CALIFORNIA DEBT AND INVESTMENT ADVISORY COMMISSION

WEBINAR TRANSCRIPT

Practical Adaptations to the Evolution of Credit Ratings
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The use of credit ratings and the role of rating agencies have changed over time as market needs and expectations have evolved. Multiple rating agencies have made significant changes to their methodologies over the past few years to better account for common challenges faced by municipal issuers with a focus tuned more to the sector as opposed to the security. Ratings practices and methods have also had to respond to investors' calls for increased transparency. This webinar will examine how credit rating trends have evolved over time and how issuers may consider adapting their approach to the rating process to position their issuance for the best possible ratings outcome.

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.

Slide 1 – INTRODUCTION 00:00

ROBERT BERRY: Good morning, everyone, and welcome to *Practical Adaptations to the Evolution of Credit Ratings*. This is a webinar produced by the California Debt and Investment Advisory Commission. I'm Robert Berry, the Executive Director here at CDIAC. Now, fundamentally, a municipal bond rating is a third-party assessment of the likelihood that your agency, as a municipal bond issuer, will repay the bond's principal and interest on time. But practically, it is a point-in-time score, a grade given to your agency's past, present, and future planning, debt structure, performance, and financial condition among other factors. And it represents the culmination of a great deal of work and devotion of resources that may ultimately be one of your greatest non-market factors affecting your cost of financing. Well, the rating agencies have changed their methodologies, regulations have changed, and the way investor's view and use ratings have changed. But in light of these changes and the impact of the rating on a successful financing, should issuers modify their approach to obtaining a rating or ratings? The webinar this morning will explore the evolution of ratings, how changes have affected the ratings process, and how issuers may want to consider modifying their approach to the process of achieving the best possible rating outcome. Before we get started, I'd like to quickly run down some of our standard housekeeping items. Next slide, please.

Slide 2 – HOUSEKEEPING 01:35

ROBERT BERRY: The slides are available by clicking on the handout's icon, which is that little piece of paper with a paper clip, a link should pop out. We also have the slides posted to the event page on our website. That's the same page that you use to register for the webinar. And then, if you'd like to submit questions for our presenters anytime, you can do that anytime during the program by clicking on the question icon. We plan time for questions

at the end of the program. We have a captioning service that's accessible through the link address in the chat, which you can access by clicking on that chat icon. That's the little stack of thought bubbles there. If you participate in 70% of the webinar, we will send you a certificate of attendance in about a couple of weeks, and then also in about two weeks, we'll make a full replay of the program available in CDIAC's Education Portal. We'll send out a notification and a link to the replay when it's ready for you. If you have any technical problems, GoToWebinar can help at the numbered link on the screen but having said that I find that most often the best solution is to just disconnect from the webinar and then rejoin. It usually fixes some of your technical problems. Alright, so next slide.

Slide 3 – CREDIT RATING TRENDS 02:56

ROBERT BERRY: Before I pass the program over to our great group of presenters this morning, I'd like to quickly salt in some information regarding credit rating trends that we have seen here at CDIAC based on some of the issuance data submitted to CDIAC by issuers across the state. I think it'll provide some context or color to some of the more in-depth conversations that will follow this morning. The information presented on these next few slides is excerpted from three different articles featured in CDIAC's Debt Line Newsletter over the last year. We've linked those articles in the handout section along with the slides. The articles go into greater detail, but I'd like to just quickly point out some of the highlights. Next slide, please.

Slide 4 – PERCENTAGE OF DEBT TRANSACTIONS BY NUMBER OF CREDIT RATINGS 03:37

ROBERT BERRY: Here we see the percentage of debt transactions by number of credit ratings. This is a graph built from final sale data submitted to CDIAC with settlements between 2008 through 2022. Now keep in mind that CDIAC collects data on all debt transactions, including those not publicly offered. Over this 15-year period, unrated borrowing transactions have increased from just under 25% of the debt transactions in 2008 to 54% of the debt transactions in 2022. The primary drivers of the increase were state and federal loan programs and direct bank lending. Debt issuances with one rating were relatively consistent as a percentage of all transactions falling within the 30 to 40% range from 2008 to 2022. Debt issuance with two ratings decreased 28% to 12%. And debt issues with three ratings fell from nearly 14% to under 9%. Effectively what we're seeing is that the reduction of debt transactions with multiple ratings has been backfilling the single rating transactions as more borrowing has fallen into the unrated category. Next slide, please.

Slide 5 – PERCENTAGE OF DEBT VOLUME BY NUMBER OF CREDIT RATINGS 04:54

ROBERT BERRY: Now, this is the percentage of debt volume by the number of credit ratings. This is focused on volume. Looking at the same time series as in the prior slide, the line's going to reverse order, and it converged instead of diverging over the period. Here we see unrated borrowing volume has risen from its low point of just under 3% in 2009 to nearly 20% in 2022. Debt volume with one rating has more than doubled from its low just

under 8% to 19% from 2009 to 2022. And then debt volume with two ratings has declined from 2008 to 2013 and then grew over 36% from 2014 to 2020, coinciding with the decline in three ratings debt only to pop back up again in 2022, to approximately 21%. Despite the recent uptick in 2022, debt volume issued with three ratings has declined rather steadily from its peak in 2009 of 56% to just over 39% in 2022. Next slide, please.

Slide 6 – AVERAGE AND MEDIAN CREDIT RATING COST PER $1,000 PAR AMOUNT 06:13

ROBERT BERRY: Now let's switch over to the cost of ratings for California issuers. CDIAC took a look at the ratings cost per thousand dollars of principal on single rating issues from 2008 to 2023. Viewing the data per thousand dollars issued allows us to make an inflation adjustment consistent with the sectors associated with the expenditures of long-term debt proceeds. The graph displays average rating cost per thousand dollars and the median cost per thousand dollars over the 15-year period. We also map the single rating activity over the period in review to provide some context for rating supply and demand. What we found is the average credit rating per thousand-dollar amount grew from $1.24 per thousand in 2008 to $2.18 per thousand in 2023, which is an annualized growth rate of 3.8% over the 15-year period. The median credit rating per thousand grew from $0.95 per thousand in 2008 to $1.14 per thousand in 2023, an annualized growth rate of 1.2 percent over the 15-year period. Both the median and average rating costs for single rating issues were positive after the sector-focused inflation adjustment. Next slide, please.

Slide 7 – CREDIT RATING COST PER RATING BY PAR AMOUNT 07:32

ROBERT BERRY: This next graph includes all rated debt by volume issued in 2023, so 408 issues total. There are three regression lines showing costs per rating versus principal issued for issues with one, two, and three ratings. The size of the plot there represents the size of the issue from $5 million up to $2.6 billion. Here we see the credit rating cost per rating is positively correlated with principal amount despite the number of credit ratings used on an issuance. The average credit rating fee per rating increased less rapidly for issues with multiple ratings as the principal increased. Debt issued with three ratings appeared to have the best price per rating as principal increased over approximately $100 million, but beyond $100 million, the variability of average rating fees increases, illustrated by the greater distance of the plots from the regression lines, especially on the larger multi-rating issues. Next slide, please.

