COMMONWEALTH OF PENNSYLVANIA
JOINT STATE GOVERNMENT COMMISSION

PUBLIC PENSION MANAGEMENT & ASSET INVESTMENT REVIEW COMMISSION MEETING AND HEARING

STATE CAPITOL
HARRISBURG, PA

IRVIS OFFICE BUILDING
ROOM G-50

MONDAY, JULY 30, 2018
9 A.M.

PRESENTATION ON THE IMPORTANCE OF TRANSPARENCY AND STRESS TESTING

BEFORE:

REPRESENTATIVE MICHAEL TOBASH, CHAIRMAN

TREASURER JOSEPH TORSELLA, VICE-CHAIRMAN

JAMES BLOOM, COMMISSIONER

STEVEN R. NICKOL, DESIGNEE FOR BERNIE GALLAGHER

MICHAEL TORBERT, COMMISSIONER

STAFF INCLUDED:

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I N D E X

TESTIFIERS

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SUBMITTED WRITTEN TESTIMONY

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(See submitted written testimony and handouts online at the Joint State Government Commission's website.)

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P R O C E E D I N G S

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CHAIRMAN TOBASH: The hour being just a little bit past 9 a.m., I want to welcome everyone to a premeeting to a very important hearing that we are going to engage in today, really the first hearing of three that this commission will be having as a result of our responsibilities under Act 5 of 2017. We're going to enter into very important work. And I think before we get started, why don't we do just a very brief roll call to go on the record as making sure everyone is in attendance?

Mr. Treasurer, vice-chair.

VICE-CHAIRMAN TORSELLA: Good morning. I'm Joe Torsella, Pennsylvania State Treasurer, vice-chair on this commission.

CHAIRMAN TOBASH: Commissioner Bloom.

COMMISSIONER BLOOM: Hi, everyone. I'm Jim Bloom and I'm the appointee -- thank you very much, Sarah -- I am still Jim Bloom. I'm the appointee of the state Senate democrats.

CHAIRMAN TOBASH: Commissioner Torbert.

COMMISSIONER TORBERT: Mike Torbert, retired ex-portfolio manager with Meridian Core's first union, same phone number the whole time.

CHAIRMAN TOBASH: Thank you. And we have a substitute today for Commissioner Gallagher, and that is Steve Nickol who has been in the pension realm for public policy for many years as an elected official and a consultant.

Steve, would you like to introduce yourself and give the rest of the commissioners and our audience some information on your background, please?

MR. NICKOL: I do. Thank you.

I'm Steve Nickol. I'm a recovering politician. I was a state legislator for 18 years. And during those 18 years, I served on the Board of Trustees for the Public School Employees Retirement System. I retired in 2008 from the legislature.

Since then I've been working as a director of retirement programs for the Pennsylvania State Education Association. And in addition to that, I'm on the pension board for the PSEA pension plan and I'm the director of the Frederick Mutual Insurance Company.

CHAIRMAN TOBASH: And thank you, Steve. Thank you for being in attendance today. I'm sure that we all, we're going to hear some really interesting testimony when we get started at ten o'clock.

I do appreciate the fact that we got started a little bit earlier. I thought it was important for us to gather and just iron some things out, take a look at what the course is going to be, make sure we're okay with dates of subsequent hearings and potential meetings, just discuss among ourselves collectively if we really want to hold that meeting on August 16th and see what we're going to try to accomplish. And I think really just try and stay on the same page.

The first thing I wanted to talk about -- and, Susan, did you have the ability to pass out the information on Act 5? I want to talk about what the commission has been tasked with, our duties and responsibilities under the act. And you know, I think that today's hearing especially is hitting on a major section of what we are tasked with doing.

When we review Act 5, the establishment of the legislation, we are here as the Public Pension Management and Asset Investment Review Commission. And there's a number of topics that are clearly defined, our duties. So number one, to study the performance of current investment strategies -- and we're going to take a look at that, that responsibility, really, in hearing number two -- the investment strategies, to study the costs and benefits of both active and passive investment strategies in relation to future investment activities for both of the pension systems. And I think we'll be really looking at that in hearing two and hearing three.

But today, this commission is charged with improving investment fee transparency on alternative investments as specified in the standardized reporting guidelines of the Institutional Limited Partners Association. As well, we are tasked with implementing the recommendations of the Society of Actuaries Blue Ribbon Panel on stress testing. So today, specifically, we have got testifiers that will be very important in understanding exactly how we might end up fulfilling our responsibility in that regard.

And I'd just like to talk just briefly about the people that we'll be hearing from today.

So today when we start, we start with some really, some tremendous expertise in the areas of transparency and stress testing. First of all, Dr. Ludovic Phalippou is an associate professor of finance from the Saïd Business School from the University of Oxford. He'll speak on the importance of transparency and lowering costs and aligning interests. And I've had an opportunity to read some of what Dr. Ludovic has written in his perspective and I think it's important for the commission and I think it's good information that we will hear from him and I think it's important for our boards to understand the great depth of his research.

On the perspectives on transparency in the public sector pensions, Jennifer Choi. She is the managing director of the Institutional Limited Partners Association, which is mentioned in the legislation. Lorelei Graye, principal of Leodoran Financial, also worked with the Institutional Limited Partners Association. And Renee Astphan, senior investment officer of Rhode Island Treasury. And I can tell you that Rhode Island has gone an awfully long way in improving their transparency as far as their pension system is concerned.

After the break, we're going to get into conversations on stress testing. We're going to hear from David Draine. They're doing a lot of research on stress testing. He is with the Pew Charitable Trusts. And Dr. Chester Spatt, Carnegie Mellon University and Massachusetts Institute of Technology.

The third panel in the second half of the day includes Ken Kent. He's a principal consulting actuary for Cheiron. This state has utilized Cheiron as an actuarial resource in the past and we're interested to hear Ken Kent's perspective.

Bob Stein, former chair of the Society of Actuaries Blue Ribbon Panel. And again, I will point out the fact that our commission is specifically charged with implementing strategies of that panel.

And then lastly, Joseph Newton, who's a

pension market leader with Gabriel Roeder Smith and Company.

At this point in time, I think that there's been a tremendous amount of work that's been done. I would take any commentary or questions from any of the other commissioners or their substitutes.

Mr. Treasurer.

VICE-CHAIRMAN TORSELLA: Thank you, Chairman.

I want to just echo a couple of things you said, starting with the last, which is thanks to the many staff who've helped put today's hearing together, from the commission, as well as staff for the various commissioners and the Treasury. It is, I agree with you, it's a really impressive line-up on some really important topics.

Number two, to thank PSERS for agreeing that today's hearing, given how impressive that line-up of testifiers there is and how much expertise they bring, this qualifies as continuing education under -- I don't think it spurs with Act 5. I think it's a previous act. But in any case, for everyone here from the systems or as trustees, I want to note that, if you didn't know that already. And thank PSERS for their courtesy in that regard.

And finally, to echo what you said subsequently about -- and I do think Act 5 is quite clear about our tasks from the, studying the performance, looking at active versus passive, identifying 1.5 billion in savings. But among those are the subjects of today, both transparency and the stress testing proposals by the Blue Ribbon Panel. And although I think we sometimes have the tendency to think of the later topics as being mediocre, I think today's topics are hugely important and ones that I think we can make some real progress on. And the interest of transparency is not solely as a spectator sport, but because we all know what you don't measure can't be managed. And when we're looking at the economics of this, it's important for all of us to understand what they are. And it's a real challenge, too, in some of the cases of alternative investment.

So underscoring the importance of the subject matter today and gratitude for staff and fellow commissioners for having us off to such a great start.

Thank you.

CHAIRMAN TOBASH: Steve.

MR. NICKOL: Yeah. My principal, Bernie Gallagher, asked me on two subjects, if I could follow up.

One, he sent an e-mail on July 18th to Susan Boyle asking if he could get some kind of an idea of where the final report is, what's been done to date, and who's doing what. What are we looking forward to in terms of the final report, and when it's actually going to be put together, and who's doing it?

CHAIRMAN TOBASH: So the commission is charged with six months from the date of our organizational meeting, which was May 30th. So prior to November 30th, the commission will deliver a report.

We have entered into an agreement with a consultant and Commissioner Gallagher had an opportunity to speak with him. We'll just talk in a few minutes about a meeting we have on the agenda for August 16th and potentially getting an update from Dr. Ashby Monk, who will be producing that document for the commission. He will be aggregating the testimony.

He's an expert, a doctorate from Oxford, graduate of Princeton University, and has worked on the Australian system as well as the Canadian system. His perspective, I think, is appreciated by all of the commissioners and I'm sure will be helpful in aggregating the testimony.

MR. NICKOL: I appreciate that. I followed up on Dr. Monk, and from what I read online, I'm quite impressed.

CHAIRMAN TOBASH: He will be visiting Pennsylvania and visiting both systems. I'm not sure of the date on that.

Does the Joint State Government Commission know the dates of that, when Dr. Monk will be here?

MR. PASEWICZ: I believe it's August -- what -- 13th, 14th, 15th, or 14th, 15th, 16th, around those dates, that he'll be meeting with the different...

CHAIRMAN TOBASH: Thank you, Glenn.

And you know, we have on our calendar something that was a point of discussion for today, and that was keeping a meeting that we have tentatively scheduled for August 16th. It was my thought that the commission have an opportunity, since Dr. Monk will be here, to visit with him and have him give us an update. So if the 16th works for a period of time when he will be here, I think it would be important for us to potentially keep the meeting that we have scheduled for August 16th. It's not my intent to have a meeting without substance, but for -- you know, if we have the ability to meet with our consultant in person at that time, I think that it would be my recommendation that we keep the meeting.

Is there any discussion on that point?

(No response.)

CHAIRMAN TOBASH: Vice-chair, are you for that effort?

VICE-CHAIRMAN TORSELLA: Sure, Chairman.

And we are just confirming that he would be available to have a meeting with us that coincides with the date we're holding. So happy to do that.

CHAIRMAN TOBASH: Great. As I mentioned earlier, I think that we put out a notice that that would be a potential meeting date. And look, if we don't have something substantive to do on the 16th -- but I think the fact that our consultant will be in town -- why don't we table that and make sure that we're getting, within the next week or so, getting notice out whether or not we will indeed be able to meet with Dr. Monk and then follow through.

VICE-CHAIRMAN TORSELLA: We will make sure that happens. Thanks.

MR. NICKOL: Mr. Chairman?

CHAIRMAN TOBASH: Yes, Steve.

MR. NICKOL: The second item that Bernie asked me to follow up on, and that was a letter you had sent with regard to Pew. And I don't think there's any problem at all with regard to Pew testifying and giving us a letter on that. It was the second part of that letter where he had some concern with just, you know, if we're -- they are lobbyists. I mean, they lobbied heavily. They lobbied -- I understand they may have actually written the language that created this commission. They lobbied heavily in the general assembly for it. And we're taking an action that exempts them from disclosing lobbying activities. And just wanted to understand -- there's no problem with them testifying.

And I looked at the federal standards and they can disseminate nonpartisan analysis and other kinds of contacts with legislators. There's nothing going to question their tax status. It's just a concern as to just, what is their potential educational role? Because I know in certain points Pew may be advocating for things which I or Bernie Gallagher don't necessarily agree with them right down the line -- on much of what they're doing, yes, but not everything.

CHAIRMAN TOBASH: So I think with much of the testimony that we'll hear, there will be varied opinion.

Pew has done a tremendous amount of research in the area of stress testing.

But I'll go back to two points that -- there's two letters that I had written as the chairman because time was of the essence. And the first one was a request by the executive director of PSERS, Glen Grell. He asked for an additional testifier at this hearing and it was a Dr. Jenkinson, who is a colleague of Dr. Ludovic. And we want to be very accommodating. So after a subsequent conversation with Glen, Dr. Jenkinson was unable to testify, but we would open up testimony for him at a future hearing if that were the case.

As far as the Pew letter goes, as you have mentioned, they do operate in different capacities and one of them is lobbying. But we wanted to make sure that we were delineating the fact that they will come to this commission as a consultant. As I mentioned, they have done a tremendous amount of research in the area of stress testing. And I think their perspective will be important for the commissioners to hear.

And as I mentioned, differing opinions, I'm sure, will come forward in future testimony from other testifiers, but to extend them an opportunity to make sure that we are listening to them in the role, not as lobbyists, but as a consultant for the commission, I thought it was important to issue that letter. And certainly we would offer that accommodation to anyone else who is testifying on various topics.

MR. NICKOL: Now, this would exempt them, I gather -- included under the federal law with regard to substantial activity standards -- but also will affect their reporting on their lobbyist disclosure under Pennsylvania law?

CHAIRMAN TOBASH: Yeah. So we're not expecting them to come to this commission as a lobbyist, but rather as a consultant testifying on the work that they've done as far as stress testing.

MR. NICKOL: So essentially, the commission is essentially employing them as a consultant?

CHAIRMAN TOBASH: So if there is reimbursement for costs for their testimony, that is the only compensation that they would receive. They're coming to us, as with other testifiers, on the work that they have done, presented, and studied.

MR. NICKOL: I guess the concern I'd like to express is that this blanket allowing them to have a potential role without having very well defined -- as opposed to the commission itself approving specific requests about Pew, in that Pew is a lobbyist and we just -- there's just a concern as to what actually they'll be doing. But I just wanted to express that up front.

CHAIRMAN TOBASH: Thank you very much for your concern. And the commission, when they listen to their testimony, that will be duly noted.

VICE-CHAIRMAN TORSELLA: Chairman, the Joint State Government just confirmed there is no reimbursement to Pew for their testimony today.

MR. NICKOL: (Nods.)

CHAIRMAN TOBASH: Thank you.

Is there any other conversation in that regard?

(No response.)

CHAIRMAN TOBASH: Okay. I think I'd like to move on next to the broad topics of our future hearings and we have to do a little bit of work in that regard.

So today's July 30th hearing, we understand, is going to be about best practices on transparency and fee reporting and stress testing. The next hearing, which will take place on September 20th, 2018 -- and in a conversation earlier, we're going to try to accommodate -- and the Joint State Government Commission, please make note of this. We started early today on a Monday morning, and I think that's good and proper, but we do want to realize that some people are traveling a good distance to be here. So we'll try to start these hearings at ten o'clock.

I thought it was important for us to have this brief organizational meeting today. And since our testifiers were starting at 10, we asked people to come in at nine o'clock. But we should be mindful of people's time and schedule and commute, so we can start, hopefully, at ten o'clock at the subsequent hearings.

The second hearing on September 20th will be on analysis of Pennsylvania pension funds on the following -- and that we will evaluate the fund's assets, investment strategies, investment performance, fees, costs, and procedures against the established benchmarks.

Now, we do have a list of testifiers that have been brought forward, and as I mentioned earlier, we want to be very accommodating of making sure that other testifiers, as they come forward, might be heard. And I paid a special deference to Commissioner Gallagher, who has submitted a list from the Joint State Government Commission.

Do you have any contact with testifiers that Commissioner Gallagher has brought forward?

MR. PASEWICZ: No. None.

CHAIRMAN TOBASH: Okay.

So, you know, I think that as a matter of time, September 20th, we still have got some time, but I think within the next, why don't we say two weeks, we start to get a better grip on who the testifiers on that September 20th hearing may be.

And as I mentioned, I had sent a letter to Executive Director Grell and let him know that if he has a testifier, that he can be in contact him. Number one, see if they're willing to testify. And also my letter from Commissioner Grell mentions the fact that we are holding these hearings and we've got some topics that we want to stick to. We need to stick on task. These discussions on what we're tasked to do I think can go in many different directions, but for the second hearing, we're going to concentrate on the analysis of Pennsylvania pension funds in the areas that I just discussed.

So if there's any commissioners that have got an idea on other testifiers, we will utilize the logistical support of the Joint State Government Commission to go ahead and make sure that we have a great lineup.

The third hearing --

COMMISSIONER BLOOM: Mr. Chairman?

CHAIRMAN TOBASH: Yes.

COMMISSIONER BLOOM: Just quickly, will we be inviting the systems to come in for testimony?

CHAIRMAN TOBASH: Yes. In fact, we've had discussions and it is our understanding at this point in time that both systems have exhibited and communicated a desire to testify and I believe we'll have them testify at the third hearing.

COMMISSIONER BLOOM: Thank you.

CHAIRMAN TOBASH: So the third hearing is scheduled at some point in time in October. It's going to be on cost saving initiatives for both pension boards, outlining the costs, benefits, and limitations of each option.

Again, we have a list of potential testifiers -- and, Susan, did you pass out this brief agenda for the rest of the commissioners so they can take a look?

I am again requesting that if there are any commissioners that have got relationships or got an idea on who testifiers will be, we should be utilizing the commission and the Joint State Government Commission to reach out to those testifiers, see if they're willing and seeing if they have expertise in the topics that we've got outlined here.

We also have to hone in and set a date for the October 18th, 2018 hearing. And I can -- Glenn, I will ask you this: We understand that Commissioner Gallagher could not be here today, and in a conversation with him, I wanted to accommodate him and make sure that he would be at the two subsequent hearings. I think when we looked at a number of dates, it became apparent that none -- that there's no commissioner that will be able to be at all three hearings. So I just want to make sure that we're accommodating Commissioner Gallagher in picking a date in October that he will be able to attend.

MR. PASEWICZ: Right. I believe that he can make -- we have to look back at his list, but I think he is available for the other dates that have been suggested.

COMMISSIONER BLOOM: Including August 16th?

MR. PASEWICZ: I believe -- yeah. I think this is the only one that I'm aware of that he could not be here.

CHAIRMAN TOBASH: Great.

Are there any other further questions that we've got as far as orders of business go from any of the commissioners?

VICE-CHAIRMAN TORSELLA: Chairman, just to clarify, is the hope -- you said two weeks from now or did you mean two weeks before the hearing is when -- we're hoping to finalize things in roughly two weeks from now for the next hearing; is that the notion?

CHAIRMAN TOBASH: Yeah. So when we're talking about the hearing in October --

COMMISSIONER BLOOM: September.

VICE-CHAIRMAN TORSELLA: The September one, we're looking at finalizing things within the next two weeks or...

CHAIRMAN TOBASH: Yeah. I think that if any commissioners have got an idea on additional testifiers, that within the next two weeks, we should submit them to the Joint State Government Commission so they can find out the interest in those parties' testimony.

VICE-CHAIRMAN TORSELLA: Makes sense. Thank you.

CHAIRMAN TOBASH: Is there anything else that we need to bring forth as business at this meeting?

(No response.)

CHAIRMAN TOBASH: Great. I hate to keep the audience waiting, but we've got some time prior to our first testifier starting to present at ten o'clock and it's 9:30 right now.

I just want to give some credit to the Joint State Government Commission. We had ended up switching rooms into the House of Representatives for accommodating this hearing. We are having testifiers come in here via Skype or other mechanisms.

Glenn, do you think we're going to be prepared here and okay as far as logistics go?

MR. PASEWICZ: Yeah, it seems so. The website, our website has the live stream up right now. So everything seems good to go.

CHAIRMAN TOBASH: Great. And from Dr. Ludovic, has his testimony been submitted in writing? Do we have copies of his testimony?

