expertise for putting a lot of work into this presentation. You heard a lot of consistency in the message here, so take that for value and the recording will be there for you to listen. And we recommend any of those people attending the summary class to take notes here.

So with that, I'm just going to draw you to a few more webinars that will conclude this series. We'll do the money markets, which is the part two of the CDs and deposit placement services on September 9th next week. And then following we will close out with local government pooled investments and looking at the money market funds, as regulation has changed in that area as well. But you'll get a primer view of those two types of instruments in September as well.

**Slide 63 – Thank You for Your Participation** **(1:51:26)**

So we thank you all for participating in this webinar. We hope to see you in the next two, and at the closing summary class that will be in January 2016. Thank you, everyone.

**Skipped Slide 64**