Slide 8 – CREDIT RATING COST PER RATING BY DEBT TYPE/SECTOR 08:38

ROBERT BERRY: Lastly, we took a look at rating costs by debt type or debt sector. The data set for this analysis consists of 655 long-term issues with at least one credit rating fee reported to CDIAC over the last two fiscal years, so a little different time series than the prior graphs. This box plot shows the spread of credit rating costs per rating segmented by debt type and sector, including the entire range of principal amounts, all 655 issues. The range of the credit rating cost per rating is measured by the distance between the lower and upper horizontal end lines in

each column. The total column height or length relates to the range of principal amounts in the sector. The higher cost per rating is positively correlated to the principal amount. The box plot divides the data into equally sized quartiles. Quartiles two and three are the shaded sections and represent the middle 50% of the data. The tighter spread in the center quartile suggests greater consistency in issue characteristics and cost per rating. Any data points that fall outside of the end lines are considered outliers. Technically they're outside 1.5 times the shaded range or middle 50%. You'll notice that there are certain sectors that stand out as having significant numbers of outliers because the rating costs, as I've already mentioned, are correlated to principal amount and the number of ratings of this data, and the box plot is more useful if you can account for these variables. CDIAC's research team has created an online tool with this data set that allows you to adjust the principal amount and number of ratings as a way to provide a comparison of rating costs on debt with characteristics similar to your own. The tool is linked there in the presentation. Next slide.

Slide 9 – SUMMARY 10:38

ROBERT BERRY: In summary of our findings, 63% of the issues had one or more ratings over the 14-year period from 2008 to 2022. The percentage of unrated borrowing transactions has more than doubled, while the percentage of issues with more than one rating has been declining. When we look at the use of ratings by volume, again, unrated borrowing volume has grown significantly, and single rating volume as a percentage has almost doubled. Multiple rating volume has shown significant decline, albeit a less linear decline. Over the last 15 years, median and average credit ratings fees per $1,000 issue on single rating issues has outpaced our inflation adjustment by 1.2% and 3.8% respectively. Then among long-term issues in 2023, fees per rating for multiple ratings issues increased less rapidly as principal increased with more variability for costs per rating for issues over $100 million. Lastly, some issuance sectors, K-14 GOs in particular, have very wide ranges of cost per rating with many outliers, especially for the smaller issues under the $100 million principal level. My point about the smaller issues can't really be seen in the slide because it presents all principal amounts. It is really only revealed by using the box plot tool that I mentioned. I encourage you to take a look at that tool and then read the full Debt Line articles that we've linked here that were produced by CDIAC research team. So why did I include this analysis this morning? How does it relate to the points our presenters will be making here shortly? I think that it presents a different vantage of the credit rating evolution and how ratings are being used. The data indicates that issuers have elected to obtain fewer credit ratings on their issues. There are a host of reasons why this is happening. One of them may be growing costs. From our analysis, the cost of ratings have outpaced inflation and generally exhibit a great deal of variability. These factors, among others, are likely contributors to GFOA's advice to carefully evaluate the use of credit ratings and to negotiate the fee structure before requesting a rating. But bottom line, obtaining a credit rating or ratings is very consequential and requires a substantial commitment of resources. Understanding how things have changed and how you can position your agency for the best ratings outcome is important. And we have assembled a great group of presenters this morning that will dig into this topic from four essential perspectives: banker, municipal advisor, ratings agency, and investor. Next slide, please.

Slide 10 – SPEAKER INTRODUCTIONS 13:22

ROBERT BERRY: Now I'd like to welcome and introduce our four distinguished presenters. First, we welcome David Brodsly, a managing director at KNN Public Finance. David is a registered municipal advisor with over 24 years of experience. He has served as an advisor to many cities, counties, special districts and state agencies throughout California and school districts. Prior to joining KNN in 1998, David was with Moody's Ratings in San Francisco and was a member of Moody's National Rating Committee. Joining David is Renee Dougherty, Director and Head of Municipal Money Fund Research for Schwab Asset Management. Renee oversees the team responsible for analyzing and monitoring municipal securities being considered for or held by Schwab Municipal Money Funds. And then next, we welcome Eric Hoffmann, Associate Managing Director at Moody's Ratings. Eric is responsible for Moody's Western Regional Ratings Team, which covers local governments and municipal enterprises in California and 10 other Western states. Eric is a senior member of Moody's Rating Committee, Senior Advisor to the firm's methodology group and leader of the Public Finance Department's Environmental Task Force. Then finally, we welcome Debra Wagner-Saunders, our panel moderator. Debra is currently a consultant to BondLink and the U.S. Department of Energy. Debra has over 40 years of experience in the municipal market across a wide range of sectors and prior to her current consulting roles, Debra served as a lead banker in Citi's Northern California Public Finance Office, in addition to representing Citi for prominent issuers across Western states. Debra led efforts to implement various enhancements to Citi's credit agency approach, as well as models for simulating a rating agency scorecard. A great group we have. Debra, I'm going to turn it over to you. Thank you all for being here.

Slide 11 – HISTORIC AND REGULATORY PERSPECTIVE 15:13

DEBRA WAGNER-SAUNDERS: Thank you, Robert and everybody for attending. As Robert said, the cost of getting a rating is considerable, although I think the inflation rate, many of us would consider to be enviable. But as you know, the cost of getting a rating is not just what you pay to the rating agencies; issuers and their financing team spend a lot of time and energy putting together rating presentations and putting together their thoughts and strategizing about how to approach the rating agencies. Given some changes that some of you may have noted over the last few years when all of the major rating agencies have re-evaluated some of their key credit criteria and has resulted in even changes just driven by the criteria. We wanted to put together a panel that brings a diverse group of people that you might deal with together to explore these changes and, hopefully, ultimately give you some pointers on how to adapt and how to make your next credit presentation as good as it can be in this framework. With that in mind, we're really honored to have Eric Hoffmann here. He's the face of Moody's in California and beyond. I think he's a great resource. He understands the California credit market very, very much in depth. We're going to ask Eric to give us a little overview, take a step back, but also just start with, who the rating is for, who are you rating this for? Is it for the mayor? Or is it for the investor perhaps? Or just for the finance department? Who is using the ratings and how did we get where we are in terms of how you prepare your ratings for this audience?

ERIC HOFFMANN: OK, well, thank you, Debra. First, let me ask you to sort of cast your minds back roughly 15 years. And that is the starting point to explain a lot of current rating agency behavior and expectations. I'm referring to