MR. PASEWICZ: We have his presentation, which is in the packet that we got. We don't have any written testimony from him.

CHAIRMAN TOBASH: Okay, great. So we're all in possession of the presentation that Ludovic will be presenting to the commission. And I think we're in pretty good shape.

So I think at this point in time, we'll just take a brief recess --

COMMISSIONER BLOOM: Mr. Chairman, one, I guess it's a point of order. There have been no minutes distributed from the first meeting we had. Is that -- is there a reason for that or do you think it's not necessary?

CHAIRMAN TOBASH: So at our first organizational meeting, at that point in time, we did not have a stenographer and I'm not sure who the keeper of the minutes were.

Glenn, can you comment on that?

MR. PASEWICZ: Yeah. We actually did distribute a, you know, minutes summary document to the commissioners shortly after the meeting.

CHAIRMAN TOBASH: Commissioner?

COMMISSIONER BLOOM: I'll take a look before -- there's been quite a bit distributed.

CHAIRMAN TOBASH: So Commissioner Bloom, thank you very much. And I am in possession right now of the minutes and the attendance from that first meeting. And I think it would be appropriate if, when we come back, just before we start testimony, we'll get you a copy and then we'll approve those minutes as submitted.

COMMISSIONER BLOOM: Great. Thank you, Mr. Chairman.

CHAIRMAN TOBASH: You're welcome.

Are there any other questions at this time?

(No response.)

CHAIRMAN TOBASH: Why don't we convene in 15 minutes, and then we'll approve those minutes, and we'll be prepared for our first testifier.

Thank you.

(Recess.)

CHAIRMAN TOBASH: Welcome, everyone. I think it's time to get this show on the road, as my late father would have said. I just want to welcome everyone. And I trust everyone is navigating summer well. I can tell you if you're in Schuylkill County, the word "navigating" is a bit of a problem. I think with much of Pennsylvania, our recent flood activity in many parts of the Commonwealth have been problematic, particularly for my constituents, but for many others also.

Commissioner Bloom had mentioned the fact that we should approve the minutes from our organizational meeting that took place on May 30th, 2018.

COMMISSIONER BLOOM: I'll make that motion.

CHAIRMAN TOBASH: We have a motion from Commissioner Bloom. Do I have a second?

COMMISSIONER TORBERT: Second.

CHAIRMAN TOBASH: All those in favor?

(Unanimous vote.)

CHAIRMAN TOBASH: Okay. The minutes from the organizational meeting of May 30th are approved.

We are the Public Pension Management and Asset Investment Review Commission. At the break, I discussed with our logistics organization, that's the Joint State Government Commission, that the transcript and the videotaping of these hearings will be available on their website for anyone to take a look at and hopefully the information that we garner from these hearings will be important and will be able to really improve the performance of the boards and the pension systems in the Commonwealth of Pennsylvania.

Within the six months from our first organizational meeting, and I mentioned on May 30th, we are charged with delivering a report and I believe that we have got experts, particularly with Dr. Ashby Monk, who will be helping us deliver that document. And I as mentioned earlier, we will be meeting with him and he will be testifying at the subsequent two hearings.

Today's hearing particularly will be evaluating and making recommendations on improving investment fee transparency on alternative investments and implementing the Society of Actuaries Blue Ribbon Panel on stress testing, two of the items that we have been charged with doing as far as Act 5 of 2018.

I'd like to welcome my colleague to the hearing today. Representative Frank Ryan has joined us in the audience. And his accounting and financial expertise are really important for our body and he delivers us great information and counsel on making important votes.

And, Frank, we're happy that you're here today.

REPRESENTATIVE RYAN: Thank you, sir.

CHAIRMAN TOBASH: I'd just like to make a few comments.

In today's world of increasingly scrutinized, complex, and litigious investment environment, we see improprieties that have at times resulted in tremendous personal financial loss, from events like the Enron scandal and Bernie Madoff, to market uncertainty and volatility that results in increased regulatory layers of reporting and oversight. We're experiencing right now a cultural shift from making not only sure that investments are not just suitable, but to a climate of greater fiduciary responsibility and liability for almost everyone that oversees the investments of plan participants.

Investment advisers and others that are charged with overseeing the assets that will result in the payments that make up the financial future of retirees is a tremendous responsibility. The additional pressure that's being exerted as a result of the massive underfunding of many of these systems, and in Pennsylvania's case tens of billions of dollars, on so many governmental plans puts the work that we undertake here extremely important.

I'm grateful for the ground work that has been laid so far, from our Treasurer's Office and the support from our House staff to the Joint State Government Commission. And I want to thank in advance the testifiers that have been willing to share their expertise in various areas like transparency, costs, risks, alternative strategies, and more. I fully expect that this commission's work will give Pennsylvania's two largest pension boards the tools to shift their culture to that of world class institutional investors and improve their performance if they choose. The time to implement strategies that will result in better alignment of the investments of professionals with the portfolios that they manage and opportunities to implement a greater degree of scrutiny on fees and other forms of cost and compensation that are being paid is now.

I'm happy with the spirit of cooperation that exists. As we commence these hearings, I'm certain that we can all gain a good bit of additional knowledge from the experts that will testify. And from what I've seen so far, the desire to improve performance is being taken very seriously by everyone.

Ladies and gentlemen, we have a huge responsibility that comes with a lofty goal. Billions of dollars of savings for taxpayers in Pennsylvania.

I'm hopeful this commission will produce a product that will be effectively implemented and serve as a model for others who seek to improve the results that the citizens that pay into these funds expect. These important instruments of retirement security represent so much for the hardworking families that are participants.

To my colleagues, thank you in advance for your dedication to this work. Prior to the hearing of our first testifier, is there anything that my fellow commissioners would like to add?

(No response.)

CHAIRMAN TOBASH: With that said, we've got someone from Oxford waiting on the line -- and in about four minutes, Dr. Ludovic -- and I will get his name right by the end of the conversation, I'm sure.

Dr. Ludovic Phalippou will be testifying and he has done a tremendous amount of work in the area of transparency and private equity.

VICE-CHAIRMAN TORSELLA: Mr. Chairman, if I may, while we're waiting for the testifier, I just got a text from one of those hardworking beneficiaries, my mother, who's following our proceedings with great personal interest. A reminder to me that this is, in the end, about strengthening the system for people like that. And that to the degree that we can do a better job of managing, investing, and preserving their resources, it establishes the systems going forward for what they were intended to be, which is a promise of retirement security.

I do -- you said the keyword when you talked about transparency, which is alignment. There are lots of good reasons to be for more transparency and there are lots of good examples for how we can do that, I think, in a relatively pain-free and low cost way.

There's the -- you mentioned Bernie Madoff. There's the issue of what we don't know. There's the issue of comparing apples to apples, which if we're doing a good job of managing money, we can't do without making those comparisons. But there's also this issue of alignment, which is our interests, our beneficiaries' interests, my mother's interest, aligned with those of the managers. And without knowing and understanding, as a first step, the compensation structure, almost impossible to answer that question.

So as I said earlier, I think transparency is not a nice to have -- you know, sort of softball in the middle of some other harder topics, it's something that goes at the very core of what Act 5 aims to do, which is to create a sustainable and responsible system going forward, depending for at least three million of that on the work of this commission and the result that we can achieve.

So share your hopes and aspirations, share your gratitude to the staff, and your view that this can be a useful and cooperative exercise.

CHAIRMAN TOBASH: Thank you very much.

You know, I think that with some of the previous conversations we've had with different testifiers, you know, I heard when -- we were testing a hypothesis that we are overpaying for some of the services that we receive for these pension funds. But oftentimes it has come back and said, "Well, you don't know." And I think this hearing is so very important because transparency is imperative to understanding how we, what we are doing relative to other systems and whether or not we're getting the best deal.

So as we mentioned, we're going to have testifiers here today that talk about efforts that they have made or that they have seen or studied as far as transparency and how that results in, hopefully, better performance.

So thank you very much, as I mentioned, the work that we do here is important for the people that have served and expect to be able to live in retirement and that the Commonwealth upholds the promises that they have made to them. I do take it very seriously, so thank you.

Okay. With that said, we have got our first testifier on board.

We appreciate, Doctor, you testifying and bringing your expertise to this commission. The work that we do here in Pennsylvania is very important. As we have mentioned earlier, we've got a pension system here that is substantially underfunded and the idea that we might be more transparent in our efforts to perform better is really important and we appreciate the fact that you're testifying here today.

I'm Representative Mike Tobash. I'm the chair of the commission. I sit beside our Treasurer, Vice-Chair Torsella. We've got Commissioner Bloom, Commissioner Torbert, and we've got a substitute for Commissioner Gallagher today in Steve Nickol.

So thank you again. We are anxious to hear your testimony.

DR. PHALIPPOU: Thank you very much. Thank you for having me. I assume the sound is good and everything is working.

CHAIRMAN TOBASH: Yes. We can hear you loud and clear. Thanks.

DR. PHALIPPOU: So I was told to start by setting the scene with an example of what a private equity transaction looks like.

So basically, we see a little girl who we're going to call Alice. (Indicating.) Alice is going to have an idea. She thinks a house is a good investment. A house is on sale for one million. And Alice is going to set up a company to buy the house and the company is going to be the one borrowing a lot of money to buy it. And so it's by, here in the example, it's borrowed from the bank, 82 percent of the money needed. And then this house here (indicating) represents the people who are going to give the equity, so the cash to buy the house, the cash. This would be like the pension funds.

So then this house (indicating), which is now set up as a company, is going to have 82 percent of debt that the house needs to repay, not Alice, and 18 percent of the equity which is given by this pension fund here.

(Indicating.)

And Alice is going to control this company. So Alice is -- you can imagine, like a 64 vote for this house. And Alice and her employees have, like, four seats out of six, so she has a majority. She controls the house. She calls the shots. She's the one managing this place even though it's not her money, right? All of appeal costs money, it's the bank and the pension fund who gave the money.

So Alice is going to try to make this house look better. She's going to try to make as much money as possible out of this house. So she's going to maybe increase the size of the house, fix it up, find a -- rent it for a higher price, and five years later -- four or five years later, that's usually the holding period for these transactions -- Alice is going to organize a sale of the house and she sells it, in this example, for 1.2 million.

It is assumed that some of the rent was used to pay back some of the loan and so there is 600 left to pay to the bank. So in this example, quite a lot of money goes back to the pension fund and Alice charges two types of fees. One is a management fee for 20K, so a flat fee called a management fee -- and the 80K was a portion of how much money she made on this house. So it's basically 20 percent of a gain that the pension funds had realized. So she gets 80K of a performance-related fee, which is called carried interest, and 20K of the flat on this transaction.

So just to make sure that we know who's whom and what kind of arrangement this is, this setup is basically what would be used for any kind of private equity transactions, and private equity is widely defined. So a lot of real estate investments happen this way. But there's still infrastructure investments, so there's many, of course, in the world that are owned by private equity funds and so there's airports bought with a bit of fund money from pension funds and a lot of money overall from banks and other lenders.

Of course, corporations would work the same way. Alice would think that Hilton Hotels is a good company to buy and then Alice asks pension funds for money and banks for money. And then with that money, she organizes the purchase of Hilton Hotels. So a lot of transactions happen this way.

So Alice here is a general partner, a GP. She is a fund manager. She's the one who's organizing all of this. Again, it's not, you know, it is not her money. It's the pension funds and the bank. She borrows most of the money used to purchase the assets, and she is the one collecting these two sets of fees.

The hats there (indicating) are the LPs, limited partners of the pension funds or (inaudible). These are the two main contributors of private equity. The house is part of the company. It's usually how we refer it to. Then there is a bank and there's some people intervening to improve the house.

So that's what a private equity transaction looks like. This is how a lot of companies are bought and controlled.

So I put a few companies here (indicating) that you probably recognize and it's to show you the breath of companies that are purchased, grown, and sold in that fashion. So you would see a lot of, like, food restaurant chains, like Papa Johns, Burger King. You will see like even hospitals, like Hospital Corporation of America was bought in the same way. So 20 percent of the money came from some pension funds, 80 percent was borrowed, then this company was held for like four years and then sold again after that. And in the meantime, people tried to make as much as possible. You have schools, Cirque Du Soleil, textbooks, et cetera. All of these companies have been owned, owned by private firms, like literally thousands and thousands of companies.

So the question we are interested in today is whether there is alignment of trusts or how relaxed are we with pension funds, giving money to Alice to do these sorts of transactions.

So the first thing to emphasize, which I already mentioned, is that Alice controls the bulk company. She calls the shots. It's not her money, but she's the one organizing things, she appoints the board, she will appoint the CEO. She's in charge.

And both Alice and the pension fund, they both want that the house is worth as much as possible because the more the house is worth five years later, the more Alice is going to earn in terms of carried interest. So a leading example was 80K, but if she would have sold the house for just 800,000, Alice wouldn't have got this 80K, she would have got only 20K because she wouldn't have made enough money to get the carried interest. And if she would have sold the house for even more, she would have made even more money.

So people traditionally would say that this is perfect, incentive alignment. We see that Alice wants to be rich and the more she generates cash for the pension funds, the richer she gets. So we should all be very relaxed about this all. It was certainly incentive for a number of people, the common belief.

Now, what I've been emphasizing in my research is that it's not that simple, because when Alice is in charge of something, someone else's money, she has temptations. So some of the things we do observe, how to quantify that we observe it, we know it's how it works.

So for example, I could very well say, you know, I'm buying a private jet and then I'm going to use that private jet to go and visit companies, I'm going to go and visit this house, this airport, Hilton Hotels, these Toys "R" Us that I bought with the pension fund's money. And she invoices the private jet, her stay in potentially fancy hotels, et cetera, to the assets that she controls. So imagine that Alice would control the Hilton Hotels, and then she would say to the CEO she just appointed, "Okay, here are all of my expenses. I flew in a private jet, I stayed in that fancy place, et cetera, just refund me for that." So that's one aspect, like all the expensing, where, like, she's the boss and expensing saying how much to expense, et cetera.

But probably, potentially, your bigger concern is that Alice seems to be hiring herself for some kind of consulting services and things like that. So Alice sits on the board of this company and then she tells the CEO, "Oh, by the way, last week I worked a lot on, like, these Hilton Hotels organization and there's a lot of hard work and here's my invoice, you should give me $10 million for that." But she could decide it's 100 million or she could decide it's a million. What is important to recognize here is that there are no regulation here. It's an unregulated market.

So Alice can do whatever she wants. She can say, you know, "Last week I was (inaudible) about that stuff and you know, I think you, my employee, should just give me $10 million from the cash deal out of Hilton Hotels. You should pay me for what I did."

So that's tricky, but it's potential for serious conflicts of interest. And again, because it's unregulated, like on a listed company, you wouldn't, as a board member, be able to do these sorts of things, you wouldn't be able to really decide -- like you wouldn't really be able to consult, do consulting work for a company you sit on the board of and alone decide on how much to pay yourself, et cetera. In private equity, there are no rules, so this is allowed. Anything can happen and it's down to Alice's good will.

So one response of the industry is that people are good people, they are ethical, and they would never do bad things. And if they do bad things, then the pension funds would be very mad at them and they would never give them money anymore. And so these guys would not buy, and so then they should not do it, for they should all behave, et cetera.

The problem is that the pension funds historically have not corrected this sort of information. Hence the question, how can they discipline Alice if they don't correct the information about how Alice behaves?

Since 2012, it's important to note that the SEC has brought some discipline. It's quite new. It's quite small. It has had an effect. We ask and we don't quite know. But at least the SEC has said, "Even though Alice can do whatever she wants, we want Alice to tell the pension funds that she may be doing that kind of thing." So it's not even really saying how much she can charge or things like. Like, if Alice (inaudible), she may be charging stuff to pay herself, et cetera, then we want her to at least say that to the pension funds. So this is where the state is in the U.S. The rest of the world, there is nothing, there are no regulators looking at this.

So one question is, who cares about any of that? Who cares about what Alice does with pension funds' money? So the question is should the pension funds themselves know how she behaves?

Maybe they don't need to know. Some people think, you know, maybe, you know, there's a question that the banks should know how she behaves, not just even the pension funds because it's their money. And maybe the taxpayer needs to know because if a fund -- if the fund is underfunded, then the taxpayer will step in and so they may want to know how Alice behaves, what she does with her money, if she flies private jets and gives invoices to the pension fund and the like.

And the reason why people say, "Who cares," is because they say it's all in the returns. So if Alice is on good terms, we don't need to know the (inaudible).

The problem is -- so first there is a question of, for some people, of ethics and fairness, which is that maybe Alice had said, "You know, I told you I would give you more than eight percent. I gave you 10 percent, so whether I kept 10 percent or 20 percent or 50 percent for myself, then you should not care about that because, you know, I gave you what I promised you." But some people may think, "well, you know, if you give me like 10 percent return and charged 7 percent of fees a year, then I may not think that deal is really fair and I have this (inaudible) and I want to know more about it." So that one (inaudible) is like, you know, we may want to know because of some ethics issues.

The other reason is, which is purely economics, is that the future may be different from the past. So if Alice in the past might have managed to deliver returns that are enough, but if she behaved in a way that is, where she's conflicted -- but if a return in the future is different from the past, then, you know, she may be charging high fees with lower expected return going forward and then we would have an issue suddenly, so we may want to monitor these things. And it is also not unclear (inaudible) good returns, which is a pretty complex topic, that I will not have time to get into.

So I want to show you, like, a way that pension funds have reported fees and costs so far. The important thing to notice is that the pension funds are also pretty conflicted, because the people who work in the pension fund in the private equity, they don't want to say that Alice is misbehaving, or that they are concerned about Alice's behavior, et cetera, because if the people in the pension funds working in private equity, you may scare people with these kinds of things, then we stop investing in private equity and they lose their job. So they want to say that everything is all right and we don't need to worry and everything is under control.

And interestingly for a long time -- so the few pension funds that did report the fees they were paying to Alice were reporting numbers that were incredibly low and actually just not believable and fairly silly.

So you see here (indicating) an example for the last two years, they reported fund by fund how much they had paid. You see some years where they say they didn't pay anything, you see some years where they report like $300 for the entire year, for $200 million allocation, et cetera. These numbers are clearly incorrect.

And so for a long time -- well, (inaudible) even -- pension funds have always said, "Look, if you look at the fees, they don't match. So it's as a whole, the returns are quite okay, the fees are low. So we invest it all and it's all -- we don't need to look into what Alice is doing."

The problem is that these fees are not correct. There are many of them missing. And one of them is carried interest. So the 80K is shown in the first exhibit. A lot is carried interest, so the carried interest is typically not reported, never reported. And that's a big chunk that is missing. We think about two, three percent a year.

And then the average fees charged to the assets -- what I was talking about earlier, when Alice is charging directly, like for consulting fees or transaction fees, all kinds of things like that. This is not reported by pension funds as a fee that has been charged, but obviously, if the pension fund owns the house and Alice keeps some of the rent for herself because she is doing consulting work, that's a fee. And that's not counted as such because the pension fund says, "But I didn't pay Alice for this amount." But Alice took the amount directly from the asset. You didn't directly. So there is this, this is quite a big chunk, as well. And there are all these fund expenses like the private jet and the like, company expenses, et cetera, for which we actually don't know how much it is. Nobody has access to this information. And there are all kinds of other fees.