the Great Recession. And for those of you who are around, I imagine many of you in the audience, you remember that was the most significant economic downturn in U.S. history since the Great Depression, hence the name the Great Recession. And it was unusual because it was largely driven by a housing market downturn. And while it's painful for a rating agency analyst to admit, there were some criticisms of the agencies and the way we rated subprime mortgages and securitized offerings at the time. A lot of discussion about that at the time, for better or worse. But that was a seismic event, which then resulted in aftershocks that we're still feeling today. The biggest was then in 2010, after the Great Recession was over, the Dodd-Frank Wall Street Reform and Consumer Protection Act was passed and this was thousands of pages, literally, of regulations, most of which had nothing to do with rating agencies. But there were a few very significant developments in that law, so that's a real foundation for a lot of what happened. And then there were other significant aftershocks, and I'm using this metaphor, of course, we're in California, it's helpful, but there were not just regulatory changes, but then we had a string of municipal defaults and bankruptcies. Most significantly in California, were Stockton and San Bernardino in 2012, and then probably more significantly for current rating agency thinking was then Detroit, which happened in 2013, which was then the largest municipal bankruptcy that had ever occurred. And then after that, Puerto Rico defaulted in 2015, finally declared bankruptcy or bankruptcy sort of, because it had a different law, in 2017. But those major after-effects, which weren't necessarily entirely driven by the Great Recession, but the Great Recession contributed to, do a lot to inform what and how the rating agencies have evolved in the last 10, 15 years and what has gone into changing our methodologies and the way we behave. And so that's the foundation. I just wanted lay that out there. Of course, Puerto Rico was a blockbuster and that became the largest municipal bankruptcy ever. It was particularly significant. But just let me step back first and say that as far as Frank-Dodd, or Dodd-Frank, whichever, that did two main things really, despite all the thousands of pages. First was that the greater rate transparency in rating methodologies and consistency in their application. You've seen what I call the rise of the scorecard, and we'll get back to that. The second thing that they did was that the law was an attempt to address the perception that rating agencies were too willing to rely on the information that was being presented by the debt issuers themselves and so they incentivized, in the law, rating agencies greater reliance on what has been boiled down to verified third-party information. And so that is your auditor or a government data source. Those are the big things that we'll talk about and have had implications now. The defaults in the bankruptcy lessons that we learned were primarily that pensions and OPEB liabilities, though they were unsecured obligations, would be treated almost as equivalent to all of the legal pledges that you have behind debt. And that was not necessarily news, but it helped clarify the way those massive liabilities, particularly in California, were going to be treated in distress. And then the other effects of the defaults and the bankruptcies, and again this is why I mentioned Detroit and Puerto Rico, is because these were very broad-based defaults and granted again both of these entities had long-standing declines in their economies but they didn't default on narrow specific pledges but they defaulted broadly and even in the bankruptcy discussions included or tried to include other kinds of debt that perhaps or it did in fact have sufficient money to pay and had been of maybe is walled off from the general government. And so out of those lessons, we started to focus more on the pensions and OPEB liabilities, explicitly include them in the rating agency reviews, and we pivoted to what is now more of a sector-based methodology, what we call it at Moody's, than security specific methodology. Historically, we had had a geo methodology and a lease methodology and a special tax methodology and a tax increment methodology. Now we have cities and counties methodology, and that methodology addresses a wide spectrum of debt. So that's all the historical background and I wanted to

get that out on the table first because I think really does inform a lot of what is going on now with rating agencies and the way we interact with issuers and FAs. I'll leave it at that, and I know I should stop.

DEBRA WAGNER-SAUNDERS: No, you can keep going. But I just wanted to sort of recap that the transparency and consistency, where the issuer, where the information comes from, and that seems to be pretty key too. It's not just audits, but you can get it from outside third parties too, like...

ERIC HOFFMANN: Absolutely. We rely on the federal government. We can rely on states. And it's not like we don't, take into consideration what we hear from the issuer. It's just we can't rely on it. And again, we have to essentially have some information that we receive from the issuer. Ithas to make sense in the context of everything else we're hearing and seeing that are from third parties.

DEBRA WAGNER-SAUNDERS: Okay, that's fascinating. Lastly, the types of debt, I think this is key in something that we'll see as we pick up later on, the types of debt that some of these bankrupt entities tried to get out of, if they had 150 times coverage for water revenues, but they still tried to get out of it, that can really make you think differently about how you're rating a water revenue bond.

ERIC HOFFMANN: Absolutely, yeah.

DEBRA WAGNER-SAUNDERS: I think that's helpful. Dodd-Frank was, or these defaults were 2015, and now it's 2024. And the most recent changes came out just a few years ago. What took so long?

ERIC HOFFMANN: What took so long? Again, in thousands of pages of regulations, it took a while to implement and interpret. And, again, immediately, or it's difficult to rewrite a methodology, and it took some time to incorporate the new thinking. I can't answer exactly why it took so long. I mean, we did in, it was January 2021 when we introduced our first sort of new methodology that was sector based. And that was our school district methodology addressing the K-12 sector. And that was then followed very quickly by, four months later, March 2022, we put out our state methodology, which similarly introduced the idea of an issuer rating and then security ratings placed around the issuer rating. In that same year, then later, 2022, we rolled out our new cities and counties methodology. That covers when you talk about cities, counties, and school districts and states, that's like, 80% of the municipal market. And so yes, it took some time

DEBRA WAGNER-SAUNDERS: I imagine there's an internal process and then a vetting process that you have to go through as well.

ERIC HOFFMANN: Indeed, one of the developments as a result of the consistency requirement for methodologies is that we now have a dedicated methodology development group at Moody's, and we have a dedicated methodology review group, which is outside my scope of responsibility. And it used to be, historically, that simply senior analysts would write methodologies. When I think back, and I kind of miss those days, I forget what the date was, but been asked to rewrite our lease methodology and to make it conform and be a little less consistent, but it had a lot of character, frankly. David Brodsly, who's here, had written a line in there that made a reference to Pope Alexander III and how from the Middle Ages, it was 12th century, how Christian Doctrine had declared that interest payments were contrary to the church's thinking. Methodologies don't have that anymore. Now

they're much more focused on the quantitative factors and subjective factors. They're consistent across all of the different sectors and so that got edited out.

DAVID BRODSLY: Besides the fact that your literary quality has gone down the toilet, one of the things that I'm struck by is the effort to make your rating approach consistent with global ratings.. I was struck, I was thinking about this, that it was six months before Lehman's bankruptcy that the Treasurer Lockyer wrote his famous letter claiming that municipal ratings were too low and it's just kind of funny that those events converge, but there has to be a factor too, right? As you try to make a triple A, a triple A, a triple A.

ERIC HOFFMANN: It is a factor. We had started down that path before the Great Recession. I wasn't going to go back that far into history. Some folks on the call certainly will remember that the rating agency's been accused of rating municipal ratings too low relative to their actual default probability. We were too high on, the thinking was, the securitized obligations. We're getting it from both ends, and we had gone down the path of bringing the municipal ratings back to the global scale, 2008, 2009. We actually implemented that in 2010. April 2010, we put all of the muni, existing muni ratings onto the global scale. There is an influence there because the global scale then is influenced by a lot of factors that, may or may not be relevant to the muni market so you have to balance those. But I wouldn't say that's been a big driver of the current rating methodologies. It's really more about, who we can rely on for information, how we do that, and just it tilts us more toward external sources than perhaps the issuer itself.

DEBRA WAGNER-SAUNDERS: Thanks. I want to turn to the value to investors. I think the ratings data that Robert showed earlier on shows the trends between one rating and two ratings and decisions that issuers make right up front about who they're going to approach for ratings, that information is meant to drive pricing. A rating is a big factor in pricing, obviously one of several. And who's doing the pricing? It's the investors and in a big way, it's the institutional investors like Renee and others who are looking at the ratings and these other factors and deciding compared to things of similar ratings, what they're going to buy.

Slide 13 – PERSPECTIVE FROM THE BUY SIDE 31:15

DEBRA WAGNER-SAUNDERS: Thank you. The buy side, how does the buy side use the ratings? And maybe Renee, maybe you can just tell us like, does one rating or two ratings make a difference and the types of, we know there are a lot of different types of investors, but how does Schwab use ratings to help inform its purchasing decisions and what internal analysis do you do on top of that?