So I wanted to briefly show you what that looks like on the transaction.

So this is the example of High Rise Entertainment. (Indicating.) And this is a sort of agreement that then, when people like Alice -- so here in this example (indicating), it's up or low (inaudible). They buy a company, High Rise Entertainment, with someone else's money. And they sign an agreement with a CEO that they just appointed saying, "You, the CEO, need to give us money directly from the cash of High Rise Entertainment. And the reason for it is that we're going to give you services." And if you read the services here, it basically says that, you know, from time to time, we may do stuff. So I translated it as, you know, "we may do some work from time to time." Then that section continues and said, "well, we devote time and effort that we deem reasonable, but we are unsure of the number of hours we need to do, et cetera, against this contract."

So they basically cite how much they'll do. And this is a translation that is one of a teacher, but when people tell me, "We will not know the hours," it usually ends up close to zero.

Then the Section 2 -- so that's the only section that is a transaction. So what the other guy is going to do, and Section 2 says how much money they are going to be paid. And this is to give you some other (inaudible) of magnitudes.

So for High Rise Entertainment, they would say, "For this kind of (inaudible) fund, it is for services that we may or may not perform. We're going to take $200 million out of the cash deal for High Rise

Entertainment to go to us." So once again, that's money that otherwise would belong to the pension fund. And on top of that, like, you cover all the costs of acquiring the company and et cetera, so it's really $200 million on top of what it costs and on top of what the pension fund is already paying in terms of management fees, et cetera.

Then the Section 2-B would say, you know, "And I'm also going to, like, monitor things and for that I take a fee of like 30 million a year." So again, irrespective of how much you decide to work, you will pay, you will get 30 million a year paid from the cash deal of High Rise Entertainment.

And then this Section C says that, actually, if you do do something, which is like do some financing, refinancing, recapitalization, et cetera, then you're going to charge extra, but you just don't say how much it's going to be. You just say, you know, "I'm going to take some more from High Rise Entertainment if I decide to do some work."

And then there's a Section 4, as well, that was in the news recently whereby they say, "Oh, and by the way, if we stop this contract, then we're just going to get the fees for the next eight or ten years, all the way to year ten, that we would have got if we wouldn't have had to stop the contract." So basically, if I stop monitoring this (inaudible) service, I'm just going to charge what I would have earned in terms of fees for the next X years until the 10th year of this contract.

So these are examples -- I'm going quite quickly through, but to give an idea about like the sorts of things you can observe whereby the money of pension funds is taken by the GPs. And the pension funds do not track that, they don't know. The GP is fairly conflicted in terms of how much are we going to charge for what and so on.

So for the case of High Rise Entertainment, they took a total of $300 million. The company ended up bankrupt, so the pension funds lost all of their money. But the GPs made 300 million in just monitoring and transaction fees on this transaction. Toys "R" Us and Energy-Future, same story, it's about a half of a billion dollars of fees that were taken on these companies who ended up bankrupt when the LPs didn't get the money. Of course, fees are also charged for companies who do not get bankrupt. But --

And for a long time, nobody knew about these numbers. So some -- a researcher found recently, the SEC stepped in, et cetera, but said that these kinds of things were happening in such magnitudes to these members.

And the GPs now responded by saying, "Oh, yeah, we were doing things. Yeah, it was not very nice, but" -- and this is actually what a big GP said, "we, as an industry, have moved on now."

The problem is that if you do something for like 30 years, where you've been conflicted and done things that you were not quite supposed to do and -- it does raise an issue of like how much trust can you put in an industry where this has happened and how much -- this argument of saying, you know, "You don't need to know the risks, (inaudible) because the returns have been okay," you know, that may raise concerns and it may then trigger some desire to get more information and improve transparency.

Now, the thing is that transparency can bring you quite a lot more than just knowing. There is physical considerations again. They are switching things so fees are not (inaudible) to go over.

The issue is, if pension funds keep on saying that they don't pay much fees, one, 1.5 percent, when in fact they pay something probably close to six or seven percent a year in fees -- you know, they keep on saying that it's just a hundred to two hundred million dollars a year we give to private equity, when the true numbers are like one billion a year. The problem is that they don't make their life easy because they don't have any bargaining power with Alice and other GPs because the other guy says, you know, "You officially report low fees, you officially report an okay return, so I'm not going to make any concession on the contract and will continue to behave as before. I can charge as much as I want and the interest as before."

So if the right information is there, if we have the correct benchmarking, the correct idea of the risk and return of private equity, the correct idea of how much fees are being paid to get to a performance in the past, an idea about how much fees will be charged in the future in an environment where expected returns are lower, which is a consensus, then we would be in a better position and would have pension funds that are better equipped and have more bargaining power with GPs.

And actually, the recent efforts like the research I conducted, the SEC efforts, et cetera, lots of noise in the press, actually started to move things in the right direction. And that has benefited the LPs.

So the LPs for a long time have tried to put things under the carpet in order to, for nobody to be worried and for them to be able to continue investing in private equity the same way as before. But now that it is out there, then actually, they benefit from it because they have a bit more bargaining power here and there. It's still very limited because there is limited transparency, but it has been going in the right direction.

So if they, if all the information is out there and things are transparent, I think the pension funds could manage to get fees that are mainly performance-related, rather than being unrelated to performance. I think they could get less fees that are, like, purely discretionary. They could have more control about where their money is going. And that, I think, could be extremely helpful to them.

So to summarize, I think that the pension funds for a long time have been resisting transparency because they didn't want to scare people, they didn't want -- but that's my interpretation. They didn't want to make people say, "Oh, we're not going to do this kind of investment, so that's it. We shut down the private equity division." So we practically (inaudible), we knew about these things and had an incentive to not say anything and hoping nobody would know. It's now in the open. It started in the open, and so now they cannot really hide.

But it's quite remarkable how many pension funds still try to hide and persist in these ideas that "it's all good, the returns are okay, so just leave us alone. It's all confidential. We are going to scare people and they're not going to take our money anymore, et cetera." I think that's not the right attitude.

I think the pension funds would gain a lot more by being forthcoming, by being vocal. These contracts are not right and we want different contracts. And a regulator can help with that. A legislator can help with that by saying -- by making investing conditional for contracts or at least for transparency. So we know what is being signed and how much is being charged and so on.

I'm aware it's extremely fast, but hopefully, you got the flavor of what I was trying to cover.

CHAIRMAN TOBASH: Thank you, Doctor. Are you able to go with split screen so we can see your face for the question-and-answer portion of the next portion?

DR. PHALIPPOU: I could stop the sharing. Because you have the slides with you, correct?

CHAIRMAN TOBASH: Excellent, and welcome. Now we can put a face with the voice. Welcome. And I thank you, again.

So we've got a number of questions, and I'd like to get started here, if it's okay.

So returns for private equity are alluring for sure and many times they're claimed to be high. Comparatively speaking, with other investments that are more transparent and measurable, fees for private equity, you know, where are you benchmarking fees within the private equity space, and then returns?

DR. PHALIPPOU: So again, there is so much hidden, we don't really know exactly how much is being charged. And then there is the problem of we don't even know how to define a fee in private equity, because -- for example, in the example of the house with Alice, if Alice is actually doing real consulting work and then she charges the house for it, she takes money out of her rental income for consulting work, then Alice could say, "Well, that's not a fee because if I would have hired my team to do the job, you would have paid it and you'd have called it an operating expense and you wouldn't have called that a fee. So why would my consulting fee be a fee? It's an operating expense." So there is a deficiency to define a fee in private equity space. And so that's one issue.

All the expenses are sort of, like, you know, you would need to define excess expenses. You know, is a private jet an accessory or is it a perk, et cetera? So is that like an indirect fee; yes or no?

So there are a number of things that we don't know. We don't know the numbers. And even if we knew the numbers, it would be a bit hard to draw a line on, "okay, that's a proper operating expense at like arm's length and this isn't." But there are a number of them that we are quite sure we can quantify.

So the ones we can quantify add up to about six percent a year. So when I came up with a number in my research, people, you know, were screaming because of cost (inaudible) reporting one percent, 1.5 percent of (inaudible). Now there is a new consensus that people are replicating the results, et cetera. So people agree that we are talking about like six percent a year, which is an extraordinary number. Other investments out there, if they charge 0.5 percent, 1 percent would be seen already as an expensive investment. So six percent is unheard of, like magnitudes away from -- and you know, it's really the most fee-generating industry.

We shared some (inaudible) that it feeds a lot of people. So when you have a consultant telling you where to invest, the consultant -- if they tell you to invest in Vanguard, they're not going to make much money by giving you this advice. If they advise you to invest in something that gets six percent a year in fees, they have plenty of room to get, like, all kinds of kickbacks directly or indirectly with this sort of investment. So when you have an industry that generates so much cash, so much fees, there's plenty of dough to feed a lot of people, which means that you may not always get the more secure information.

And then you have like pay-to-play scandals and all of these things because the amount at stake is also so important. So they have charged like this kind of amounts.

Going forward, if you look at the contracts, if the returns are lower, it doesn't -- if you simulate it, the fees would stay at this kind of low ball. They would be like five percent even like in a much lower interest environment. So the fees are going to bite a lot more going forward compared to what they have bit in the past.

And so that's one thing that I have been emphasizing is very worrying and nobody really, like, puts that on the table because right now everybody is just saying, "Oh, these guys have high returns because they are so risky. Their past returns are good, and so it doesn't matter. I don't negotiate fees. What matters is net of fees and so I'm all cool." The problem is if the expected returns are lower and your fees are high, the future is not going to be like the past. So your net of fees returns in the future are not going to be the same. So that's a big worry.

In terms of past returns, which is the only thing we can measure -- so there is an entire marketing and industry showing numbers that are incorrect, like the 30 percent of your endowment or these kinds of numbers, like, that are completely fake. If people measure the returns properly, you have numbers that are around 12 percent a year at about any horizon, really. If you take the past 10 years, 20 years, 30 years, you'll be at like 12 percent a year for like the average buyouts. Venture capital is very volatile so it's a bit more difficult to measure. Real estate is much less. Infrastructure is in between. But leverage buyouts, which is the largest chunk, so like Toys "R" Us, Hilton Hotels, et cetera, this was like, this is about like 12 percent a year in the U.S. and western Europe. So it's not a bad number. But then it all depends on how you're going to benchmark it.

So if you say -- for a long time the industry said, "Oh, look, compared to the S&P 500, it's a lot higher." For instance, the S&P 500 is just like one index that has, like, a difference by like five stocks. So, you know, for a long time, yeah, the S&P 500 was way below private equity, but it was also way below the average stock in the U.S. And now the S&P 500 for the last 10 years has been doing extremely well, thanks to, like, these five stocks. And now people are saying, "Oh, no, we should not use the S&P 500 as a benchmark anymore because, like, these five stocks are just" -- it has nothing to do with private equity.

So now people say, "Oh, you need to use MCI World." And it just turns out that MCI World is also one of the worst performing industries over the last 10 and 20 years.

So if you were, if you are trying to choose like the index that suits you best, then you would find that the returns of private equity are three, four percent above an index. So when people use MCI World and measure things properly, they find that private equity buyout is like three, four percent extra a year. But if people were using things a lot more simpler, a lot simpler like the average stock in the U.S., out of 5,000 stocks out there, like just the average stock performance, private equity performs just exactly the same. It's 12 percent. So at about any horizon, in the U.S. and western Europe, the average stock has performed 12 percent a year.

So then one is to be aware of that, as well, that it's going to be a benchmark incentive. But the bandwidth is, if you want to be as optimistic as possible, then we are talking about three, four percent above a carefully chosen benchmark. If not, it's equal to the average stock market, to the average stock.

Now, then you may want to say, "Well, but there are all kinds of risk. It's costly. I have all these complex contracts I need to enter into. I need to do all of these additions. The monitoring is complex. I'm giving like my car keys to someone to drive. So it's not the same as just giving mine to Vanguard." And so the fact that it is so highly levered -- so when you have 82 percent leverage on a house, you know that you don't have that much margin for error. So the risk is not the same as if you had just bought the house only with equity.

So people may say, you know, "I may need a premium compared to a public market because of all this leverage being used. I may need the premium for committing capital that you can call whenever you find suitable. So I may need all kinds of premium."

So people in the past have said, "Well, you know, 300, 500 basis points of premium would be okay. And the problem is that, again, if you take the average stock, the 300, 400 basis points of three, four percent premium hasn't been there. And even if you choose the MCI World, then remember, I said it's four percent premium. So if you say "Because of a risk, I need like three, four percent extra from private equity," then in the past, it means it just didn't give you anything other than what you required, given the risk.

So then the question is, how could it be better going forward when people are just lining up in this sort of class, signing contracts without even -- like, pretty wild in terms of like giving the car keys to the GPs and the like. So this is where the conflicts are and this is why I think that the LPs should be really vocal about asking for more transparency and getting more bargaining power on their side, because right now all of the bargaining power is on the fund manager's side. And it's partly their fault, because they keep on trying not to show the real numbers for returns or choosing the benchmarks so that they don't get in trouble and so on and so forth. And so you can see how remarkable it is, actually, the performance.

Warren Buffet, one of the richest guys in the U.S., has a performance of fees of 19 percent over a long time. Private equity, at 12 percent after fees, and charging 6 percent plus fees, means that the average private equity guy out there performs as well as Warren Buffet before fees. So this is how much money, how much this industry manages to generate in terms of money. They are really extraordinary people. They are, like, really extraordinary professionals, but the point is that they have kept to themselves most of the surplus that they have generated. And the LPs have tried to hide that fact so that they don't get in trouble.

Again, if you look at the real numbers, there has not been a catastrophe in the past. It's not like, you know, they lost tons of money, but it doesn't look like particularly exciting even if you are trying to be optimistic. And the amount of fees that have been transferred can then, you know, raise some ethics and fairness questions. And going forward again, with a lower interest rate environment, lower expected returns, then you could be nervous with a balance of bargaining power between these two parties.

CHAIRMAN TOBASH: Very good. Thank you.

So I understand, 50 basis points versus oftentimes 500 basis points for private equity, and oftentimes performed well, but benchmarking is really critical in understanding how they're really performing.

What about the idea of communicating rates of return that are midstream in some of these investments, internal rates of return, reporting? Do you see any issues or problems with that, the way the returns are communicated in the interim to these pension systems?

DR. PHALIPPOU: Yeah. So it depends a little bit on the shape of the cash flows, it depends on the type of funds and which funds, et cetera. But indeed, there has been, in the past, a lot of, I call that fake, fake numbers, these IRR, in some fashion. So people -- that enables people to understand quickly what I mean.

This internal rate of return is not rates of returns. Sometimes they are not too far and sometimes they are like miles away.

So for a long time people said, "Oh, look your endowment got like 30 percent on your return thanks to private equity." They weren't quoting on internal rates of return. There's absolutely no way your endowment earned 30 percent return in private equity. And people kept on citing this number and I've shown them that if it was true, your endowment would have a GDP of the U.S. And clearly they don't. They are very rich at GL, but they don't have a GDP of the U.S.

And so you have these numbers, but they're like, really fake and people keep on like showing them in presentations and the like. And I think that what they're showing works against the pension funds.

We see things cited in the press, like "top quarter for equity funds delivering 30 percent return," 25 percent -- "KKR since 1976 has delivered 25 percent return." None of these numbers are true. We saw internal rates of return. They're not correct.

So that's part of the issue and -- but it may not be what exactly you have right now, but there is a lot of talks about having private equity in 401k. So you can imagine that if interested investors have been fooled or fed that kind of fake numbers for a long time, what would happen if retail investors are allowed to absorb this marketing material.

So there is a big problem with internal rates of returns. There is no alternative that is perfect, and so that's why always people say, "Oh, yeah, but your alternative isn't perfect so I'm going to stick to my internal rates of return." There are no alternatives that are perfect, but there are alternatives that are a lot, lot better. And so the more we encourage people to report in terms of things that are like public market equivalents with different benchmarks to see who is sensitive to benchmarks, et cetera, then, yeah, we'd have a much better idea about how well the funds are doing.

There is also the issue that when you have a private equity program, most of the investments are self-valued by Alice, like the GPs. And so when you have a program in private equity, it's not rare -- like the average pension fund in the U.S. would be in a situation where they gave something like 10 billion to private equity, they got 10 billion back, and they have a reported 5 billion of assets that are out there, but we don't know, you know, is 5 billion a right number, not right number? So that's always very hard to benchmark private equity. Even if you use the right metric, you also have an issue of all these things out there that you cannot be 100 percent sure are worth what they officially report.

CHAIRMAN TOBASH: Thank you.

DR. PHALIPPOU: It's all (inaudible) in convenience of investing in private equity, so that's why people would like to see a better (inaudible) when it comes to retail.

CHAIRMAN TOBASH: Thank you. I hear you loud and clear.

So the internal rates of return deserve some scrutiny oftentimes within these funds. We're going to be hearing from ILPA here shortly. Are you familiar with their template?

DR. PHALIPPOU: Yeah, yeah, very well. I helped them to set it up, so...

CHAIRMAN TOBASH: So you think it would be helpful.

I'm going to open it up to other questions from other commissioners.

Vice-Chair Torsella.

VICE-CHAIRMAN TORSELLA: Dr. Phalippou, thank you. Interesting presentation.

As I understand your argument, it's that the full picture of all costs that are ultimately borne by the funds and real returns should be more visible. Three questions about that.

Number one, are there meaningful downsides to doing that that would outweigh the economic benefits of doing that, both in terms of evaluating alternatives and getting some leverage? Two, you showed California as an example. Aren't they now, and some other states, starting to disclose more, for example, of the fee in terms of the carry? And then maybe most significantly, there's a school of thought that because private equity is time limited and because the LPs usually make money, as one of our funds here said, that the fees are effectively zero because all these fees are taken out of returns; that essentially, you can't determine the fee until the end of the investment and that those fees, unlike in a sort of ongoing, you know, public equity account, those fees effectively are zero and are, really, it's simply the net return that matters. I wonder if you could briefly go through those three. Thank you.

DR. PHALIPPOU: The first -- I think I've got them all. The first one, was it the downside of being transparent?

VICE-CHAIRMAN TORSELLA: Yes.

DR. PHALIPPOU: The downside of being transparent, I think there is a lot more upside, but yeah, there are some downsides. So if you have -- so we have seen recently in Kentucky where their pension fund went bankrupt, and then the legislature in Kentucky was very upset and they said, you know, "We will not allow any pension fund to invest in any fund that doesn't sign like a code of ethics of the CF Institute," which is like an industry body. So you would think it's a pretty low bar, right? It's just somebody saying, "I'm just going to behave (inaudible)." And it's not even binding and it's, like, you know, it's just like any code written by the industry. And you have a number of hedge funds and the like that just said, "No, then we don't want money from Kentucky because we don't want to sign a code of ethics." So, you know, I don't know. So you can say, "Oh, but then that's a loss because then we cannot invest with these people anymore." But my sense, my gut feeling would be maybe these are not the people you want to invest with anyways. So --

VICE-CHAIRMAN TORSELLA: If you want to invest with someone who won't sign that code.