RENEE DOUGHTERY: Yeah, thank you, Debra. In terms of the, well, first of all, does a rating matter? I think that's kind of one of the big questions here. And what is the market for unrated bonds? And to understand that one thing you have to think about is there are various types of mutual bond investors. There are institutional funds who may have credit analysts, and they may be able to do their own work. There's institutional funds that may have a very small credit staff, and so they may be able to do their own work, but they're also going to rely heavily on the rating agencies. Then you also have retail investors and retail investors generally, like if they're going to hold individual bonds, they like to have those bonds rated because retail investors generally are not capable of being able to do

their own analysis. They're not considered sophisticated investors. Unrated bonds generally just don't tend to attract as many buyers just because a lot of buyers either can't or won't buy unrated debt. And also, unrated debt generally won't be as liquid within the secondary market if investors want to sell their bonds. But in terms of whether you should have one, two, or three ratings, I would say generally what we see is the larger the issuer, the more the investment community expects you to have two or three ratings. If you had, say, the State of California only having one rating, investors would kind of wonder like, well, are you trying to kind of gain the system, and investors really don't like that. But also, investors realize that smaller issuers can't necessarily afford to buy to pay for three ratings so there is that understanding.

DEBRA WAGNER-SAUNDERS: There's also the cost, like we said, not just paying for the rating, but two or three rating presentations and the possible travel and the time to prepare for each one and juggling questions.

RENEE DOUGHTERY: Yeah, so we understand that that's especially difficult for smaller issuers. But if you have multiple billions of dollars outstanding, we expect there to be more eyes kind of helping to monitor that credit because there is going to be a larger that are investment-based for that.

DAVID BRODSLY: I'd heard that a lot of the funds, the bond funds, they would have a two-rating requirement and that might be an old standard that is not really the driver. But I know that that was one of the reasons why you thought you needed two ratings is because you opened up to those bond funds whose founding documents required two ratings by the paper.

RENEE DOUGHTERY: Yeah, and I think that's probably going to vary from investment shop to investment shop. It really depends on the capabilities, their analytical capabilities, and what part of the market that they might specialize in. If you have a firm that has a lot of investments but a small analytical staff, you're going to rely more heavily on the ratings both as a way to help you just kind of focus on which securities you need to put more of your efforts on. You might use a rating more as a means to tell you like, okay, these say maybe single A and above, we don't need to worry about anything below that. That's where we're going to focus our efforts on. So having that rating, knowing whether perhaps the outlook is positive, negative, stable, also just helps you focus just makes the whole process of monitoring your portfolio much more efficient.

DEBRA WAGNER-SAUNDERS: I was just going to say, maybe, can you give us a little insight behind the curtain there on how institutional investors such as yourselves use ratings in pricing decisions and even you know if the one or two ratings comes into play there as well but more of like how do you use it?

RENEE DOUGHTERY: Yeah, absolutely so you know a rating is useful because it helps you start on the pricing decision from a comparative standpoint. If this is, say, a AA bond in the state of California in the local government sector with a 30-year maturity, look at how bonds similarly price along the yield curve for that particular tenor and sector and rating. So that is really kind your starting point. But of course, there's lots of other factors that will influence whether bonds actually price similar to that generic scale. Factors would include things such as demand during a given week. Is there a lot of money coming into the funds, and therefore, there'll be more demand? Or what does the forward calendar look in terms of supply? Are a lot of issuers in the market that week, especially for any particular state? What are current credit spreads between, say, BBB and AAA? If that's narrow, then

investors may be more interested in buying AAA because there isn't of an extra value to going down the credit scale. I mentioned sector matters on terms of pricing. State matters. California and New York price better than states that don't have a personal income tax because of that extra tax exemption you get, and then, just liquidity matters too. Larger issuers tend to be more liquid because there's just more people who actually already have that exposure to that issuer and are tracking it, so it's easier to find a buyer in the secondary market for a large issuer. If you're a small issuer, there's just less eyes on you, so it's going to have less liquidity, and you will ultimately be factored into the primary market.

DEBRA WAGNER-SAUNDERS: David, I want to give you a surprise question here. When you're advising your clients, how do you decide whether to recommend one or two? We're going to get into more depth in this later, but I just want to see if there's, is there a simple answer to that question? And what are the variables that make people decide one versus two, three?

DAVID BRODSLY: Yeah, and it's not simple and its sort of changed over time. Having come from a rating agency, I started as an advisor with sort of a prejudice in favor of rating agencies and wanting, thinking that it made sense. I knew what the investors wanted. I know more information is and I was a big advocate for large issuers having three ratings as kind of the right way to approach the market. Unfortunately, the evidence didn't suggest that more ratings always got you better pricing. Ratings aren't cheap, and that became a factor. Really, to me, that was probably the biggest factor, was the cost factor. once you go to one rating agencies, go into the second or third, it is more work, but it's not that much more work. You've kind of gone through the drill of being prepared for a rating, but the cost can be very significant. It's interesting to see Robert's graphics because it reflects what I've sort of anecdotally observed that we're using fewer ratings. We did have, we were working with somebody recently on a transaction and we did use the CDIAC data just to kind of see the trends and it was a factor in our deciding. Well, it doesn't look like the market's requiring two ratings anymore on this one. Then you get to the issue that was sort of already reflected the game in the market, the whole rating shopping thing, where you go, you figure out who might get you the better rating. Unfortunately, Renee, you can slap my hand on this one, but I'm not sure that the differences between rating agencies and how you would be able to translate from somebody's rating one sector to another person's rating sector is perceived in the market. There is some real incentive to rating shop to get, if you're especially when you're only going for one rating, to choose the rating agency that will give you the better rating, that you expect will give you the better rating, right?

RENEE DOUGHTERY: Yeah, I would say, though to add on to that is that at least institutional investors know that issuers often rating shop. It doesn't necessarily mean that, the higher rating will necessarily get you the better pricing. I won't name any names here, but okay, that rating is probably going to be comparable to something lower at a different shop. Investors know that game. They really do. I will tell you also that at least as an analyst, it's not just the rating itself that matters. We place a lot of value on the rating reports and the content within the ratings reports. In many respects, as an analyst, that's more important to me than the, or valuable to me than the rating itself, because that helps me inform my own individual analysis. What are the things, what's the summary of this credit? What are the things I should be paying more attention to? Also, because rating agencies have access to management, they may be able to provide insights that we just cannot get from reading the official statement or the audit financial statements. They have perhaps a better idea of quality of management. They might have, a

better historical or comparative perspective, particularly if they tend to be the dominant rating agency for a particular sector. In terms of like, which rating agency we'd like to see, I can't really speak for all investors. But there are certain markets where there is a dominant one, and it's very useful then to be able to, compare two issuers that are rated by the same rating agency within the same sector, that's helpful from an investor standpoint.

DEBRA WAGNER-SAUNDERS: And I've also noticed, Renee, when I read rating reports from two different agencies on an issue or that they may take a different look or a different opinion or slightly different views of different pieces and it helps to build a full picture. So yeah, I think that's an important part of the rating. The analysis of the rating analysis that you and your comrades do is to really get, use those to develop the full story even though you don't have the access that Eric or some others, or even the financing team has. I want to move back.

DAVID BRODSLY: And the time. I mean, I think Renée is kind of suggesting. You got all these official statements you're trying to decide who you're going to pay attention to. I mean, if you read an official statement carefully, it's a couple of hours investment of time. And that's just not a practical thing, especially for something that's highly rated to begin with. I suspect the reports are, I think, maybe I didn't even appreciate how important the reports would be for the highly rated credits because you're just not going to put that much of your time into the analysis personally.