DR. PHALIPPOU: To be clear, so I've asked some private equity managers that are very clear about conflicts of interest other times I have mentioned, and they say, you know, "We don't engage in any related transactions because that opens room for conflicts of interest," et cetera. So they should be encouraged. There would be people that would be happy to sign up. There just won't be too many right now.

So there is a bit of a code issue. So the SEC is currently helping with that, so that helps. But yeah, the (inaudible) is crucial because you need everybody to coordinate. If you were, only Pennsylvania was saying, "I'm going to put, like, some very strict rules," then people -- it would be easy for the industry to just say, "Well, then we're just going to ignore two pension funds in the U.S. And with that said, we can move on. It's not a big deal." So that could be the downside.

But again, if the fund managers are good, ethical and the like, like most of them say they are, then it shouldn't be a problem for them to communicate information. It's like, when pension funds say, "I cannot tell you my return, I cannot tell you my fees," et cetera, you say, "But what's the problem? If you tell me, if you are right and everything is as good as you say it is, then what's the problem with sharing that information?" It shouldn't be an issue. So it's an issue only if the numbers are not quite what you told me they were.

In California indeed -- so I didn't have time to go over that. A huge difference, and things are changing, but it's just like one year, of course, something like that. So most of my summer of last year I spent with the *Financial Times* and some people are sitting on the board with CalPERS, et cetera, pushing CalPERS to confess that the numbers they were reporting were not correct, but there was a lot more there. I made some (inaudible) calculations, which I gave to the *Financial Times*, which would run a very big story on, there is five billion of fees at CalPERS. CalPERS collected the information over the next six months, came up with the exact number that I had minus $100 million out of five billion. But I had calculated at the back of the (inaudible). And so now we have CalPERS reporting a lot more. It's still not everything, but they're reporting a lot, lot more. And that is a very long effort.

We have had a few people working on the CalPERS case and the *Californian Journal* for like three years until we started seeing a revolution. And as far as I know, CalPERS didn't go bankrupt for having shown these fees. So this argument that there's a catastrophe if you show anything -- well, CalPERS is showing them. As far as I know, they are still up and then some. So that didn't change anything for them. So it doesn't kill you to show the real numbers.

But it took a massive resistance of CalPERS, absolutely incredible, the amount of resistance. And again, I think that would benefit them in the long run.

The argument of the fees being out of the returns here, I find that fascinating. Vanguard could decide that instead of giving you the dividends of the stocks they bought for you with your money, they could just keep the dividends and tell you that then you don't need to pay any fees, right? So any dividend that would have been paid to you, Vanguard keeps it and says, "Here you go, and don't worry, I'm not going to charge you any fees." It's a very weird argument. I must -- it was one -- I heard it recently and it was one of the first times I heard that argument. People have always tried to minimize fees, but to say there are zero because I have positive returns and the fees have already been taken out...

Again, the picture, like I said, the picture at CalPERS and most pension funds in the U.S. -- it's 10 billion has been given to private equity, 10 billion returned, 5 billion is still out there, but we think it's worth hopefully close to 5 billion. Four years holding period, which means it's on the 11, 12 percent return. And they have charged, in terms of fees, something like another five, ten billion, something like that for that situation.

So it's quite important to know because you may say, "Okay, it's fair. I just get 10, 11, 12 percent fee return, and that's good enough." Yes, except the five billion of returns are not paid yet.

We don't know exactly, you know, what they're valued. But the fact that somebody took five or ten billion (inaudible) of that is actually an interesting piece of information because you may think it was not quite balanced. And if -- going forward, again, there would be less money to be distributed to the pension funds and the fee is going to be a lot higher. And if you're giving full power to people, then, you know, they can do whatever they want. They can open the cash deal out of all of the companies that you indirectly own and take the money out of there. So I'm sure most of them won't, but it varies, lower rates (inaudible) and less income. And people can be tempted by these things.

It's very strange, this world where we all have written contracts, but just, like, let people do whatever they want.

CHAIRMAN TOBASH: Thank you very much. So we want to keep things moving here. We're getting up against a time deadline, but Mr. Nickol, you have a question?

MR. NICKOL: Yes. Thank you.

I was reading an interview you did earlier this year in *Private Equity Laid Bare* with Robin Powell. And I was trying to quantify just kind of the scale of the problem with regard to what you referred to as tunneling, which I gather is the same as all these fees and added expenses. And you were quoted as saying, "There isn't tunneling on a massive scale, but it is happening and the amounts involved aren't negligible." And it just -- I would like to be able to put this in perspective with regard to what you're shedding light on, which I think is extremely valuable, as to just how much of a problem it is in the industry when you make that quote.

DR. PHALIPPOU: So I went through like 30,000 pages of SEC findings because it turned out that, like, at least two fees were available, the transaction fees and the monitoring fees. And the contract that I showed you earlier is part of that research. So for these companies, I found that there's a total of more than $10 billion. It was run as a front page story in the *Washington Journal*. The

Washington Journal was very scared of being sued on that number because they found it too high, very high, and nobody complained.

In terms of like putting it in as a fraction, the kind of amounts we're talking about is about 1.5 percent of the equity invested by pension funds every year. So that's the number.

And then, again thanks to this transparency effort recently, the fund managers who are collecting these fees are returning most of them to the pension funds. So they are refunding them. So they are taking them and they are refunding them.

The problem is that then now the pension funds are saying, "Okay, so now you can give us a loan because you see they are refunding us these fees, so it's just like, please just give us a loan on that." The problem is if you read the contracts, there are four pages of exceptions. So officially they refund everything, like 100 percent, but there are four pages of exceptions. And they're very hard to quantify.

So that's again why the transparency fight is very important and it is a very difficult battle, because you may say, "Okay, it's okay they charge fees as long as I get refunded." I can write a contract that says, "I will always refund you," just like you ask me, but -- and I put four pages of exceptions, which in some cases means I'm going to hardly give you back anything.

So the magnitude of the problem -- we know how much companies, U.S. companies, are paying. It's about 1.5 percent for one (inaudible) sample a year of the investment by pension funds, but we don't know very well how much is getting repaid to the pension funds.

So last year, a lot of (inaudible) there, and all the expenses there that we don't know and all kinds of other fees that I captured in my research. But that's the kind of magnitude we are talking about.

So it's not -- when I say it's not mass (inaudible), it's because there are some countries where like, in India and South Korea -- we have seen total (inaudible) in Russia where like, some people would take like all of the assets and run away with them. So we haven't seen that in the U.S.

So you know, again, you take these three big bankruptcies like Toys "R" Us, Energy-Future, and High Rise Entertainment. A total of, more than a billion was taken. The company went bankrupt. But you cannot really say it's turning on a massive scale. They didn't like take all the assets and run away. They just charged a lot of fees for something that was extremely vaguely defined services on top of what they were already charging pension funds. And so it looks a bit odd, but at the very least, we would just like to know how much they took.

CHAIRMAN TOBASH: Thank you.

Mr. Bloom, you have a question?

COMMISSIONER BLOOM: Actually, I have two questions.

Earlier in your presentation, Doctor, you mentioned that the average return on private equity is 12 percent. I assume that's minus the fees that they pay --

DR. PHALIPPOU: Yes.

COMMISSIONER BLOOM: -- that we paid. And the return to the GP would be about, maybe six or seven percent, and does that include -- that includes the carried interest?

DR. PHALIPPOU: Yeah.

COMMISSIONER BLOOM: Okay.

DR. PHALIPPOU: Yes. But again, we don't have all like, then there are all the expenses and the like, but we don't know exactly, you know, how to quantify, but we know at the very least the GP took home six percent.

COMMISSIONER BLOOM: Right. The second question has to do with net asset value. And I think you mentioned this, I just wanted to clarify it.

We're in the middle of an investment with Company XYZ. We're two years in. And we are told the value of what that investment is at a particular time. I'm talking audit time. In other words, if we have three, five billion dollars in private equity, okay, part of what we're being told is the -- I'm sorry to use, because they have to use unobservable data, okay? It's a guess as to what the net asset value would be on a particular company that private equity would have invested in? Would you call that --

DR. PHALIPPOU: Yes. It's an educated guess, yeah. On some assets, we're a bit more confident than some others, it's a bit easier to value for like real estate. It's extremely hard for venture capital.

You know, in venture capital, like, they take, like an investment in a very young company, like how much is it worth? And even if you have like an investor that recently bought a stock, like an Uber, and you would say, "Okay, then that physically means it's worth 60 billion." Is it really? You know, it's pretty hard to value.

In private equity it's in between, not easy to know exactly, you know, what a private company is worth. So historically, people who have looked at the officially reported numbers and what happened next, there was no, on aggregate, there was no massive difference. So in aggregate, they seem to have gotten these numbers roughly right.

But again, the more -- the issues are still going forward. So if going forward, things are not going well, they would have the latitude not to report the true number, right? So when things are doing well and you report the right numbers, and that may be a bit easier when things are going well.

So research so far has shown that the numbers are about correct. So you can be confident that as of June 2018, the number reported by your pension funds is about correct for any of the assets they have. It would be really strange if there was a discrepancy with the true value, market value. But again, indeed, it's an educated guess. It's (inaudible).

COMMISSIONER BLOOM: What I'm talking about, Doctor, is, you talked about the $5 billion in California. Is that what we're talking about here?

DR. PHALIPPOU: Yeah, it is. Yeah. In my example, the five billion in question is the educated guess. So it's very -- I think the situation in Pennsylvania is very similar. So you've given 10, got back 10, and there is like 5 still out there. But if the five is actually being paid, then you have maybe a different percentage.

COMMISSIONER BLOOM: Thank you very much, Doctor.

CHAIRMAN TOBASH: Okay. Dr. Ludovic Phalippou, thank you so much for your testimony. We are very appreciative. We will submit your biography for the commission records. And if we could be so bold and you'd be so kind, if we reach out again from our consultant, Dr. Ashby Monk, we might be in touch with you again to find out some more about your research.

We appreciate your testimony here today. Thank you very much. We are grateful.

DR. PHALIPPOU: Thank you. It is my great pleasure. Thank you very much.

CHAIRMAN TOBASH: Terrific.

The second group of testifiers will be from ILPA.

So the Institutional Limited Partners Association's managing director is Jennifer Choi. Ms. Choi, prior to joining ILPA, was a research director for Emerging Markets Private Equity Association, and she was a consultant with Boston-based Stax, Inc.

Just let me tell you a little bit more about ILPA. They have approximately 450 member institutions representing more than two trillion U.S. dollars of private equity assets under management. And they have got a template that we heard Dr. Phalippou mention that he was helpful in helping to develop. And specifically, Act 5 requires us to pay attention to ILPA's work and their template and how they might help in the effort of transparency with, as I mentioned, a large number of institutional investors.

So we are happy to listen to testimony from Ms. Choi and we appreciate her presence and her expertise.

And I think we'd like, why don't the three testifiers of the group come up at this point in time and then we'll move right on. I think we're scheduled for about 12 minutes from each. So we'll give a brief introduction before our other two testifiers get started. Thank you.

MS. CHOI: Well, good morning. Thank you very much.

It's a pleasure to be here and we at ILPA appreciate the opportunity to shed a little bit more light on the work that we've done to advance transparency, along with my fellow panelists.

So the focus of my comments today will be to give you a bit of the background around our efforts to advance more fulsome and uniform reporting by fund managers to investors, which we call LPs, limited partners, providing some perspective on the adoption of reporting standards across the industry and its outlook, as well as some observations on the efforts to legislatively mandate reporting standards for private equity.

So you heard a little bit more about the association. Just to shed a bit more detail, we're actually at more than 480 member organizations across 50 countries representing $2 trillion in private equity assets under management, or about half of the global institutional capital invested into private equity firms.

And ILPA, as we call it, is unique as the first and still the only organization dedicated exclusively to the interest of limited partners in the industry. And they constitute our entire membership. We do not count fund managers or other third parties among the ILPA membership.

Our members include both public and private pension funds. In fact, that really constitutes our Legacy membership. When we first got started about 20 years ago, the core was public pensions, insurance companies, university endowments, charitable foundations, family offices, and sovereign wealth funds, all of which are investing on behalf of beneficiaries, first responders, teachers, retirees, policyholders that are dependent on the investment returns generated by those private equity funds.

And so core to our mission is the development of best practices, such as the ILPA templates we're discussing today that really empower our members to make effective and informed decisions about their private equity investments and to advance the quality of transparency and alignment of interests across our industry.

So with that, I'd like to turn and give you a bit more history about the ILPA reporting template, as we call it in shorthand, and the transparency initiative that spawned it. I'm very pleased that my fellow panelists here were involved back in the early days of this initiative. But let me give you a bit of history.

In 2012, ILPA issued guidance for the first time on reporting standards for private equity. We prescribed at that time what information managers should provide to their LPs about the underlying companies in the fund's portfolio, as well as information to be included in the capital calls and distribution notices. And I can certainly elaborate on that, if needed.

In the years that followed, the private equity industry became regulated for the first time. The industry had to, of course, adjust to that new reality. And at the same time, investor demands for transparency escalated for many reasons.

We've heard Dr. Phalippou talk about the influence of the SEC. Of course, I think you all are somewhat familiar with the political pressure on the industry and on investors, in particular public pensions, to rationalize the opacity and the perceived higher costs of the asset class. And then a number of SEC enforcement actions really brought to light some of the challenges around ensuring that the fees being charged to investors do conform to the contract, the partnership agreement, that really lays out how costs and profits are shared between the LP and the GP.

But more importantly for us at ILPA, we were responding to a need that our members were articulating. They were sharing with us real pain and real challenge in answering legitimate questions. What does it cost to do private equity well? When we're thinking about optimizing the balance between external management and internal management, how should we think about what that would cost us? How should we think about selecting managers that provide us with the greatest efficiency relative to the net returns that they promised in the portfolio? And how do we make sure, again, that the fees that we're being charged directly or indirectly netted out of distributions conform with the contract that we signed?

So in 2015, we convened a working group. At the core, the participants included a number of LPs, but in addition, we did solicit input from a number of third parties and experts to advise us on how to address this gap between the needs of the individual LPs, like Lorelei and Renee, who were struggling to verify the fees being charged, and what the GPs were capable of doing and what could be the greatest and most widely adopted standard across the industry.

So the template released in this timeline here (indicating) -- it's a bit small print, I apologize for that -- but the template itself, after many, many months of deliberation and consultation with the wider industry, including the GP community, my colleagues and I, I should say, spent many, many hours -- by our estimates, we did about 200 calls and meetings with LPs and GPs to develop this template which was released January of 2016.

And the benefits of the template were many, but I think one worth noting was a key challenge of a lot of our public plan members. In particular, it was the fact that the reporting coming to them was being provided on almost exclusively December 31 basis, often not called out in the level of detail they needed, information being provided across capital call notices, footnotes to financial statements. And so shifting to a quarterly report that included all the detail that I'll get into in the fees and expenses being charged, allowed individual pensions that had June 30 or March 31 or September 30 fiscal year ends, for the first time, to feel like they were reporting accurate information about fees and expenses in a way that aligned with their own institutional reporting cycles. The template also provided definitional clarity and itemized detail for offsets -- Dr. Phalippou addressed this a bit in his comments, and we will certainly come back to this -- as well as common organizational expenses charged by GPs to LPs.

And what we learned through the course of the initiative was in fact that the back office processes of a lot of fund managers were highly bespoke and highly varied. And so there was tremendous benefit, too, for the first time really laying down in writing how we define various organizational fund expenses. Last, but not least, the fact that all of this information came together in a single format provides benefit simply for the fact that rather than trying to hunt for individual data points across multiple types of reports, for the first time, it's all being provided in one place.

But let me underscore the fact that responsibility for reporting standardization does not lie with the GP alone. This is an LP-driven phenomenon. This is an investor-driven phenomenon. And there's tremendous benefit to conformity of the ask coming from the LP to the GP.

One GP may have 50, 75, 100, 150 different LPs. And imagine if each one of them came to you asking for a slightly different level of detail on a slightly different time line. How challenging it must be to provide accurate information to satisfy all of those varying needs. So that single coherent ask really goes a long way in addressing those influences and balances that Dr. Phalippou mentioned earlier, the negotiating dynamic between the GP and the LP. It provides an incentive to the manager to comply with a single standard because it does offer the opportunity for efficiencies and economies of scale in technology or third party service provider implementation and support for implementing the standard.

So at the beginning, to talk a bit about the industry adoption and response. At the outset, many GPs were conceptually supportive. They got it. They understood that there were potential benefits they could realize through economies of scale, through a more uniform standard. But they were wary of the compliance challenges I mentioned a moment ago presented by the level of detail in the template. Let me go back to that.

You can see it in the background here. (Indicating.) We're obviously not going to go into it in any depth. There's quite a lot of detail in the full version of the template.

So managers who had, to date, not invested a tremendous amount in the reporting infrastructure or who considered themselves to have complex fee and operating expense models felt that this template was initially daunting. They were also concerned about the shelf life of the standard and worried that, in fact, ILPA would be making subsequent provisions to this template on a cadence that they simply couldn't keep up with, which would force them out of compliance. They were also skeptical that a one-size-fits-all template, which is what we were proposing, would be adaptable to the range of strategies and fund types out in the marketplace.

And LPs, for their part, I wouldn't go so far as to say that they shied away from transparency. In fact, the number of endorsing organizations here belies that fact. But they did express some hesitation about the economic downsides to pushing for this template initially at the very beginning, such as being allocated away from by the GP. The GP is being told, "We don't want you in our fund." Either because of, again, the compliance challenges or for fear of having sensitive commercial information in the public domain due to public records acts requirements.

So this fear of being outmaneuvered in what is still a very capital-rich fundraising environment did influence, to some degree, the pace with which LPs came on side. But as you can see here, they certainly have.

And ILPA, for our part, has tried to emphasize the fact that we do not take lightly revisions to this standard. We know LPs and GPs alike and the organizations that fund administrators, the service providers, the technology providers, the custodians have configured their systems to support this standard. So we certainly would not make changes without ample notification to the marketplace and thorough consultation about the import of those changes.

So endorsing organizations here, you can see that we have 166 organizations in total that have endorsed the template. What does that mean? It means that they have signaled to the marketplace -- whether they are a limited partner organization or a general partner organization or consultant or other third party supporting this ecosystem -- they have signaled that they embrace standardization in reporting, that they will provide this template to any LP that requests it, and over time, they will integrate this standard into their reporting packages so that they can provide this standard to all of their LPs.

A few brief statistics on where we are today. ILPA estimates that well over 300 managers are currently providing the template to those LPs that request it. By our count, 90 percent of our members are receiving the template from at least one of their managers, if not more. Twenty-six percent of our members are receiving the ILPA template for at least half of their newer vintage funds. We know that endorsing general partners account for 26 percent of all private equity capital under management today.