ERIC HOFFMANN: I can tell you we process and review every one of our ratings every year and we rate 10,000 municipal issuers across the country. My team in the West is responsible for roughly 1,500 of those names and we go through, and we look at every one of them every year. And we do have a perspective that you're not necessarily going to get. If you're looking at just individual OS's and there's a limit to how many of those you're going to see, we review every annual report when it comes out and updated financial and budget information, updated economic information, tax-based information every year. We're processing them.

RENEE DOUGHTERY: I may be jumping ahead a little bit, but I will say, like, one reason perhaps, Eric and his team worked so hard to really get a full understanding of the issuers is because investors will grill them when we meet with them, and they have to be able to answer all sorts of questions. I probably have been a thorn in Eric's side before just asking like, so what do you think about X? And what do you think will happen? And are they prepared for Y? Investors care, it's not just the lower rated credits.

ERIC HOFFMANN: We welcome that, that's part of our service and every one of our ratings is public. We put it out into the public domain in the press release that we write. It's a short version of a credit opinion, is out there in the public. And then, we have research that's more in-depth. But any investors that call us up and asks us, well, what do you think about this note in the financial report. What does that mean? We expect the analysts to be able to handle that.

RENEE DOUGHTERY: Yeah. Like, what is, what do you think about that lawsuit? That's that that major lawsuit and what impact it may have? Those are the questions that investors may discover doing their own research, but we'll follow up with the rating agency if we need to.

ERIC HOFFMANN: And we read every note, every audit.

DEBRA WAGNER-SAUNDERS: I want to move along here because we want to get into the weeds a little bit since this is a taped webinar. People can listen later and slow things down. This slide is a high level of what has changed, transparency, as Eric said, and what tools are available. One of the things I just wanted to talk to you about is the tools, maybe, Eric, that are available from Moody's, what can issuers access, and then we're going to get into something even more in depth in a few minutes. But how do people find, how do they go to the source to find out what's changed in the rating criteria?

ERIC HOFFMANN: Well, let me answer two things. Not necessarily that question. First off, all of our methodologies are publicly available. The methodology is where Moody's theory of credit quality for a particular sector is going to be laid out in excruciating detail. These are not documents that you can read cover to cover unless you are really hard up for sleep. But it will have, in this publicly available document, all of the things that we think about when we are rating any municipality and there's a scorecard and there are metrics and it'll tell you the difference between a triple AAA, and a single A, and general, so I'm not going to tell you about your specific circumstance, but all of that is available. You can go to Moodys.com, very easy to remember. You do have to register, but the only thing that means is you have to enter an email address in your name, and that will get you access to the methodologies, and so you can download any of these. What's changed is a little bit trickier. We do put out press releases and public statements about methodologies that change or that have that are upcoming and it's a little harder to track probably. You're probably better off talking to me, or one of my analysts, about what changed between the 2020 and the 2024 version of the city and county methodology, that sort of thing, because you're not going to have a black line version of the methodology. Fundamentally, I can say that what has changed in the last few years is that there is this greater focus on the issuer rating and that is this relative rating of the general ability of local government or an entity within the methodology to make its debt payments in time on info without any sort of consideration for the legal elements, the pledge, the security, whether it has a statutory lien or a different type of lien. Those all are then determined by an appendix and another scorecard within the methodology framework for placing different kinds of securities around that general credit quality of the issuer, which is expressed in that issue already. So that's the big thing that's changed. There have been a lot of other little adjustments around the edges.

DAVID BRODSLY: Eric, one of the things that I find, as somebody who's trying to be on the other side of the table from you guys, is, I grew up with the general fund being what you looked at to understand general credit quality and I know you've expanded not only to all governmental funds but in some cases to even the business type activities, and I'm trying to catch up with you guys wrap my head around, what to do with that change in approach and just a second on that I don't want to derail you the stream here but I do think that is one biggest change at least that I've observed.

DEBRA WAGNER-SAUNDERS: I was going to say that varies just to take a step back from one rating agency to another what funds are included and so it makes sense for folks here to really look at the way that each of the rating agencies are rating the debt and how they're factoring in this broader view of funds. Certainly, most of the beyond the general fund into the pensions and other liabilities. Accounting rules have changed so how it is fed to the reigning agencies and investors can be different. Not that we're running out of time, we can go all day if people

want to stay on, but we want to get into the nitty-gritty of some of the factors, so I'm going to ask to move to the next slide.

Slide 15 – ARRIVING AT THE ISSUER RATING: STEP 1 53:06

DEBRA WAGNER-SAUNDERS: Before we talk about that, the rating changes that we've seen in methodology, as Eric said, have given birth to this thing called a scorecard. The Moody's scorecard was probably one that was out there earlier, and a lot of people have reverse engineered it so that they can actually create their own scorecards and guess what's going to happen. But it does help issuers breakdown what they should focus on in a presentation when going to the rating agencies. One of the main pieces of this are the scorecard factors and sub-factors. And then, within this, each one has a different approach, and some are more quantitative than others. I was going to ask Eric to give us a little preview of how the factors work and, what's changed? Where is the AV per capita? Where are some of these other things? What are you looking at and why did you change these things?

ERIC HOFFMANN: I think if I do this well, this will give me an opportunity to answer the question that David posed or just comment on the expansion from general funds to governmental funds and then bring us back to my introductory statement again because I made it to help explain why we're doing what we're doing now. The expansion, first off, from general fund to governmental funds, that was occurring in part before everything happened in the Great Recession. I'd been advocating that for a while, personally, in part, and I like to take credit for this part, because as you move further west, in the US, there are more special funds. We are more restrictive in the West about how you can authorize and use certain governmental funds. They were being used for general operating purposes in the West, just like they would in the East, but they were restricted and so it made sense to bring all of those funds together, not just look at the general fund and what was unrestricted and available for any purpose. Then, just broadly, you have to remember now, back when we had those defaults, the pensions became one of the driving factors of how the plans, the bankruptcy plans worked out. Those unsecured creditors, the employees and the retirees essentially became almost secured creditors because that became a big factor, a balancing factor in the workouts of those plans. It made sense to, when we start our analysis, include all of the funds, include all of the things that the city is doing because that pension fund and all those city's employees are in that pension fund. We start our analysis looking at, say, if you're talking about a city or county, all of the funds together, the governmental funds, the business activities funds, and all of that is just the starting point. That goes into this scorecard, and you'll see the scorecard here. What this does is all of these are either, or this is almost entirely quantitative. There's one element that is not the institutional framework, but that is a subjective decision that Moody's gets a group of senior analysts or gets all the analysts together, and we make a decision once a year, and we publish those decisions. We say institutional framework for California cities is going to be A level or triple A level, and we do it for every state, every sector. And that's fixed. Everything in the scorecard, in this part of the scorecard, is absolutely fixed. And it is a function of data that's available to everybody. This addresses that requirement that we are consistent in our application of rating methodologies. This puts everybody, all local governments that are cities, get treated exactly the same across the country and we consider resident income, full value per capita, these economic growth measures, again, all of these are just publicly available data points. you see the leverage, we changed, we used to use debt burden, your existing debt that's property tax based over your

AV. No longer, now we look at liabilities including your pensions. That's a change that has happened over the last say decade or so. I mean, we started thinking about pensions long before all of this occurred. But again, it really solidified our thinking when the way pensions were treated in stock in San Bernardino bankruptcies. I don't want to go through every one of these ratios and talk about them. If we could go to the next slide, it'd be helpful to move us along.

Slide 16 – ARRIVING AT THE ISSUER RATING: STEP 2 57:59

RENEE DOUGHTERY: Because I think that's the next slide is we're talking about notching in the next slide. There is a methodology to the method, a method to the methodology or notching just give you the ability to do anything.