So to go back for a moment, where are we in the cycle? As I said, it's an inherently LP-driven phenomenon, adoption of reporting standards. LPs have to introduce this into their negotiations with managers. They're not always successful. But we find often if you're bringing it up in the course of a fundraising negotiation, when you're laying out the contract with the manager, either as a condition of your investment or as a line item in your side letter that accompanies your subscription to the fund, you may be successful. But more importantly, the more LPs that ask for this standard, whether they're successful in getting it into the partnership agreement or not, the more influence that has on the GPs' willingness to provide it.

And so we find that there is a tipping point. If enough LPs entering into a new fund are requesting this, are insisting upon it, are indicating that it is critical to them, the GPs are providing it. They are coming to ILPA and saying, "My clients are requesting this. What can I do to comply?" So we know that LP demand has an effect.

As we move from adoption to implementation, and I know my colleague, Lorelei, will talk a bit more about this, LPs and GPs are now trying to figure out, well, what do we do with this information? How do we simplify and streamline the flow of data from the GP to the LP? And how do we equip the LPs to draw real insights from this information, including, and not least of all, of course, verification of the information being provided?

So this brings us to a bit of discussion about public reporting standards. So this map (indicating) is a slightly updated version of a map first published by the Pew Trust back in 2016, I believe. They really looked at CAFRS across all 50 states to see what level of disclosure of private equity cost was currently in play. What they found was it varied quite a bit. But certainly the majority today are reporting pension investment performance after fees. However, when you look into the gross to net spread and the level of detail being provided state to state, it varies quite widely. Why is that? In part, it's attributable to their ability as individual investors, those pension plans, in acquiring the data from their GPs, methodological differences in how these CAFRS are put together and what is reported, and differing philosophies, as was mentioned by the previous presenter, about what should be considered a cost. Is carried interest disclosed or not? Is carried interest included in your fee load reported for your private equity investments or not?

So there have been several attempts to legislate. We've talked a little bit already today about California and the law AB 2833, which passed and went into effect in January of 2017. It applies to all contracts on a best efforts basis prior to 2017, but required for all new investments after 2017. And it does not expressly prescribe use of the ILPA template, but the California plan subject to this law vindicated that the ILPA template meets nearly all of the requirements in the law.

There have been reports of some managers who have elected not to raise capital from California plans as a result. We believe that this is a minority, but it is a critical consideration for legislators, that private market investments are voluntary and negotiated relationships, and there will be high performing managers that can choose not to take capital from certain investors. It is a very real consideration. And the most attractive managers, regardless of the market cycle, can take money or pass it up.

So variance in state to state, as mentioned earlier, if one state decides to go it alone and be the only state to prescribe a certain standard, it may present challenges. It may mean that attractive managers elect to not raise capital there. It may mean that there are methodological differences that make benchmarking state to state or plan to plan challenging. And moreover, when it comes down to fund level benchmarking, where the individual pension may be looking to benchmark across funds, this may present challenges. So it begs the question, would federal legislation be a more optimal solution?

And ILPA, for full disclosure, is in dialogue with the SEC on an educational basis. We learn from them, they learn from us. And so far we have heard that many of the challenges related to hygiene and compliance in GP reporting are addressed through adoption of the ILPA template. The agency's purview, however, is on the adviser and not the fund. So they are able to examine the adviser and examine the contracts attached to all of the funds managed by that adviser. But they're not able to look all the way through to individual contracts negotiated between the adviser at the fund level and the individual LP. So worth noting.

So to date, support has been greater for encouraging adoption of industry standards for fund level reporting, rather than a regulator issued standard that may be less adaptable to shifting market dynamics or market realties.

A couple of cases and points. In the UK, the Financial Conduct Authority convened a group, called the Institutional Disclosure Working Group, last year. And that group deliberated on whether they could propose a single standard for the trustee that rolled out data coming from each of the individual positions in the portfolio across asset classes. And after much deliberation and consideration, they ultimately determined that the best course of action was to point to the ILPA template for private equity, although the mainstream asset classes did have various templates proposed by this working group.

In Australia, the Australia Securities Investment Commission Regulatory Guide 97, that's a mouthful, RG97, went into effect in 2017 requiring superannuation funds to disclose fees and costs in their product discloser statements to investors. The Australian authorities have already signaled that it has been somewhat challenging to standardize certain types of costs related to real assets, for example. One potential risk being that excessive focus on cost at the expense of returns might mean that there is some damage to the benefit to plan members.

So in conclusion, embrace of uniform reporting standards, such as the ILPA template, is critical to understanding costs and context. What is the benefit to the plan's bottom line? What is the performance of private equity investments relative to other parts of the portfolio, as we've already discussed? And are such comparisons being made on a fully cost led basis?

The next frontier, the Holy Grail, is benchmarking, but to get there requires uniform collection of data on costs. And we've made tremendous progress, but we really do believe that this uniform baseline for comparative analysis of net, fully cost of returns, how managers achieve that performance, remains the goal.

Thank you.

CHAIRMAN TOBASH: Thank you.

We'll hold questions till the panel is complete. And who will testify next?

MS. ASTPHAN: (Indicating.)

CHAIRMAN TOBASH: Okay, Renee, that would be terrific.

So Renee Astphan, investment officer at the $8 billion Employees' Retirement System of Rhode Island. I thought it was very interesting, oftentimes we hear about the confidentiality of information within agreements; yet, in Rhode Island, the information with these limited partner agreements is communicated via website, online, in about 85 percent of the instances. And I think in Pennsylvania, we're probably more like the inverse of that, maybe only about 15 percent. So we're interested to hear about the work you've done in Rhode Island and why you felt that transparency was so important.

MS. ASTPHAN: Well, good morning, and thank you for inviting me to speak today.

I'm the senior investment officer with the Employees Retirement System of Rhode Island, part of a five-person team that manages the designed benefit plan assets. My role includes overseeing our current portfolio of alternative investments, as well as sourcing new relationships and a number of administrative tasks related to those two things. I've also taken the lead on creating our fee analysis report every year since fiscal year 2013.

I've served under two treasurers and both have been laser-focused on improving the health of our retirement system and also being a leader in transparency not just in investments, but across all of treasury.

I'm here today to share the efforts and progress Rhode Island has made in implementing our own transparency policy and hope that we can be helpful in your process as you consider best practices on this topic. We are encouraged to see more and more of our peers making transparency a priority and are grateful to the ILPA who has worked for years on establishing best practices in fund manager reporting. This had a direct impact on our ability to provide the best information we can to our constituents. We've worked extremely hard to provide fee and performance transparency especially and believe our policy is among the most comprehensive in the nation.

So I'll show you what transparent treasury looks like for Rhode Island today, but first I'll give you some background on how we got here.

Our efforts in transparency started about five years ago with the belief that Rhode Islanders deserve to know where their funds are invested and how they're performing. We had done a pretty good job of reporting on performance, as well as direct costs, in our monthly estate investment commission books, which are all published online every month. So we really wanted to focus more on fee transparency, as we had recently gotten into hedge fund investments, which are expensive assets, as well as -- we had always been invested in private equity and real estate.

So in that light, in 2013, we created our first comprehensive fee report, which included investment management and performance fees from every underlying investment in the portfolio for the prior fiscal year. Our goal was to capture both direct and indirect fees.

And I'll get a bit into the weeds here so bear with me for a minute. But we define direct fees as those paid out of our cash account when we receive a bill from the investment manager. There's an actual transfer of cash and it's picked up by our accounting system. So those are easy to track.

In contrast, indirect fees are those charged against our existing account balance, usually deducted from income or gains or cash balance at the fund level, so we don't receive a bill for it, there's no transfer of cash, and it's not picked up necessarily by our accounting system as an expense. However, it is still, the fees are still reflected in our values because we're reporting the values net of fees. Still, it was important to us to establish and to report on both of those types of fees in our analysis to create a true capture and true picture of what we're paying for investments.

This was not easy. As Jennifer mentioned, there's no uniform reporting standards among most alternative investment asset classes where a lot of these indirect fees lie. So we have over 100 funds across private equity, real estate, hedge funds, and quarterly statements to look at for all of those with also audited annual financials, and our fiscal year ends June 30th. So it was quite a heavy uplift, but we were able to, after a few months of work, create our first report. And the first report we published on was an asset class level. So it included underlying fees for every fund in the portfolio, but we showed it on an asset class level to the public and put that on our website.

We wanted to go a little bit deeper because we were getting some questions related to hedge funds, which were a newer asset class for us, and as I mentioned, quite expensive. So we asked each of our hedge fund managers if we could publish their fees, as well, line by line, also on our website. Again, we wanted to do management fees and performance fees and we wanted to show both returns, so usually one and a half in twenty or two in twenty, as well as the dollar amount that we paid them in that fiscal year.

After several conversations with them to get them comfortable, we got consent from each of them. They didn't have to give us this consent because this information they could claim was protected by confidentiality, but they worked with us and we're appreciative of that.

In subsequent years, we did the same thing with our other asset classes, which took a bit longer, but private equity, real estate, infrastructure, and then all of the publically traded funds, we began to report line by line on our website. And with those, as well, you know, the managers -- we had overwhelming support. So over 85 percent of the funds gave us their consent. Although, again, they could have held up, and some did, claiming confidentiality.

In 2014, we also began to publish performance on a fund by fund basis, and it was more calls to those managers to make things more difficult for ourselves. So it was a very intensive process to get to this point. Again, similar results, where over 85 percent gave us their approval to publish line by line performance, and this was on a quarterly basis.

Most of the funds that did not comply were Legacy Venture capital funds that were more secretive. And even since then, though, some of them have come around, where in the first year they did not want to give us their consent. And since then, they've been receiving this request from more and more investors and they realize this is the way the industry is going, so a few of them have come around, as well.

And when Treasurer Magaziner took office in 2015, fees and transparency were becoming more and more relevant to investors across the country and there seemed to be an inflection point.

So in 2015, the treasurer and the State Investment Commission decided to create the Transparency in Government Agreement. So that means going forward, any fund that wants to do business with Rhode Island must agree to the disclosure of their fees on an annual basis and performance on a quarterly basis to be published. We also launched Transparent Treasury, which you'll see in a minute. And it's a more robust reporting effort on our website. It's our -- we call it Investment Information Center.

So going forward from 2015, every manager must sign a transparency agreement even before coming before our committee to present for approval. We had already had them sign an investor code of conduct, which relates to political contribution laws and ethical standards, and they also already had to sign a Placement Agency Disclosure Certificate. So any time they work with a placement agent, they must disclose their relationship and they must confirm that they did not pay this agent in connection with Rhode Island's investment at a firm level to raise their entire fund.

As I mentioned, some of the funds are still grandfathered under the old policy, but some others have come around. And we would say that we have not -- this policy has not limited our ability to access funds. As Jennifer mentioned, this is the way the industry is going. So more and more investors are asking managers for this information and making it public increasingly, so it's made our job easier in terms of gathering the information. We believe the reporting has gotten a lot better, as well as their compliance with these issues. We see this happening across the country.

We definitely speak with the managers early in the diligence process about this policy to make sure that we don't get to the end and want them to present to our committee, but they're not comfortable with disclosing. So we make sure to talk about this from the very beginning.

We realize public pension capital represents a significant portion of institutional assets. We're an important part of the private investment ecosystem, so we have the right to ask for this information.

The good news for you guys is that since we began with this in 2012, the process has become much easier, again, thanks to the hard work of the ILPA, which has established a reporting template for private investment managers. It has everything we need to complete our fee reporting and we encourage managers to use this template. If they choose not to use it, we still require that they report these fees to us in some way quarterly.

I would say this also, our policies also helped us. When we get public records requests, a lot of time they're looking for detailed information on our underlying fund managers' performance, such as private equity and hedge funds and real estate. And with our reporting and our policy, we can point them to our website because everything is there for them to see, which I'll show you in a minute. But it's made things easier from, you know, not having to compile reports every time we get these requests, which are frequent.

We believe that asking for this information from fund managers helps with alignment. It shows them we're paying attention, that costs are important to us, and we believe it improves communication and reminds them who they're working for at the end of the day. It's retired teachers, public safety officers, and public servants who are relying on their retirement benefits.

So I'll show you a couple of views from our website. Sorry that it's small for people in the audience, but on the left side of the screen, you see the dashboard when you go to investments.treasury.ri.gov. This is our dashboard. (Indicating.) And we've got tabs for information on our policy, on our asset allocation, investment manager directory, and then performance -- in the middle of this screen (indicating), we've got tabs for performance, asset allocation, and investment expenses. So here on the left side, this is what our asset allocation page looks like. (Indicating.) It's got -- it drills down all the way to our sub, you know, asset categories there. And you can see the percentage of the plan that is targeted in each asset class.

On the right side of the screen, the bottom represents our net asset value of the pension over time and cash flows over time. So those are the benefit payments that are going out. And it's -- there's the ability to toggle over different periods of time.

The left side of the screen, again, on the bottom, it's net asset value and then performance over time against a benchmark of 60/40 and our policy, our planned benchmark, which is made up of the sub-asset class categories.

The right side of the screen is the first page of our fiscal '17 expense report. So this is what it looked like the first year (indicating) and this is what it looks like today. (Indicating.)

Today you'll see -- after this page (indicating), if you're on the website, you can scroll through several pages and it's got the underlying fund manager data. So the first column all the way to the left is every asset class in the portfolio. The next column over is management fees and then we have fund expense, which I forgot to mention.

Fund expense, we started reporting a couple years ago. And this is something that the prior presenters talked about. It's those other operating expenses that the managers are charging us, so anything like, you know, fees you're paying to administrators or for the audit, legal fees, accounting fees, things like that.

And then the third column is performance expense, so carried interest goes in that column. And the final is the total in bold. And on the right-hand side, that's the expense ratio for the overall plan.

So that's the -- the top half of those is investment expenses and the small piece on the bottom is just other operating expense for investment departments, so money that we pay our lawyers or that we're paying for research, any databases, our custody fees and our consulting fees.

And then we have an investment manager directory on our website, which is on the left side. So for every asset class in the portfolio we have -- you can click on the tab -- and then we have a little blurb on each manager in the portfolio. It's just got some basic firm information. And we've asked the managers for permission. That's part of the Transparency in Government Agreement. They agree to have us put a little blurb up about their firm. And then the next two pieces, we put information, how much we've committed to these managers and when, and what part of the portfolio it goes in. We've got also some proxy voting statistics on the right side.

And finally, Transparent Treasury is the law in Rhode Island. In 2017, at the request of Treasurer Magaziner, the general assembly enacted Rhode Island General Law 35-10-15, which basically makes that Transparency in Government Agreement part of law. So in future administrations, when Treasurer Magaziner is no longer there, it's still law, that we must have, be able to disclose this information for all of our managers if they would like to do business with us.

I'd be happy to answer any questions at the end and would like to let you know that we would happy to serve as a resource to you guys on this in terms of creating information on a website or the construction of fee reports.

Happy to be a resource to you.

CHAIRMAN TOBASH: All right. Thank you very much for your testimony. And thank you for leading the way in transparency, you and your team in Rhode Island.

I want to submit for the record -- and, Glenn, I'll give this document to you. It was worked on by the Treasurer's Office, specifically Lloyd Ebright. We've got a list of websites of pension funds or investment boards with notable transparency practices and Rhode Island is among them, as well as South Carolina. So I'll make an introduction to Lorelei Graye, founder of the Independent Consultant Group, Leodoran Financial.

So Lorelei is the founder of that group. And formerly, as she was a reporting officer for the public retirement systems in South Carolina, where Lorelei spearheaded the state's development and implementation of the annual fee collection validation and reporting process, which was featured in a prominent CEM benchmarking study.

Thank you so much for joining us today and your work in transparency.

MS. GRAYE: Thank you. It's good to be here.

So I appreciate the opportunity to address the commission on this important topic. It is all about alignment and transparency and reporting. I don't take the task lightly and I have a great deal of respect for the process you're embarking upon.

So I understand that the document that I had prepared has already been distributed so that you have that there. I did not bring slides. A lot of the information I want to communicate is more so with qualitative and with my words.

So at the risk of making this topic sound overly simplistic, I wanted to boil down, in that document, the ideas around reporting and transparency to concepts that will be easily remembered, because I think painting a picture is more important when we're talking about the types of topics that I want to, the type of information that I want to convey here today. So I hope that I can be respectful of our time frame, and I look forward to your questions at the end, as well.

Transparency is a word that we hear every day in government and around the globe. It's very important, but what does it mean to me and to LPs in private equity and specifically to public pensions? We've heard lots of information already this morning. And I think that probably the best way to boil down what we're after in reporting as institutional investors, as LPs, in this phase, can come to three topics. One is consistency, two is granularity -- and these are all words I know you've already heard -- and one is, the third one would be depth, or sometimes I like to appropriate the physics term optical depth because I think it paints a better picture of what we're after.

The reason that consistency in the incoming information is so important is because of the volume of information that investors are having to accept, to collect, to process, and review or analyze.

I did a quick review online of the latest CAFRS that are available on the state employees and the school employees here for Pennsylvania. I think a quick count gave me in the neighborhood of 600 private equity commitments, 550 to 600. That's a lot of investments and it's a lot of information coming in. So as you can imagine, something that's already been touched on, I think by Jen Choi here today, is that with a lot of public pensions we have a fiscal year ending on, say, June 30th, and a lot of the information that comes in the door that's the most detailed is on a calendar year. And we need that information on a quarterly basis. So that's some of the, one of the reasons that the ILPA template was so important.

And if you can just imagine what it's like when you have 600 statements coming in the door every quarter across these two pensions and the staff that needs to be able to consume that information, use it for reporting, use it to make decisions upon, it's going to be extremely important that that data is consistent.

The other part is that it is also granular. And I love this term granularity because it conjures images of like little grains of sand, because what we're talking about is getting it down to the most basic categorizations. So if you have consistent information and it is in a detailed format that -- those are two very important keys to having reporting that can be consumed -- can be potentially in the future automated without an extensive amount of manual work. And then also be comparable, sliced and diced and reviewed, and at the level of your portfolio as an investor.

Optical depth, that's an important term I think mostly because we have to be cognizant that what we're talking about here today primarily are costs, fees, carry, fund expenses that occur at the fund level. And the fund where these pooled assets are, they own these portfolio companies, these operating companies. There's other transactions at lower levels that have other data points. And what we're really focused on, mostly right now, is when it comes to this idea of transparency, is capturing what occurs at the fund level.

Now, there are some things that occur at lower levels that have impact, like the, what we call rebates, which are charges that occur at the portfolio company level, and that many times are negotiated in our

LPAs to create reductions to the management fee as a rebate.

So those are the three points that I wanted to make sure and convey here today.

At the portfolio company level, I don't want to get too far down that path, but there are other data points like our total costs, our remaining value, static attributes like the geography sectors that these companies are in, even the underlying operating details that investors like to know to understand value creation and that's like revenue EBITDA of these operating companies.

But the big takeaway here is that transparency truly is a multitiered effort. Investors are pushing to get, for purposes of disclosure and transparency, better, consistent, and granular information at the fund level. But on the front office side, many times we're also trying to dig further into the portfolio company level, so it's kind of important to remember we're talking about sort of two different layers here.