ERIC HOFFMANN: Yeah, so though I will say, this is step two in arriving at the issuer rating and these notching factors, the way we term them is a little bit different than I think with the way the market thinks of notching factors. These are, again, almost entirely quantitative or they are fixed every year in the sense that these notching factors are in the scorecard, they don't affect all issuers. The prior scorecard, and what you think of as the quantitative portion of it, the non-notching factors piece, those are measured for every single city, county, school district. Here we're taking into consideration some additional facts that often drive ratings, for example, the additional strength in local resources, probably slightly badly labeled, but it's sort of general, and we'll look here to give you some specifics. This takes into consideration two additional quantitative measures and gives you upward notching if you exceed a certain metric. For example, if your median household income happens to be between 200 and 250 percent of the U.S. average as adjusted for regional price parity, you get a half notch up in the score card. If you happen to be above 250, you get a full notch up in the score card or if your full value per capita is more than 400 per capita, 400,000 to 500,000, you get a half notch up. Or if it's over 400 to 800 per capita, full value per capita, you get a half notch up. If you're over 800,000 per capita, you get another half notch up. These notching factors are not, the qualitative considerations that also go into the rating and where I think the real value add comes, anybody can create models and formulas and kick out a rating. Then, you need to think about all of the other facts, the softer, more nuanced facts that really determine relative credit quality. That is on the next step. We go to the next page, and we just have some examples here.

Slide 17 – CITY AND COUNTY METHODOLOGY (CITY OF ABC) 1:00:38

ERIC HOFFMANN: I will say on that prior one, there are some, again, qualitative elements where you saw there's a category, go back and read it, it says potential cost shift from the state. That doesn't really affect California, but it affects some other states where there's, it could affect California and certain sectors, but it's, again, a determination that's made every year where we look at say the pensions and who's paying them? And is the state paying the teachers pensions contributions in full or are the local school districts paying them through the funds that they're being allocated or driving from their local economies, and could the state make change its mind perhaps? And we watch pension legislation, what's being proposed, what's being done, the pressures on individual states, and we make it determined every year about, you know, whether or not to give that notch down for

potential off shift. So again, those are fixed. This is where it all comes together in the score card and we get what we call the score card indicated outcome. We don't even, we try not to call it a rating because our ratings are not determined by models and methodologies. They are determined by senior analysts who have the benefit of the perspective that Moody's has from rating 10,000 local governments every year and having done this for decades, if not a hundred years, I don't know that community ratings go back 100 years, I think they might. But it's, we have a lot of perspective, and we just have mass amounts of data, lots of comparisons, and we get this outcome that's indicated. But then, this is where the fun part is.

RENEE DOUGHTERY: Just to go back a second. This gives you the, "oh, this is all leading up to the issuer rating", the fact that it's a water or a sales tax or, a tax increment, on totally irrelevant here. You're just evaluating the whole entity, okay.

ERIC HOFFMANN: We're evaluating the whole entity, getting a sense of its general unsecured ability to pay its debts and other debt-like obligations in full and on time as they come due. This is just to demonstrate; this is the scorecard literally where you have the quantitative metrics and then those notching factors.

Slide 18 – ARRIVING AT THE ISSUER RATING: STEP 3 1:00:55

ERIC HOFFMANN: If you go to the next page arriving at the issue step three. This is where I think truly, granted our methodology is based on years of experience, and we think it is the correct theory of relative credit quality for whatever sector we're talking about. The other considerations are where we really, I think, do our work and think about, "Okay, how concentrated is this economy?". You might have a great full value per capita, but perhaps you are entirely dependent upon tourism. That's not relevant for all credits, but it is relevant for some. We think about that and then the competitive enterprise risk in the governmental or business type activities. Where is the bulk of your resources? Are they in those enterprises that are largely restricted or are they in your governmental funds or in your general fund? And there's no way to write a formula for that, but there are cities that are highly dependent upon their enterprises. They're not necessarily in California where it's actually very difficult to be transferring money back and forth from enterprises or even using it. But that's not necessarily true across the country. Other places you can use sewer revenues to subsidize your own general activities. And all of this is what we're thinking about. The likelihood of it's receiving extraordinary, ongoing support, very relevant for California K-12 school districts. There is a robust system of oversight and intervention here, which is not true in a lot of states. AB 1200, rules, well, that was a long time ago, I mean, there may be subsequent AB 1200s, but back in the late 90s, I think it was post-Richmond school district bankruptcy, now Contra Costa unified, the state created, an oversight system that has proven very effective. The state will intervene in various steps, and so we take that into consideration in determining the final rating decision, which again is voted on, presented by the lead analyst and then voted on by a rating committee. So there, that's getting to the issue already. If you go to the next page, then we can talk a little bit about security ratings.

Slide 19 – OTHER CONSIDERATIONS 01:05:26

ERIC HOFFMANN: I put in a lot more of the other considerations just for the benefit of the people who will look at this deck later, so we can move beyond this one. This is just a lot of additional discussion, and each of these there is some commentary in the methodology.

Slide 20 – THE NEW FRAMEWORK: MOOD'S EXAMPLE 01:05:35

ERIC HOFFMANN: Again, it's a tough read if you're going to read a chapter, cover to cover. It's actually the next slide. And this again was more helpful.

Slide 21 – SECURITY-SPECIFIC RATINGS 01:05:54

ERIC HOFFMANN: We determine this general rating, and then when you ask us to rate a specific transaction, we've determined the initial rating, and then we take into consideration, okay, this specific transaction has certain legal features that are either helpful for its relative credit quality, relative to your sort of your senior unsecured general ability to pay, or maybe it's a narrower pledge, maybe it's just your hotel tax. Maybe it's only being derived from, if you are a school district, an ID tax base that happens to be only 10% of your overall, or 30%. We're going to take that into consideration in determining the security-specific rating. If you go to the next page, there's the general framework for how we think about security-specific ratings.

Slide 22 – SECURITY-SPECIFIC RATINGS (CONT. 2 OF 2) 01:06:54

ERIC HOFFMANN: There's a lot more detail if you go into the methodology, but typically, the security-specific ratings are going to be landing anywhere from one notch above the issuer rating to two notches below. Examples would be for K-12 school districts in California, the GOULT rating is a notch above the issuer rating, given the strengths of the California School District GO. A lease rating for a city or county would be typically one notch below the issuer rating because there's this contingent feature in it, abatement. And we say, well, that abatement is not quite as good as your just general full faith and credit type pledge. It'll be a notch lower. That's how we go about looking at this. And again, here's the general framework for thinking about it.

DEBRA WAGNER-SAUNDERS: Yeah, I think this is something that issuers are starting to – in the terms of changes and how people are going to approach the rating agencies, definitely whether you're coming with a water revenue bond or a sales tax bond or anything, this is pretty consistent across rating agencies this look at the picture as a whole and then it may not end up being quite as tight or it might look like where you would have ended up from if they started out with a water revenue bond criteria, but it is important to present the full picture and make sure that you're using information that is, like Eric said, verifiable and to focus on the factors that are in the scorecard, like referring to that as you're doing your presentation.