But today, I think the most important thing to convey is that unless -- that the folks on the front line of this topic, if you're on a reporting team or the accounting team for a public pension and you're trying to process this information and create the fantastic reports and the websites that we've seen Renee demonstrate here today -- Rhode Island really has taken it to the next level -- that information needs to come in in a more streamlined fashion. It's the lack of standardization, the inconsistency in reporting from one fund to the next that creates a lot of the hurdles.

Because if you saw the report that I have provided, there is a comparison. And if you saw this page, it looks like this. (Indicating.) It's a very simple page here. It has examples A and B. These are the line items taken from two actual, what we call partners, capital account statements, these quarterly reports that we get. These are two different funds, actual line items that are listed there. They convey the same information.

As an investor, you see the beginning net asset value, or market value, the changes that occurred within the quarter and then the ending value. But you can see that one has far more granular detail than the other. And in order to be able to analyze, compare, and in the future -- as Jen mentioned, the Holy Grail -- benchmark, we've got to get to more granular end data and a consistent level of fund to fund.

And that's only going to be accomplished through a collaboration or a coalesce around this push for greater transparency and best practices, such as the ILPA template, which puts this information not only into a prescribed set of data points, but also in Excel, in that case. And Excel was very important because it takes us away from what currently investors receive, which are PDFs, the electronic portable document format that you can look at and print on a screen that does not facilitate easily automation, easy consumption of this incoming data from say 200, 300, or 600 different investments every quarter into your own portfolio analysis tools as an investor, right?

And we have to move towards digitization. And that's what I'm very focused on today because the ILPA template was one of the primary focuses on that, as one of the contributors to this effort. We were very interested in making it an Excel form on an Excel sheet so that it would facilitate the investors who needed it to import this data, either through their service providers or themselves into their reporting tools. And I saw Excel as a step along the way to the future state, which I believe is digitization.

A lot of my role in the industry today, after some really great experience with a strong team in South Carolina -- I'm very proud of our team and what we did there. But a lot my work today is a dual role. I have a commercial function. I serve vendors in the field, investors, and even sometimes asset managers. But the other side of my role is this industry initiative work whereby we're trying to build consensus. Some people have even called it evangelism a bit in the field, which I kind of feel like that person sometimes, preaching out there about what we can do, what we can accomplish together. And the reason that's so important, as Jen mentioned, is ILPA, for example, representing 480 institutional investors over $2 trillion in assets. There's a lot of power in numbers. The current market conditions mean that investors are seeking, chasing with their dollars in many ways, the best deals, the best funds, the best managers.

But the tables, the way the economics work today, we do run that risk of not being able to get into the funds that we want sometimes. And so by standing out as the most demanding and most difficult investor we run that risk occasionally of not being able to access those funds that we want.

So it's important that we build consensus in the industry and that investors are able to work together like by endorsing best practices and then helping to implement those. And when it comes to the implementation, what that means is not customization of a best practice, not modifications of standards, but ideological and realistic adoption and implementation of those standards. Because those, a best practice, it is only effective when everybody can use it. And when we begin to modify a standard, what we do is we eliminate the carrot, the opportunities for scale and efficiency, which we have to utilize to sell on the GP side of the equation. Because as Jen mentioned earlier, they might have 100 different investors in a particular fund. And if 100 investors want a template or a standard with modification, then they're not getting, they're not going to be as excited about any best practice that we bring forward and say, "Here's what's going to move us towards that end state in the future."

So the most important things, though -- in that document, by the way, I mentioned a couple of the hurdles. Early on we did run into a lot of reluctance. Investors worried about, you know, becoming a difficult investor. And I think that what I found was that GPs generally were willing to work with them, especially if there were opportunities to automate or to stick to one template. GPs, the sensitivities that I saw, were about, you know, what are you going to do with the information and who is it going to be shared with? So I think we can also, when it comes to FOIA and the Public Records Act, I think it's very important to strike a balance.

We obviously can accomplish, based on what we've seen with Rhode Island today, we obviously can accomplish a great level of detail in transparency. But I would want to remember that some of the information beyond costs down into the specific strategies, maybe the confidentiality of the deal terms themselves, our LPAs, maybe specifics into how GPs create value, what do they do at the operating company level, those sorts of details might be considered more confidential and proprietary, and I don't know that those details serve us in the transparency effort as much as what we're establishing here with things like the ILPA template. So I don't think that's where we're going, but it's always important, I think, to remember that in any effort like this.

The future state is going to be uniform -- I'm looking for my notes here to make sure I don't get too far off track -- but uniform collection of costs details. And ultimately the goal is to be able to benchmark this information. And efforts such as this do continue to push the needle forward for transparency and alignment of interests because I think it is prudent as investors to be able to measure our costs and to be able to manage them.

And the most important thing, I think, that we need to remember when it comes to cost is that fees, the amounts, they're pretty high. The asset class is a higher cost asset class. And we can take that information out of context. So you need to remember that in context, what are the returns that are generated and how can we benchmark this information, how can we look at it across the portfolio and make apples to apples comparisons? Because frankly, the numbers are so big and when we're talking about investing on behalf of thousands of beneficiaries, the relative size of these numbers can be alarming. And so that's why I think it's very important to keep this information in context.

I think that one of the most important things to enable your pension staff to do their job and do it well is to be able to access information and to be able to be transparent at the same time. So I hope that those are things that will be taken into consideration. The only way that we're going to achieve the future state that we're talking about is through consistency, which is basically standard or standardization of reporting, and through transparency and sufficient granularity.

Now, this information, as we get better information, it becomes more useful over a period of time. So looking at information also in a, as a snapshot, one year or one quarter isn't as useful as being able to look at it comparatively over a period of years that more aligns with the life cycle of private equity.

So those are some of the things that I wanted to highlight today. Probably the most important takeaway, though, is that endorsing and encouraging the implementation of best practices is the best way to go.

And I hope that this information has been helpful. I look forward to your questions.

CHAIRMAN TOBASH: Thank you. And many of my questions have been answered through your testimony. I appreciate it, truly, very thorough.

I'll mention that House Bill 1460, one of my colleagues, Representative Brett Miller, has, in that legislation, required that we adopt the ILPA standards. And I just want to make a note that we've got, from our Appropriations Department, a cost associated with that of about $300,000, I think, a year. As a matter of fact, it may be 600,000 with both of the systems. And then the Independent Fiscal Office, who offers actuarial notes on pension, they said that it's a de minimis cost, or nothing.

Can you tell me about the cost of implementing ILPA standards as you see it?

MS. CHOI: I guess, if I may ask a clarifying question about the estimate, do we have any -- is there any further detail you can provide on the 300,000 or 600,000? What's included in that?

CHAIRMAN TOBASH: Yes. I read the fiscal note and I think the systems came back and said it would require additional staff.

MS. CHOI: I don't have precise estimates for what it costs other endorsing organizations that have put best efforts into implementation of the standard, but that seems reasonable. And I do believe, for the most part, if there is a cost to any implementing LP, it is staff to make the phone calls that Renee and Lorelei made to the managers to secure the data, to follow up on any discrepancies or gaps in the reporting.

And then a piece that we haven't really pushed on in today's conversation is the systems, the technology investments required for warehousing the data in a way that allows you to do what we're talking about, track between managers and track the information over time. So to the extent that that's not included in the estimates you've been provided in the fiscal note, I would say that that is a cost that some of the larger pension plans that we know of have endorsed and adopted the template are encountering now.

CHAIRMAN TOBASH: Great. Have you gotten any feedback from the plans that have endorsed the standards or the template and seen that they may have benefited from lowering fees?

MS. CHOI: I think that there's been probably some marginal decrease in fees going on for some time because fees and lowering fees has been a real focus of the negotiations. So to the extent that you can get the headline management fee down, conventional wisdom is that it's two percent. I think no one pays, in actuality, two percent. I think it's probably closer to 175 basis points for the most part. Although, we still talk about a headline management fee of two percent. But I do see that the offsets -- we talked about offsets being applied. So fees charged to portfolio companies that are subsequently offset against the management fee, we've seen those offset ratios increase, so that's also resulting in a lower net fee.

And in addition, I think the more visibility LPs have into those partnership expenses -- so all of the costs that fall outside of the management fee, but that you still pay for the most part either directly or it's netted out of the distribution back to you on the return, the more granularity you have on those, the more you can push on that in a negotiation.

So we don't have evidence of that, but I think all trends point to the fact that LPs are benefiting from the transparency and granularity.

CHAIRMAN TOBASH: Great. So without that requirement -- I want to be quick because we want to be mindful of the time. But, you know, based on the information that you have, I think that both systems have endorsed ILPA, but how do you think they're doing with utilizing the template and their overall --

MS. CHOI: I would hesitate to venture any sort of a guess as to how exactly they're using the information since I'm not embedded within the staffs, you know -- as Lorelei mentioned, the front line staff that are getting the data and what they are doing with it.

But I think for the most part the focus today is on acquiring the data and verification against the partnership route. So looking for outliers, looking for things that look a bit off so you can follow up with the manager to make sure that you have an accurate understanding of the costs.

CHAIRMAN TOBASH: Sure. Thank you very much.

Joe, questions?

VICE-CHAIRMAN TORSELLA: Thank you.

And I want to thank you, Ms. Choi, Ms. Graye, for -- I understood more clearly today something that I didn't get before, which is why ILPA, the ILPA template is so important as opposed to simply trying to get the information.

The real power of this is in the standardization, which is probably why ILPA as opposed to some vague industry standard was specified in the legislation that created us. And I do want to explore how we do that. One of our systems is requiring the others -- but I think that will wait till their hearing. But thank you.

Just a quick question in the interest of time and a hello to my colleague, Treasurer Magaziner. Do you -- why was it important to you to have the data public as opposed to simply to your trustees, and do you believe that you've lost significant -- do you think the tradeoffs of -- possibly, some lost exposure to some managers -- we don't know where they're performing -- has been outweighed by the benefits of transparency?

MS. ASTPHAN: So I think it was important for us to publish our fees because, you know, we were already, we were -- the portfolio and portfolios in general have become increasingly complex with different asset classes. And it's a lot more than the standard few basis points for, you know, public equity industries that investors are paying these days.

We don't have anything to hide from it. We think that we pay more for private equity because it's been our best performer over the long-term. And that's true, you know, still today. And so we don't have anything to hide from it, and we also just think it's really important for us and the public to understand what those costs are. And for them to know that we know and that we're asking for it and that we understand it and that we don't have any misconceptions about what we're paying and that we're holding managers accountable for it and we're holding ourselves accountable by asking for it and by reporting it. So it was important to us because also, we started with the hedge funds and we thought, you know, why not do it for the rest of the portfolio? It gives everybody a complete picture that we've looked at every line item in the book and have assessed the fees and, you know, are holding on to those investments and continue to make new investments because the performance has been positive, very positive.

I also think it does help getting ahead of, you know, these public record requests. We were spending a ton of time responding to them and we'd rather spend our time on investing and that's our fiduciary responsibility. So if we can produce these reports -- and now it's become quicker with things like the ILPA template. If we can just get these more automated and get better at it and get quicker at it, they're out there now for everyone to see, so we don't need to keep producing these reports every year or customizing them per the request. Everything that they would need that we believe is public information is out there now. And the rest of it we've determined is proprietary.

I don't think that we -- we have never had a manager say -- well, my colleague said a couple years ago, he was at a conference talking to a venture fund and they said, "What are your disclosure requirements? Okay, we can talk to you, but we're not going to take your capital." He said that was a couple of years ago. And other than that -- and then we had a couple of funds that we were invested with that didn't consent to our disclosures. But other than that, we've never had a manager, you know, turn us away during a conversation based on our requirements.

And I think that they realize, you know, they have other public capital and I don't think that they would be able to lose that investor base. Public pensions are, as I mentioned, a significant portion of capital in the industry and we hold a significant portion of many funds. There are probably funds out there that have endowment and foundation capital and are -- we probably wouldn't see those. We may not see those funds anyway, or they wouldn't market to us anyway. But no funds that we've been interested in accessing have had an issue with it.

VICE-CHAIRMAN TORSELLA: That's good to know, especially because there's some overlap in funds you hold and we hold.

MS. ASTPHAN: Yeah.

VICE-CHAIRMAN TORSELLA: That's great.

CHAIRMAN TOBASH: Commissioner Torbert.

COMMISSIONER TORBERT: Yeah, I just wanted to comment.

I spent 34 years in the investment business, vast majority of that time as a senior investment officer in a trust department for different banks. And we always had that fiduciary responsibility and my clients constantly asked me about our fees. We had account level fees or we had -- because we were fee-based -- or we might use no load funds or whatever, so we'd always have to let them know about that, too.

And I think it's great that you're all doing this. I think you should continue. I always looked at the limited partnerships and things like that kind of with a slanted eye because you never really could tell where all the fees were coming from. And you know, I started this in 1984, so you can imagine what it was like back then, or maybe you can't.

And being a fiduciary is very important, but I was always on the personal side, not on the institutional. And clients every year wanted to become more and more aware of what their fees are. And I think that's great and I'm glad you guys are doing it, keeps everybody honest. And hopefully we can get better returns for our clients, as well.

MS. ASTPHAN: Thank you.

CHAIRMAN TOBASH: Thank you.

Mr. Nickol, do you have a question?

MR. NICKOL: Yeah. I'm curious about Rhode Island. Does your law specify ILPA?

MS. ASTPHAN: It does not, no. It just specifies that the information that we're going to be disclosing for each fund. They're basically the fee terms for each investment, so managing fee, percentage; performance fee, percentage; dollars for each of those and expenses. And then net IRR and net multiple invested capital performance.

It does not specify the ILPA, though.

MR. NICKOL: Now, I believe you mentioned that some of your GPs didn't want to use ILPA, but you accepted other types --

MS. ASTPHAN: Yeah.

MR. NICKOL: -- that were equal. What is the biggest pushback you got and was it legitimate, in your opinion?

MS. ASTPHAN: I would say some of the pushback was from funds that were much older. So we just have a small dollar value left in the fund. And they were -- their thought was, you know, they might be using the template for their newer funds or going forward, but they didn't want to use, to put the time basically into providing all of this information on a very old fund that will probably be wound down in the next few years.

I'm trying to think, there may have been another couple of funds that are just smaller. We try to invest in some smaller and emerging managers. And it's kind of -- I mean, some of them actually are fine with it and provide it for us and did it right away. And the others -- so I don't know that they can really claim that it's a resource issue. But some of them just said, "You know, we're not at that point yet. We'll give you the information you need, but we're not, you know, at that point where we're going to produce this report, everything in here."

So as long as we get what we need, we're okay, but we do notice more uptake on the template. It's much easier for us. It's also easier for our custodian bank to then record those fees.

MR. NICKOL: So it sounds like your approach is similar to what I understand California's is, where they try to use ILPA, but as long as they get the information, they'll accept.

MS. ASTPHAN: Yeah. Correct.

MR. NICKOL: Thank you.

MS. GRAYE: Can I add something to that? Just because I ran into that, as well.

And sometimes -- there's an initiative I'm working on. It's a cross collaboration in the industry called the ADS, or ADS Initiative, which means adopting data standards. And it's bringing together commercial firms who want to do a proof of concept to demonstrate the fee's ability of automation and adoption of data standards.

And one of the things that I think was very important about the ILPA working group bringing forward the template was that we looked at it -- and Jen can back this up -- we looked at it as a perspective standard. So on older funds, the granularity concept that we were talking about many times was not there. There would have to be manual efforts in order to accommodate the different line items that were in the ILPA template on some of the oldest funds that may not have had the detailed reporting.

So in those cases, sometimes, yes, investors have had to accept a minimum standard rather than require an older vintage fund without such detail to fill out the whole ILPA template. And that's not an unreasonable accommodation, I think, in an older fund at all.

CHAIRMAN TOBASH: Thank you.

Mr. Bloom.

COMMISSIONER BLOOM: Just a couple of things.

First of all, excuse me, of the 600-plus, 550 to 600 funds we have, I don't know how many there are that are old legacy funds. Some of them have as little as $100,000 in them and, you know, two and a half million, very, very small. And I don't know how to clean those up or if it's necessary to clean them up or whether -- it seems to me that reporting on a $100,000 fund would probably not be worthwhile.

The legislation that Rhode Island has passed requires those three things -- a code of conduct, what is done with the placement agents, the reporting issues -- that you tell potential investors before you interview them, and do you use a consultant, as well?

MS. ASTPHAN: We do use a consultant. The legislation is only, only relates to the transparency pledge, not the placement agent and code of conduct. Those two forms, that's more of an internal policy or a policy for our State Investment Commission that they've established years ago, probably in 2011. So the legislation only relates to the transparency pledge, which is the disclosure of fees and performance.

COMMISSIONER BLOOM: Okay. Does that mean that you cannot or will not sign a non-disclosure agreement, or do you make exceptions?

MS. ASTPHAN: Do you mean as we're doing diligence on a fund?

COMMISSIONER BLOOM: Non-disclosure of fees.

MS. ASTPHAN: Oh.

COMMISSIONER BLOOM: Would you sign --

MS. ASTPHAN: We will not sign -- no, we will not sign those.

COMMISSIONER BLOOM: Yeah. I guess if we get to the point, the tipping point, at some point, when fees are transparent, then I think competition will start. And I think that's really the direction that eventually -- we'll get into this business of private equity, is this competition. Because if you're not telling anybody what you're charging -- certainly Rhode Island would like to know what our deals are, if our deals are a lot better than yours or Iowa, et cetera, et cetera. So hopefully, at some point, we do get to the point where all the fees are transparent and people can start to compete.

Thank you.

CHAIRMAN TOBASH: Excellent. And then as a follow-up question, Mr. Torbert.

COMMISSIONER TORBERT: Are you able to collect a gross of fees and net of fees?

MS. ASTPHAN: Performance?

COMMISSIONER TORBERT: Yes, performance.

MS. ASTPHAN: Yes.

COMMISSIONER TORBERT: Okay.

MS. ASTPHAN: So we're making a better effort to collect gross of fee performance now because with the addition of -- so with this reporting that we're trying to do, where we're trying to get these indirect fees, once these start flowing through our accounting system, that will increase the gross of fee performance. But we always do report gross and net of fees when we can. But our report is just net of fees.

COMMISSIONER TORBERT: I've always found that very helpful in the investment business.

One of the organizations, we had GIPS compliance and we could see the gross or net of fees. And when you're talking to a client -- well, when I was talking to a client, it was very easy to explain how the fees work and how they related to gross and net. That would be very helpful.

MS. CHOI: If I could just say, across our membership, getting gross of fees performance is not yet the standard, so a lot of LPs are doing exactly what Renee and her team are doing, trying to build it back up from the net figure generated with the additional transparency around the fees charged.

CHAIRMAN TOBASH: Excellent. I want to thank you again. We are grateful for your testimony.

And I'll make the same request as I did with Dr. Phalippou. If the commission could be, its consultant could be in touch with you with any further questioning, it would be helpful in our endeavors. So thank you very much.

MS. CHOI: Thank you.

CHAIRMAN TOBASH: With that said, we are due for a break and I think our agenda says back at 12:30. But why don't we just extend that till 12:35? We'll do five minutes. We ran 10 minutes over, so we'll do 5 minutes.

Okay, great. Thank you.