ERIC HOFFMANN: Just amending that a little bit, often we spend a lot of time in rating meetings, and I want to give some just absolute practical advice for people who are coming to meet with us. In a meeting, you often feel the need to walk through, your tax-based growth and show us your AV per capita. Honestly, probably there could be less time spent on things that are quantitative and fixed, unless you were going to explain why, say, that fabulous growth that you've been having, and we have captured and seen and know about is going to continue into the future. Give us that perspective to make adjustments because so much of the model is point in time and we're trying to look out into the future and make a prediction about your relative credit quality in the future and then talk about, say, the diversity of your economy rather than, oh, here's the growth in our GDP. Again, we have that. We have that data and it's not necessarily time well spent if we're just reviewing. Again, you can't ignore it all and we want to put it all into context, but the real ad comes from helping your analyst reach a perspective about your future and how maybe it's different from, say, your past or your present.

DEBRA WAGNER-SAUNDERS: Great. I'm going to, that's a great lead into our next slide, which is our last slide in the presentation before we get into questions.

Slide 23 – COMMUNICATING WITH THE RATING AGENCIES 01:10:13

DEBRA WAGNER-SAUNDERS: I would encourage everybody at this moment to submit some questions, there's, only good questions. There, I mean, there are no such things as bad questions. Every question is a good question, and probably on the minds of others. We encourage you to ask your questions. I want to open this next slide and this conversation up to the full group and we will take questions as they come in if anybody is, wants to interrupt, but I'll ask our panelists to come off mute and bring the communicating with the rating agencies home. This is what we're here to really talk about. One of the questions or one of the things that is true, we used to be able to go to rating agencies, to Eric, or the other analysts and say, well, if I got a 150-bond test, coverage test, would I get an A rating and if I did 125, would it be triple B? Why can't we do that anymore? We like that.

ERIC HOFFMANN: Yeah. One of the developments in the post Dodd-Frank world is we are not to be giving structuring advice and it's a strict prohibition. You cannot ask an analyst "how do I change the terms of this transaction to get a better rating?" The way the conversation goes, there is a way to do it. I'm not suggesting anybody violate any rules here, but we are happy to talk at length about our methodologies. The question the way you posed it, what if I changed from 150 to 2? We will guide you to the methodology and show you where what we call the breakpoints are in the methodology. There's a very quantitative way we will look at this and say if you have 150, you're going to fall in this A category. The breakpoint for getting from A, the high end of A into AA is say two times coverage. And for A, AA runs from two times coverage up to four times coverage. I'm just giving an example; this is not real. We have that kind of numeric specificity, and the analyst can walk you through that, but only in the context of the methodology.

DEBRA WAGNER-SAUNDERS: David, if you wanted some assurance, how would you do it?

DAVID BRODSLY: Well, you know what, here's the thing. On the one hand, your advice, the criteria being we're transparent, you don't need the analyst as much. What you really need is just somebody to walk you through a big fat document that's hard to read, and you guys, you make yourself available to that.

ERIC HOFFMANN: Yeah, absolutely.

DAVID BRODSLY: The other thing, if I can just be snarky for a second, you can pay for it. You can get what you want, but you got to pay for it. They've turned it into a product. You can get alternate ratings with alternate products. they'll tell you, they'll tell you what they think, but there's a price to it.

ERIC HOFFMANN: Well, so let me just clarify what you're saying.

DAVID BRODSLY: That's the business side.

ERIC HOFFMANN: Because you can't just pay for a rating that you want. What you can pay for. This is I have to be very careful because I am on the analytical side, I manage our analysts. I'm not, the business side, but we do have a product that will allow us to consider alternate scenarios that you propose to us. It's not it's not actually driven by my team.

DAVID BRODSLY: No, I realized that and that is the business side and that is a different thing as well and there's good reason for that.

DEBRA WAGNER-SAUNDERS: Yeah, and as a banker, I've used that. we have gone when we've had something really particularly quirky or unusual or we thought there might be some notching or just different coverage levels because we get those questions a lot especially on new credits that we you go to the business side, and you request what they call in some rating agencies assessments or preliminary ratings. Most of the rating agencies have a mechanism for getting indications of what a rating will be. And yes, you have to pay for it, but it might be worth it to know that you're heading in AA direction rather than BB. It can be helpful on those particularly quirky things. It can help you decide how to structure a deal. It can be worth it. David, you had mentioned something earlier about the number of ratings and how you're advising your clients. Renee, if there's anything more, questions that Renee has to add to that conversation and in the number of ratings, I would invite you at this point to raise your voice on that. If not, we can go on.

ERIC HOFFMANN: Let me add a question of my own then. I'll throw one out here, which is, Renee, David, do you see potentially a return to more ratings as interest rates go up? Because we have come out of this period where we had exceptionally, historically low interest rates for a very long time, and that didn't allow for much differential in credit quality, honestly.

DAVID BRODSLY: Yeah, credit spreads are a factor, and if there's not a credit spread, the importance of the rating is diminished. Whether or not there'll be more rate, you'll go back to multiple ratings or not. I have to tell you, honestly, I think the pricing is part of the factors. I think in some extent, the rating agencies have driven the market to fewer ratings just because of the cost associated with getting a rating. It's a large part of the cost of issuance. Eric, I know you didn't even know you charged. I know this is like finding out that your parents slept together. I know, but it's just the way the business works.

DEBRA WAGNER-SAUNDERS: Where's that mute button? Yeah, so I think that's true. It's a good question, Eric, and one that may be changing quite a bit. The spread, the difference now that interest rates are higher, and maybe this is even a question for Renee. With interest rates higher, does the rating, does more than one rating help you refine that or get, bring the credit spread in at all?

RENEE DOUGHTERY: I don't know if it's so much in terms of the credit spread, but in terms of, all else being equal, two ratings are probably better than one because if, say, you are a retail investor, the risk is if you lose one of your ratings, perhaps due to a late audit or something else, at least you still have one rating left. You might not have to sell your bond as long as you still have a rating. That, plus two ratings just give you two places to go look and see, look for information, and hopefully, if you have a floor in terms of like minimal ratings, maybe that will help keep you within that floor. I mean, I think it really varies, but I would say in general, more is probably always better than less from an investor standpoint.

DEBRA WAGNER-SAUNDERS: Thanks. I understand that we have a few questions and with about 12 minutes to go, I want to give the CDIAC folks a chance to put those out there. So let me turn it over to Robert.

ROBERT BERRY: Yeah, there's a handful of questions that have come in. David, this one, I might start with you. It's a question pretty straightforward. We talked a little bit about rating shopping and this participant asked, if an issuer is only able to get one rating, what is the best way to go about deciding between the four agencies?

DAVID BRODSLY: One way we look, because we do look at the array of ratings that have been assigned to similar agencies, and that is rating shopping in many cases. Sometimes it's based on familiarity. If somebody has one rating on their geo bonds, it's more likely you're going to go to them for your water rating. There is, frankly, people have their own prejudices based on their personal experiences, which very individualistic, but we're all human beings. So, I don't think there's a single way of going about it. I think asking your advisors that question and making them answer it specifically is probably the best way to ensure that it's an informed decision.

DEBRA WAGNER-SAUNDERS: It's interesting. Yeah.

ROBERT BERRY: There's a group of questions here relative to the use of AI and the FDTA. I see Eric smiling there. Maybe this is a question I can direct to you. How will the FDTA affect the ratings process? I kind of couple with that, the use of AI. How do you see that affecting the ratings process downstream, Eric?