(Recess.)

CHAIRMAN TOBASH: We're ready to begin the second half of a riveting day. And we appreciate the fact that David Draine, senior officer on public sector retirement systems from the Pew Charitable Trust is joining us as the next testifier on our next panel. David is no stranger to Pennsylvania, certainly helped with much of the work that we've done over the last number of cycles. He is a principal investigator and methodologist for Pew's research on public sector retirement systems. And Pew has published "Assessing the Risk of Fiscal Distress for Public Pensions: State Stress Test Analysis," which is very important. It's another one of the elements that this commission is charged with, stress testing. And we appreciate your testimony today and your continued help and support in our effort to be a strong and effective public sector pension system.

Thank you, David.

MR. DRAINE: Thank you, Chairman Tobash, Vice-Chairman Torsella, and members of the commission.

Good afternoon and thank you so much for this opportunity to share our research and our recommendations on stress testing for public pension plans.

In my comments today, I'll be discussing the overall concepts of stress testing, the growing move towards including it as part of public pension plan disclosures, how states have used it to improve policy and the policy debate, and how Pennsylvania can incorporate stress testing going forward.

My name is David Draine, I'm a senior researcher at Pew. My work has covered public sector retirement systems, the financing and sustainability of state and locally run pension and op-ed plans.

The Pew Charitable Trust is a nonprofit research and policy organization that is committed to informing the public and improving public policy with nonpartisan, rigorous, fact-based research. Pew supports over 40 projects in the field of government performance, covering a diverse set of issues ranging from public safety to the effectiveness of state tax incentives, to the fiscal health of public pensions.

Our retirement system's project produces 50-state research, provides technical assistance to policymakers in states and cities in their efforts to make public sector retirement systems more sustainable and secure. We approach our work with a clear understanding that there's no one-size-fits-all solution in an endeavor to provide objective data-driven analysis tailored to the specific circumstances in each jurisdiction where we work.

Stress testing is the concept of seeing how an adverse economic scenario will impact the affordability, sustainability, and solvency of public pension plans. This analysis entails performing long-term projections of key fiscal metrics, both using plan assumptions, as well as alternative assumptions in scenarios to examine what happens to employer costs, planned funding levels, and ultimately plan solvency.

Stress testing is a simulation technique used to determine the impact of downside economic scenarios on financial balance sheets. One of the most notable examples of stress testing comes from the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, a passing response to the Great Recession. For public pensions, stress testing involves taking existing actuarial projections and investment assumptions and sensitivity analyses as inputs and evaluates plan solvency and employer costs using various financial scenarios.

Pew's recent stress testing report, which included Pennsylvania among the 10 states we analyzed, found that overall, state pension plans were more vulnerable than ever to the next downturn and that states with unaddressed pension challenges or insufficient funding policies face a real risk of insolvency.

Apologies for kind of a small chart,

particularly for the audience, but at the top left, we're looking at actuarial measures of risk. This is looking at pension debt as a shared GSD for the 50 states. And you can see that it spiked after the Great Recession and hasn't really recovered in any meaningful way in the nine years of recovery since, so states that are at historically high levels of pension debt relative to the GSP.

At the top right is looking at the budgetary impact. So we see that states have nearly doubled the share of own-sourced revenue that is going to pay for public pension plans, crowding out other important public investments, even though by many actuarial standards, the contributions overall states are making are insufficient to the task of closing pension debt.

At the bottom left, we're looking at the level of risk through investments being taken on. The declining gold line is showing what a safe investment return modeled by a 30-year treasury could generate, while the top line is showing what pension plans as a whole on average are assuming. So you can see that a growing gap has emerged since the early 90s between these two, and that gap needs to be bridged by risky investments.

And lastly, at the bottom right, cash flow. We see a growing gap between benefit payments going out and employer and employee contributions going in. Once again, that needs to be filled in by investment performance, meaning that state pension plans are more dependent than ever on what their investments do.

So while we identified states that had unaddressed pension issues and faced real risks of things like insolvency, we also found that states like Connecticut and Pennsylvania, that had taken meaningful steps to turn around underfunded retirement systems, were insulated against the worst risks, though employer costs could stay at current high levels for even longer than expected if investments underperformed.

What we have here (indicating) is projected employer contribution rates for Connecticut and Pennsylvania, you know, once again, two states that had made substantial changes both on funding policy and on plan design. And we see that, in the expected scenario, contribution rates are going to rise to above 30 percent, or have risen to above 30 percent of pay and are likely to stay there for, you know, up to 20 years. If things go as expected and things get paid off, you know, we'd expect to see a decline in what employers would have to pay. And the risk of a low investment scenario here (indicating) is really that those periods of high contribution rates get pushed out further.

And not all of our news is finding distress.

You know, we look at states like Wisconsin that have maintained well-funded retirement systems that have been able to show stable costs and funding levels even under a stress test scenario.

So Virginia is the state on the left. You know, they really look like a typical pension fund. You know, about the average in state funding levels, somewhat typical funding policies. You know, and we see that over the next 20 years, employer contributions can end up taking anywhere from 10 percent of payroll to 20 percent of payroll. A lot of volatility in what employers, and thus taxpayers, may end up needing to pay.

And we see that Wisconsin, through a combination of maintaining a very well-funded retirement system and policies in place within their defined benefit to manage risk, has been able to keep relatively stable payments over time and is projected to continue to do so. So this is an example of how policy can end up managing the risks from, you know, making a long-term promise in benefits and investing in risky assets to keep that promise and also shows that, you know, in some cases, what stress testing really shows is that your policies are sustainable.

So the methodology we use for a report combines three inputs: Actuarial projections, capital and market assumptions, and projections of state revenue. An independent actuarial firm we work with developed the model we use for these projections. We then reached out to all of the pension plans covered in our analysis to share our preliminary results and to make sure we incorporated any additional data and context they would offer and that our expected numbers were matching their projections.

The capital market assumptions were based on each plan's asset allocation and estimates for the expected return and distribution of returns for each asset class provided by our actuarial partner. And then projections of state revenue were estimated using projections of state GSP growth, compiled by Moody's Analytics and the historical relationship in each state between own-source revenue growth and GSP growth.

What's important is that each of these inputs are things that states already have in systems in place to generate. Each state pension plan works with an outside actuary to generate actual projections. Each state plan should have assumptions regarding expected investment performance, as well as risk that can generate scenarios for the stress test analysis. And states regularly produce estimates and projections of revenue growth.

A state interested in adopting stress testing already has the tools necessary. It's also the case that using stress testing in states is not an academic exercise.

And policymakers are already using this tool to either identify the need for reform or to compare between different policy options. Even for well-funded states like North Carolina and Wisconsin, stress testing will help policymakers anticipate what employer contributions will rise to in the event of a recession and allow for better budgetary planning.

So Colorado is the example that we have up here. Their recent pension reforms were spurred by stress testing that found a more than 20 percent chance of insolvency under their existing policies. This allowed for the state to take proactive measures. Colorado PERA, the state's retirement system, offered a proposed set of reforms followed by debate and deliberation in the legislature. They arrived at a final package that was signed by the Governor on June 5th.

The changes were built around the idea of shared sacrifice with increases in taxpayer contributions, employee contributions, and cuts to the COLA. And then to better avoid future pension crises, the law built in automatic stabilizers if the plan actuary calculates a deficiency and formalizes a requirement for ongoing stress testing so they'll always have an early warning system.

And specifically what we're showing up here (indicating) is that the dash line and the gold line at the bottom are what our projections, as well as Colorado's actuaries' projections, what the fund would have done in a low return scenario before the reforms. As you can see, both projections show that the plan would have run out of money and hit insolvency. And then after the reforms were implemented, we did an analysis of what that looked like. And we see even in a low return scenario, they're able to turn funding levels around and see improvements, as well as having put measures in place to better track performance and the potential for fiscal distress going forward.

Stress testing can also be used in considering between several different policy options. And the Pennsylvania Independent Fiscal Office is responsible for providing actuarial notes for legislation affecting the Commonwealth's pension plans.

What they included in their reports that they used in deliberations that led to Act 5 were measures not just of cost of different options, but of risk. To decide between different options, policymakers need to understand the effect on cost, risk, and retirement security. And by working with plan actuaries to get analyses using alternative return assumptions, the IFO was able to incorporate stress testing into their legislative actuarial notes and provided a more complete picture to Pennsylvania lawmakers in their deliberations.

Stress testing analysis can also avoid policy changes though it adds risk or unexpected cost in otherwise healthy pension systems. Pennsylvania is experienced with this. In 2000, the state's pension plans were reporting a surplus, but subsequent decisions to provide the largest unfunded benefit increase in any state and to artificially lower contributions until 2010 contributed to a massive swing from surplus to funding gap. If policymakers and the public had more complete information about the cost of these changes and the risk of future downturns that would erase some of the investment gains from the late 90s, perhaps those decisions could have been avoided, leaving Pennsylvania in a much stronger position today.

Pennsylvania adopting stress testing would be part of a larger trend across states and would bring its reporting in better alignment with actuarial best practices.

Over the past decade, we've seen a broader view of actuarial standards and public sector financial reporting practices that have led to the conclusion that state and local plans need to understand and disclose risk. This has been reflected in the new GASB rules. They require liability reporting using alternative return assumptions, the Society of Actuaries Blue Ribbon Panel report -- which I think will be discussed in detail later -- and new standards of practice by the Actuarial Standards Board.

What we're seeing is that state policy is catching up quickly. Colorado, Connecticut, Hawaii, Virginia, and New Jersey have all enshrined stress testing in statute in the last two years.

Pennsylvania already has the pieces ready to conduct stress testing. The actuaries of SERS and PSERS have produced actuarial projections using both plan assumptions and alternative return assumptions. SERS and PSERS also regularly assess their investment portfolios, understanding both the expected return, as well as the distribution of possibilities, and report measures of investment risk. And the IFO could extend existing revenue projections further out over longer time horizons.

And while much of the underlying data analysis is already being produced in Pennsylvania, putting it all together in a public disclosure would better allow policymakers, stakeholders, and the public to assess the long-term fiscal health of the Commonwealth's pension systems and the budgetary impact of funding promised retirement benefits.

As we noted, including stress testing analysis as part of regular pension reporting can give early warning if problems arise, help improve budgetary planning, understanding what the employer contribution rate might rise to if you're a state budget officer or a school board, allow better assessment of proposed pension changes, and avoid costly mistakes.

I would like to thank the committee for this opportunity to share our analysis and recommendations. Our research points to stress testing as an important part of public pension disclosures, a finding supported by growing awareness among actuarial groups, researchers, and policymakers of the usefulness of this analysis. Pennsylvania has the opportunity to be among the forefront in adopting best practices in this area.

With that, I'm excited to hear from the remarks of my co-presenter. And after that, looking forward to questions and a robust discussion.

CHAIRMAN TOBASH: Dr. Spatt, if it's okay, I will introduce you.

Dr. Chester Spatt is the distinguished visiting professor of finance at the MIT Sloan School and distinguished senior fellow at their Golub Center. He's on leave at this point in time from Carnegie Mellon. He at one time served as the chief economist of the Securities and Exchange Commission from July 2004 to July of 2007. He has earned a Ph.D. in economics from the University of Pennsylvania. Thank you very much -- as well as an undergraduate degree from Princeton University.

Thank you so much, Doctor, for being here today and sharing your expertise and your advanced research on stress testing.

DR. SPATT: Thank you, Chairman Tobash, and thank you to the members of the commission for hearing me.

I'm pleased and honored to have the opportunity to present my views to the commission at today's hearing. I think in the interest -- the first page of my statement lays out my background, but Chairman Tobash did such a nice job of summarizing it, I think we'll save the time to focus on the substance of my remarks.

So let me begin by talking about what is financial market risk.

I think it's helpful to clarify these risks and to divide them into two broad categories, systematic risk or aggregate risk, which because of the commonality of risk across assets, cannot be diversified away by simply forming portfolios. And the second category of risk, idiosyncratic risk, which is largely eliminated by forming a diversified portfolio. Risk premium is earned in the capital markets by bearing systematic risks, but not by bearing idiosyncratic risk since the idiosyncratic risk can simply be eliminated in forming portfolios.

To shed more light on the nature of risk, I'll note that payoffs are especially valuable in weak states of the economy, for example, after low market returns. For example, risk is not really simply about the variability of returns and individual assets, such as when the returns of assets might be 30 percent one year and zero percent in another year. But I think people really started to understand, I think, more deeply the nature of risk after the financial market crisis. There we had a situation where you have this 40 percent decline in asset values, and for a while, it looked like this was a permanent decline in values. And it's sort of the permanence of the decline in values that I think really kind of points to some of the importance and fundamental nature of risk because one's liabilities do not go away in the presence of that, of such a decline.

And indeed, we just heard about the substantial underfunding that arose for a variety of reasons, partially increases in benefits, but I think also partially because of the decline in asset values. We heard about the substantial decline in funding that arose shortly after the financial crisis.

Pension recipients, to be clear, anticipate that their pensions are going to be paid in all states of the economy and that the plan sponsor will not default on these payments. I think that's a very important point to understand, because to the extent that that perspective is correct, that the plan sponsor doesn't plan to default on the payments, these actuarial liabilities are riskless. And according to financial theory, these obligations must therefore be discounted at risk-free rates, not at equity-like rates that have sometimes been suggested by accounting practitioners, such as the Government Accounting Standards Board. We would then measure the underfunding as the liabilities discount at the risk-free rates less the current value of the plan assets.

So this, of course, raises an important question. Is it reasonable, then, to invest in equity? Well, one important rationale for equity investment in pension plans is if it's valuable to hedge pension risks that are correlated with the economy.

So for example, if the collective pension obligation of the plan is correlated with market returns -- and you might say, "Well, how could that come about?" Well, one reason is if the market does well, the state hires more employees. And if the market does badly, the state has fewer employees, or alternatively if somehow the pension benefits were sort of linked to the market performance. So in that case, certainly it would be appropriate to own equity.

But you know, I think more -- however, I want to keep in mind that the liabilities of the plan, they're going to need to be played. And this raises an important issue.

Who bears the risk associated with inadequate market returns, such as, let's say in the case of 2008? Is it the workers? Is it the taxpayers? Which generations? These are kind of important questions. These are questions nobody thinks about. And in particular, it's really related to the investment issue.

And you know, at first principles really kind of implicitly suggest that plans need to be fully funded and they should be invested risklessly. You know, at the same time, I want to -- I'll come back to the investment point in a moment.

This seems to me to raise a question. Is it ethical for politicians and union leaders to negotiate underfunded pension plans without being transparent and without resolving the risk sharing issues? So that's a different aspect of transparency, but the underfunding in a way is an attempt to hide from both the taxpayers and the workers of the underfunding, to hide the fact that the benefit is not fully funded.

You know, this is collective bargaining, but who's assuming the risk? It's not the people who are negotiating either side, by the way. Neither the political leaders nor the union leaders who are assuming the risk. They're not assuming it personally. They're having the taxpayer, either the taxpayers or the workers assume it.

And to some extent, this is not so clear-cut, who's assuming it. It does seem to me that the commission, the treasurer and the trustees, could play an important role in the transparency of this issue.

Now, I want to be clear on the broad question of whether pensions should bear equity risks, despite what I've said. I'm not a hawk who absolutely, who asserts, "absolutely not, there should be no equity risk." I'm not suggesting that. But it does seem to me that one needs to think kind of more deeply than, I think, than most states have. That's not a particular criticism of Pennsylvania. This is a broad, national phenomenon involving state and local government pension plans, as well.

Indeed, I view financial theory as providing at least a little bit of scope for holding equity. Indeed, a small amount of equity can be held without moving the pension plan away from risk neutrality. If the investors hold little risk, they are locally risk neutral, and are able to earn a risk premium without taking on material risks. More fundamentally, to the extent that the economy has natural risks, this should be borne and spread out among capital in the whole economy.

Indeed, this is the essence of equilibrium risk sharing within the economy as a whole. The former equilibrium analysis under which demand equals supply, in fact, suggests that baseline relative demand should reflect at relative supplies and this leads to a form of what's called the capital asset pricing model, in which the demand for an efficient portfolio that's fully diversified along the risk-free frontier should equal the supplies of the risky assets or equal -- in effect, the tangency portfolio and in the traditional theory, equals the market portfolio. That's basically a statement of supply equals demand.

Another reason that both private and -- but I think it's also important to keep in mind that another reason that private and public plans sometimes decide to hold equity risk is the possibility that poor performance would create an opportunity to bargain away the benefits due to the threat implied by limited funding. And to just kind of make this idea more tangible, consider cases like Detroit and Puerto Rico. You know, if ultimately the resources aren't there, there may need to be some degree of renegotiation. So indeed, this is kind of another rationale for holding equity risk.

Now, this may seem kind of a little bit facetious on my part, but in a way it's not. You know, formerly, the private pension plans have had a bankruptcy or termination option. Now the states don't have that -- at least the formal bankruptcy option, certainly the states don't have under current law. But the idea of sort of walking away, this sort of makes the case for owning equity investment. And if the goal is not to walk away, keep in mind that the exposures are riskless. And that should perhaps reflect what the asset allocation is.

This impact is strongest, by the way, when the plan is most underfunded. And indeed, I discussed this in more detail in a speech I gave at Georgetown when I was SEC chief economist and specifically in a private pension plan setting.

Now, the broader point is that this potentially undercuts -- on the one hand, it sort of helps Pennsylvania bargain to the extent that the union leadership is foresighted. They recognize this, which means that they potentially may want to actually bargain about what the asset allocation is, although I don't think we've seen evidence of that to date.

So let me turn to, then, kind of a number of more specific and pragmatic issues in the context of the plan.

So first, the issue of leverage. You know, I understand there is certainly a significant amount of leverage in the Pennsylvania plan. Leverage leads to greater systematic risk and potential for further underfunding. And again, this lead to open the question, who bears the risk, the workers and beneficiaries or the taxpayers? The leverage raises concerns about excess risk taking unlike the more basic risk sharing. Equilibrium considerations don't support the generic use of leverage except perhaps, based on this argument that I have offered, as a way to bargain away, for Pennsylvania to try to bargain away some of the future benefits by taking on a lot of risk, and if things go bad, sticking it to the workers. Well, I don't know that the state necessarily wants to be in that kind of position. But in a way, the leverage strategy seems to be, that's kind of in a way what it's sort of about.

And by the way, an additional confounding issue with leverage is that the cost of management increases artificially.

This morning, of course, I think we heard some very interesting, and I thought very thoughtful remarks, based upon a paper by a fellow academic in Oxford, very interesting paper. So I don't want to say too much about illiquidity, but I'll make just a few observations on this front.

Illiquid assets, of course, have quite a big cost, but these in principle may only be a limited disadvantage in the pension plan context, because a pension plan doesn't need that much liquidity on a year-to-year basis. Still, such positions are challenging to assess and costly to manage. And relatively unsophisticated investors, including state pension plans, I think, don't have a comparative advantage in owning such assets.