ERIC HOFFMANN: Well, nobody's really sure what AI is going to do to the world, but one thing has happened is it actually does make summarizing information and moving information around, finding it, putting it where it needs to be, more efficient. And I do think that, again, fundamentally the value adds, anybody can create a formula for determining a rating, say, using financial data. And that's not hard. You don't need AI to do that. You need a spreadsheet and a data intake mechanism, and you can crank out ratings. The value add comes from really thinking about the nuance, details, and how something is different from average. It is, what's the most typical thing out there? I mean, granted, it's a probabilistic statement about things, and it does throw in randomness factors. But I think most of the experience that people have had so far with AI is you ask it to do something, and it comes back with what is most typically out there in the world. And that is not a good way, probably, to do ratings. And there's a little tagline that we add in our rating committee memos, if they've used AI to summarize economic information,

they have to mention that. And then they have to certify that they have verified the information. Of course, the problem with AI right now is that it hallucinates. And there's no AI in the way it's structured, at least in the current popular version of AI, to take out the risk that you have what we're calling hallucinations.

Slide 24 – QUESTIONS? 01:21:50

ERIC HOFFMANN: It's an unfortunate term, I think. But just errors. It makes mistakes. And that is not, I think, going to replace humans. Of course, human make errors as well. But you always have to have the human in the loop here. And it will just make doing bond ratings more efficient. We're thinking of AI as a supplement to analysts.

RENEE DOUGHTERY: Right, and I'll just add on to that. One thing that AI, at least right now, cannot do is answer questions like, "what do you think will be the impact of the changes in the Chevron decision on my portfolio?". "What do you think the changes in the administration might do with how might that impact securities in my portfolio?" All those analytical questions about forward thinking, there's nothing in there for AI to kind of to grab and then tell you how the future may look.

ROBERT BERRY: Interesting. A couple of questions relative to climate risks, Eric. Maybe you could comment just quickly on how physical climate risks are considered in the credit ratings, and especially given the financial consequences of recent climate events that we've seen.

ERIC HOFFMANN: Yeah. We've always considered climate risks in our ratings. I don't mean to say that just because people are worried about this and think that perhaps we haven't. But having been at Moody's now for 30 years and having been in rating committees through multiple methodology versions, the size and exposure of any local government to various kinds of physical climate risks was always a consideration. We are more consistent now and more transparent about evaluating physical climate risks. We have, years ago, purchased a third-party data source for evaluating physical climate risks of various kinds, wildfires, sea level rise, excess precipitation, above averages, and we factor that into our ratings. They have been there, again, but they are now more systematically included, and it is a requirement that we look at the data and it's presented in the rating committee and considered. And we now, for our larger issuers, anyone with 250 million or more in debt outstanding, score along all of the physical climate risk exposures relative to averages, any individual issuer, and we published that on our website. You can see where any credit falls within the spectrum of each individual climate risk. That's in the rating. The challenge that people find is that you can't predict say, along, say, the entire eastern seaboard where a hurricane is going to come to shore, come ashore, nor the force of it. You can say that they're exposed, but you can't, downgrade the entire eastern seaboard because there's a hurricane offshore or we know that there will be more hurricanes. They come ashore; they cause extreme damage. And we think about that and how much is at risk. But for the most part, U.S. history has been very consistent in the socialization of physical climate risks to the federal government and through FEMA, through HUD, through various other kinds of federal programs, rebuilding occurs and then there's also private insurance, though that's a whole other topic that gets more difficult. But we rebuilt and most places are quite resilient if they have resources, and they can weather the immediate impact. Physical climate risks haven't shown up in a lot of ratings in any really measurable way just yet in terms of driving ratings down. We recognize them. They're there. But most experience to date has been we've seen resilience.

RENEE DOUGHTERY: And I would also add to that, the market is very efficient in terms of pricing. it's not that climate risk is going to be a yes, no, you have access, you don't have access, but it may just be factored in down the line in terms of pricing. For California, we've always known that California has earthquake risk and increasingly there's fire risk, but if you have a California fund and people are giving you money to invest, you still have to buy California debt. It's not like you can get around that risk, you just have to factor it into your analysis.

DAVID BRODSLY: No, if there's more questions, I just wanted to make sure I underscored something that Eric said about the rating meeting and the rating presentation. So much, you have this limited opportunity for communication, and so much of it is typically spent telling the analysts what they already know, and they'll rate you just fine, because they don't need most of that. They can do the rating without the meeting. But you've just spent this time and spent a lot of effort often on a book that really didn't say anything that wasn't in the OS already, but you put it into a pie chart, and you did this pie chart of your economic sources here, and you showed that you were a diversified revenue base. Because I don't think I've ever seen a revenue base in a trade rating presentation that didn't have the description of a diversified tax base. I think Eric did a good job of saying, go down to that level three stuff. The stuff that you can't get from picking up the OS, or you can't get from picking up the ACFR. The helping you walk through the subtleties of your revenues where the financial reporting perhaps doesn't give as clear a picture as you might want to communicate that this, this, how you, the reserves that aren't obvious communicate what's going on in your community that you don't already know. That is just such a more powerful use of that time. And I recommend that if you, you also own your weaknesses at the rating meeting. The things that, the elephant in the room, address it, talk about it, show that you're not afraid to look reality in the face and that you're planning for it and you're making plans. You're not going to confession, and you don't have to admit every sin. But I do think that is a good use of the time in the rating meeting. Generally, I wish people would spend less time on rating books and more times on their official statements, making their official statements better and clearer, not only because the rating agencies rely on that much more than they rely on the book, but also because that's a document subject to securities law. And you as an issue are at risk for a bad OS, you're not at risk for a bad rating presentation, and it's a matter of balance. I think that's, for my practice, that's always been an important point. It all should be good. And by the time you get to the rating agencies, all you're doing is focusing on the stuff that needs to be talked about in the room.

ERIC HOFFMANN: I know we're out of time but let me just add bring it back to the physical climate risk question, and that is we have a lot of data on exposure. What we don't necessarily have a lot of systematic data on is what your local community is doing to mitigate your physical climate risk exposure. Have you changed local regulations on roofing and building and cleaning space around residences? You tell us that, and then maybe that physical climate risk exposure can be mitigated, and it is not going to be as big a safe factor in the future. That's the sort of thing that we need, what's happening in the future. So that's a good example of the next level.

ROBERT BERRY: Well, that hour and a half flew past. We're at the end of our program. I'd like to close off, but before we sign off, I just want to say a huge thank you to David Brodsly, Renee Dougherty, Eric Hoffmann, and Debra Wagner-Saunders for sharing your deep expertise this morning and insight. Then, I'd like to go to the next slide and quickly draw your attention to a few upcoming CDIAC programs.

Slide 25 – UPCOMING EVENTS 01:31:20

ROBERT BERRY: CDIAC has its *Advanced Public Funds Investing: The Analytics of Investment Selection* program, which we'll be holding in January, coming up fast in Costa Mesa. And then also in Costa Mesa next April, we'll have our full two-day *Municipal Market Disclosure* program. This will be a deep dive into the details of disclosure fundamentals and also some of the emerging disclosure topics, which we've been talking a little bit about today. So full program details and registration information is on CDIAC's website now. So finally, please just spend a few minutes, if you will, when you receive our post program survey. Just tell us what you think of this morning's program. Your feedback is especially helpful as we plan for future programming. On behalf of our presenters today and all of us at CDIAC, including our education team, Tarandeep Brar, Trista Zepeda, and Anna Ramirez behind the scenes making this all run. Thank you all very much for joining us. Have a great day and happy holidays to everyone.