And I think this morning we heard in a fair amount of detail why, in fact, something like a state pension plan doesn't have such a comparative advantage. It only does assets in terms of being able to really drill down through some of the lack of transparency that we heard about. The lack of frequent asset marking or valuation and the lack of market liquidity certainly, in my mind, even absent that evidence that we heard this morning, suggests the need for viewing projected and historic returns skeptically.

For example, historic and projected returns may be overstated, and indeed, it's clear that riskiness is understated. Why is that? Because the valuations in these private equity programs and various nonmarketed programs tend to be smooth. If you look at the valuations in the nonpublic assets, the return, the valuations seem much smoother, let's say on a quarter-to-quarter basis.

Now, the advocates of these plans, they would say, "Oh, well, that's because we're investing in less risky stuff." No, that's not the reason. The reason is because they don't have clean valuations, so they tend to look to the past in part. They place weight on the past. They tend to produce smoother numbers. So the numbers are artificially smooth, but what you get from historic data is really understating the fundamental risk.

And indeed, what does all this suggest? Well, if you suspect that the past returns are overstated and if you suspect that the riskiness is being understated, both of these effects suggest that the portfolio model -- that if you run a portfolio model on this, that's going to produce excess of risk holdings of the illiquid assets. And I would submit that this is consistent with the observation that the holdings of illiquid assets in some portfolios, including Pennsylvania's, are vastly disproportionate to the holdings in the economy as a whole.

Well, the -- I would argue -- you know, I'm sort of puzzled a little bit about this. How come the holdings here are like 40 or 50 percent? And then the economy as a whole is relatively small? And then I realized, "oh, yeah, there's these measurement problems." And so, you know, consultants come in and they claim that, "well, if you use the main variance analysis, you should hold very high numbers and it gives you a great risk return trade-off." I would submit, no, you're not measuring things -- that it couldn't be, then, that you are measuring things properly, because the equilibrium -- and that's part of the reason I went through the equilibrium argument earlier. Because if you do a proper analysis, it should be that at least for the typical investor. If these assets are only on limited amounts of the economy, their roles should be modest because they only have a slight weight in the capital market.

So one additional point that I want to highlight is that rents are being earned by asset managers with scarce skills. And my late colleagues, Rick Green and Jonathan Berk at Stanford, in fact, have a very important paper about this. The rents are being earned by the asset managers, and quite naturally, who bring scarce skills to the table.

But you wouldn't expect that the rents from those scarce skills would necessarily flow through to the investors. Why? Because first of all, it's a little bit hard to identify which managers are truly superior. And furthermore, if the managers have really scarce skills, they're going to be able to earn the rents because there's going to be a lot of competition for their services, and they're going to be the ones who are going to be able to earn really high fees. Superior skill is hard to identify and especially given the cross section dispersion of returns and issues of limited statistical power.

Costs are extremely important to consider in evaluating managers. Indeed, when I was SEC Chief Economist, I emphasized this to the papers that I presented -- by coincidence in Harrisburg -- the papers group about the value and importance of investing.

So one final point that I also want to note is that just as private pension -- so private pensions have pretty well moved away from defined benefit investing. And I think that there's an important insight in that. They have exited largely from, at least going forward, they know they can't eliminate the past plans, but many companies have gotten rid of their defined benefit pension plan. They substituted, they've provided more extensive 401k benefits, they've gone to cash balance plans, and the like.

And why is this? I submit this is because of the various incentives all have their problems. In my remarks, I kind of alluded to this, to some of these. And I believe that public plans would do well to do so, as well.

Now, this may not be directly within the purview of your commission, I recognize. But I do think the incentive problems are even more severe in the public sector, in the public plans, because both sides here -- at least in the private case, to the extent that the negotiators, the managers own equity in the business -- they're going to get the long-term benefits.

The politicians who make the final decisions, you know, their focus is within their anticipated life and public position. And if many of these issues don't come home to roost for decades, I think this is why we've kind of gotten into some of the problems that we have.

Anyway, let me stop at this point. But you know, I look forward to the opportunity to answer questions on my remarks and look forward to hearing your questions, as well, on my co-panelist's remarks.

CHAIRMAN TOBASH: David, Dr. Spatt, thank you so much.

My head is spinning, Doctor. I don't know how well I'd do in your class. I'm glad that I'm asking you the questions --

DR. SPATT: I'm sure you'd do fine.

CHAIRMAN TOBASH: -- and you're not asking me. So it's tremendously interesting.

You know, I guess I have a question for the both of you, and you've done a tremendous amount of research and you've got a perspective that comes from so many different angles. It's really appreciated. Tell me about our historic vulnerability right now of our pension funds and, really, the economy that has invested so heavily in, what you characterize as a different investment portfolio than the rest of much of the economy within these funds, with illiquid assets.

Dave, what do you think about our vulnerability right now?

MR. DRAINE: Well, I think we're going to talk about this using our big 50-state picture. I think states like Pennsylvania that really have taken some meaningful steps, you know, really are -- even if the funding levels are low -- are in a better position for the future than the states that don't use actuarial funding policies, you know, and haven't managed their risks and things of that nature.

When we look at the big picture, one, you know, we've seen really, in the last two recessions, very limited recovery after the recession in plan funding levels. So is it a shared GDP? Is it a shared GSP?

You know, pension debt has been flat after the Great Recession. It was similar after 2001 and the Dotcom Crash. That has a number of drivers. One of them is simply contribution policies. You know, the policy choice to underfund in many states, particularly in good times, you know, when you have the ability to try to make up ground, has led to this, you know, ratchet effect of going up.

The second is if you look back over decades, we've seen this tremendous shift from safe investments to risky investments. And then from risky investments, simple risky investments like equities, to more complicated investments, you know, hedge funds and private equity and real estate, the alternative investments.

I think there's a lot of, you know, reasons to think that there might be gains from taking on that risk. You know, you've got these long lasting entities that have predictable cash flows. They can take on, you know, as daring as it is, they can take on some level of risk.

But what's certainly the case is that, you know, more complexity and more volatility, you need to understand that and manage that. Some of that goes into the work we've done on investment disclosures, but also, if you have a bond portfolio and you've got a very simple investment mix, then, you know, simply saying, "Well, this is what we think our expected returns are going to be. Let's anticipate that going further," may be sufficient.

You know that you're invested in the stock market and you know that your returns are going to, you know, largely follow the broader economy and you know that there's a business cycle. And you need to have some analysis, you know, available to policymakers and available to stakeholders and available to the public that tells you what that means in terms of state budgets. You know, so that's what we're seeing in terms of stress testing.

And I guess the last and final piece is on cash flow. We know that as baby boomers get older, as we have this demographic shift of fewer actives and more retirees, you know, every boost or every dip in your investment performance is going to have an outsize impact on your pension plan's fiscal health, and then ultimately on the taxpayers, simply because the retiree pool is, you know, going to be relatively large compared to the active pool.

And so kind of all of those pieces are why we see, broadly on a 50-state level, more vulnerability than we have, you know, at any time in the past.

CHAIRMAN TOBASH: So relative vulnerability -- and I understand your discussion on who bears the risk, and obviously, with defined benefit -- and we've made, taken some measures to try and offload some of that risk to the participants, to the taxpayer, down the road. But what do you think is the position right now in the state of Pennsylvania or else nationally?

DR. SPATT: Well, so I don't think, I don't have a strong view about that other than -- I don't think Pennsylvania is near the worst off states. The states that people talk about the most are states like Illinois, New Jersey, California. These are the states -- so there are papers, actually, that do some of the cross-state comparisons, and perhaps after the hearing I'll try to review that in more detail. There's a terrific researcher at Stanford named Josh Rauh who's done a series of papers about the underfunding issues in state pension plans and has actually authored cross-state comparisons that maybe date back years ago. That was done some years ago, so it may be kind of dated relative to the current market conditions.

It is a concern, I think, that there has been relatively little recovery after the Great Recession. And this may be related in part to the funding, to even the argument, it may be related to the ongoing funding issues. A lot of private portfolios have done extremely well because the return, because of -- you know, at least relative to the bottom or even relative to prior to the Great Recession, the overall returns actually have been okay.

I mean, if you look, for example, at where the market was in 2007, before the Great Recession, the DOW, for example, was at 14,000; now it's at 25,000. That doesn't take into account the ongoing dividends. So you've had asset values basically double, or even a little bit more. You know, those are perhaps not extraordinary terms of -- because obviously, you have the initial problems. So, you know, you would expect that there would be significant, you would have expected, perhaps, that there would have been significant enhancement in the situation.

I worry a lot about the issue of costs. So one of the main concerns that I have is that over time, there's been evolution to holding more and more illiquid investments. You know, and I've never really fully understood it, in other contexts, too, involving institutional investing. I've never fully understood the case for not investing mostly through the broad capital markets.

And indeed, within Pennsylvania -- and I know, you know, we don't have a "by Pennsylvania" program per se, but perhaps the leading -- but I would probably argue the leading low cost public investor is located in Valley Forge, Pennsylvania, namely Vanguard. And you know, they offer, for a lot of their products, they offer even to people like me, they'll charge me like four basis, they charge me four-hundredths of a percent to give me broad equity market exposure. And you know, obviously, those are lower cost opportunities, in fact, lower costs because they have institutional fees, as well. So I worry a lot about the cost issue.

CHAIRMAN TOBASH: Great. Then I'll move on to another -- I just have one thing really quickly, because you've kind of bridged over here back to the costs. So in your former role as the chairman of the SEC --

DR. SPATT: Chief economist.

CHAIRMAN TOBASH: -- I'm sorry, chief economist of the SEC, what do you think about this idea of transparency in a state-by-state model or even the SEC getting involved in a national model for transparency?

DR. SPATT: Well, I think more transparency -- so I found, very interesting, the prior panel, I think more transparency would be a good thing. I thought one of the important issues that was raised in the prior panel is that it's likely that the industry would be quite naturally resistive of different disclosures for each specific state because that's imposing the cost burden on them that ultimately the investors, of course, would bear. So I thought the idea of trying to have relative uniformity in the disclosures makes sense and it could be through a private group, such as the group that we heard from at the start of the prior panel. Potentially, it could be through the SEC.

Now, the SEC is sort of tricky because they don't tend to want to be -- they don't either want to be involved or feel that they have jurisdiction so directly over lower level government or also federal government, too, investments per se.

But anyway, I do think uniformity could be a very good thing. And indeed, you know, if the disclosure requirements were adopted, the point was raised that the pension fund could just reject kind of individual players, and that sort of makes a lot of sense.

I do think it's important that the disclosures be appropriately framed, that they not focus, for example, on -- because one of the objections sometimes about disclosures is that disclosures are forcing the revelation of really confidential information about investments. And I think one has to be careful about that.

CHAIRMAN TOBASH: Thank you very much.

Mr. Vice-Chairman.

VICE-CHAIRMAN TORSELLA: Thank you both for very interesting testimony.

I do think, Dr. Spatt, the question of the plan design is beyond the scope of the commission and one that would have some real disagreements on this panel. Although, I think, ironically, some of the things we can agree on. I mean, as somebody who believes in a defined benefit plan in part because of the difference in states and cities, in part because of the efficiencies.

Ironically, I think if some of the things that we've been talking about, like stress testing, had existed 10 years ago, we might have avoided, for example, the state's fairly dramatic underfunding of the plan and be in a different position today.

But you raise a lot of fascinating issues around kind of lots of things, liquidity and costs. But the one I want to focus on is this issue of should a stress test impact how we look at our liquidity profile in the fund. I mean, should that be a component of what a thoughtful fund uses to look at that? I wonder if you could both talk about that.

And then, in particular for you, Dr. Spatt, if you could, do you see any parallels between this and the stress testing that you helped implement in the regime for banks? It would be useful to hear that.

And from your perspective, Mr. Draine, this -- who's the intended audience for a stress test? Is it trustees or is it all of us here in the Commonwealth?

So one question for you both and two put together.

DR. SPATT: So I think the stress testing is very -- I mean, I think doing the stress testing is obviously very, is potentially important. It seems to me that the first order impact of a stress test would be to inform the trustees, of course. It would also be to inform the taxpayers and the workers and beneficiaries.

This kind of relates, this really relates closely to kind of the way I sort of frame the transparency issues. And why would it help to inform them? Because they would understand, then, that the bargain that their respective leaders were negotiating was kind of incomplete, and that sometimes there's a problem on one side of the ledger or the other. And that would seem to be very important.

Now, do I also see this as leading into the asset allocation, or why do I see it as relevant for the trustees, for example? Well, because to some degree, it does, you would think it would feed into the asset. And I think this is sort of -- and I don't want to speak for my colleague -- but I think this is actually part of the point of the underlying advocacy of stress tests, that it would feed into people understanding that in the bad states of the economy, that there's this cost and people are left holding the bag that don't realize it.

A lot of state pension plans are projecting these days future rates of return of, let's say, seven and a half percent or some numbers like that, you know, as if you can earn that risklessly and without taking into account the implicit risk associated with that exposure. And those risks are kind of what a stress test would pull out.

Now, on the question about how does this relate to the stress tests of the Federal Reserve. So the Federal Reserve stress tests were about looking at what would be the situation confronting our largest financial institutions in the event of adverse or really bad returns and the bad states of the economy. And in a sense, that's what the stress test would be doing here, as well. What would be the situation involving, let's say, Pennsylvania's pension plan, in the bad states of the economy? For that matter, what would be the situation involving New York's pension plan or et cetera? Although that would obviously be outside the jurisdiction of Pennsylvania. But you can sort of think of it as at a national level, just as the Federal

Reserve is stress testing the various banks.

Well, there's no analogous hit. There's really no analogous federal regulator to kind of -- and I'm sure the federal government wouldn't want to get involved in doing this because it would probably have to take on yet another kind of obligation. Because in a way, if they started to stress test the individual state pension plans, there might be kind of, some kind of implicit guarantee that it surely wouldn't want to go down that path. But in a way, I see it as sort of comparable.

MR. DRAINE: And a couple of bases to a couple of questions. Personal liquidity question, I think we've thought about this issue most in terms of deeply distressed public plans that have liquid assets and are wrestling with, you know, how much can you keep when, you know, your asset levels are, you know, twice your annual benefit payments. And in this case, you really have to ask the question, not only if things go as expected, can we have our liquid asset base given these things? But also, what happens if they go worse than expected?

You know, as you move further up the well-funded levels, you know, at least from that perspective, it becomes less of an immediate concern.

On the -- who's the audience? You know, I think it's a combination of policymakers. Obviously, policymakers in Pennsylvania and other states need to make the best decisions possible. So analysis, you know, that gives you an early warning of something, if the policies are not sustainable, something that gives you better tools to compare different policy options if you have them presented to you. We also say, obviously, the public and the stakeholders, you know, not only taxpayers, but public employees and retirees who need to know about the health of the system.

And then lastly, I think it's also useful to think about this as a budgeting tool. So if we know that there's going to be a recession -- you know, Mark Sandy put us out of the ring on June 20th, 2020. You know, who knows exactly when it's going to happen?

VICE-CHAIRMAN TORSELLA: What time?

MR. DRAINE: You can ask him.

But you know, we know it's going to happen and what does that mean for, you know, the state of Pennsylvania's budget? You know, you're going to have losses. It's going to feed into the actual, in terms of employer contribution. Similarly, school districts will have that same thing.

And we, you know, as part of the discussions and debate in Pennsylvania about, you know, the pension challenges, you know, we had the opportunity to talk with the School Board Association and, you know, we had various presentations and slides showing kind of how the contribution rates picked up over time and was projected to continue under the collar grades under Act 20. You know, the degree to which, you know, the prior increases in the employer contribution rate, future increase, whether they had come or were going to come as a surprise to many school districts, I think talks about the importance of giving people more lead time in budgetary planning.

VICE-CHAIRMAN TORSELLA: Thank you.

COMMISSIONER BLOOM: David, let me ask you, are you familiar with the stress testing that the systems are currently doing?

MR. DRAINE: In Pennsylvania, we're familiar with -- so, one, the stress testing in the asset liability studies, you know, is out.

COMMISSIONER BLOOM: Yeah. I don't want to ask you that. I guess there has to be some idea as to how much, what stress testing we should be doing and if we're doing it now. And what should we do or what should the systems do so they're doing enough stress testing at enough intervals so they're doing it often enough? What parameters should they be using and what parameters are they currently using and what changes will be recommended to the systems so that the stress testing would give the information and get the information out, at least to the boards, but possibly to the boards and the public?

Because the one thing I think that you were talking about is, you know, you've got 500 school districts in Philadelphia -- excuse me, in Pennsylvania -- you've got 500 in Philadelphia, too -- you've got 500 school districts in Pennsylvania and they're all going to be affected, you know, if we start to run into some significant problems.

So the question is, you know, how often? Are we doing enough? What parameters? Are the parameters we're using wide enough? And that's a lot of questions.

MR. DRAINE: So on the how often, I think, to us, this is something that can be easily incorporated in the annual actuarial valuation. That, you know, it's the same projections that they're already doing, but then adding in, you know, other return scenarios to see what those same projections look like, if you were, if your returns were one percentage point or two percentage points lower.

Second, I think having done those projections, we think there's real value in making part of the public disclosure simply the baseline projections of what you think will happen. I think the number of times we found either policymakers or stakeholders learn something valuable from just simply 20-year projections of what's going to happen if everything hits their target, tells us that that's a valuable thing to include.

And then, you know, kind of lastly on what's the kind of core standards and doing that same thing if returns were just five percent each and every year, if they had a specific asset shock, you know, kind of as envisioned in Dodd-Frank. Then on top of that, you know, certainly, this is something that many plans are doing on their own internally, you know, there's -- you can add on stochastic analysis. You know, you can add on, you know, other scenarios that seem, you know, relevant. You can add in questions about policymaker decision-making, particularly around the contribution rate. You know, we've seen places where, you know, the concept of stress testing, what happens if the state makes only 75 percent of the 80 as part of what's included. But annual projections of core measures under baseline and alternative return scenarios is kind of the core concept as we think about it.

COMMISSIONER BLOOM: Okay. This is not my strong area, stress testing, believe me. But I'm not sure who does the stress testing right now for the systems. And I don't know whether they do it internally or consultant. But it would seem to me that independent actuarial companies should, or firms, should be doing the stress testing or am I just way off on that?

MR. DRAINE: So it can be done within the plan's actuaries. I think one strength that we see broadly in Pennsylvania and how they've handled -- and actually, I think something that other states could look at as a potential model -- is there's an actuary hired by each of the two plans and then the IFO has a separate actuarial contract with a separate actuary that then takes in those valuations, but gives kind of an extra eye with expertise. And kind of the broader concept of plan actuaries and then, you know, having, you know, the state kind of having an ongoing relationship with a separate actuary to make sure that the state is getting the information it needs seems to be a practice that, as far as we can tell, has worked well in Pennsylvania and could work well in other jurisdictions.

COMMISSIONER BLOOM: Well, that certainly gives me some peace. I'll be able to sleep tonight.

CHAIRMAN TOBASH: Steve.

MR. NICKOL: Thank you.

Just a quick comment. Having been on the PSERS Board, I'm familiar with their annual asset allocation meeting, which I think we've all been invited to on the 10th. It's being held at the Pennsylvania School Board Association. And I believe their, you know, the asset allocation is the focal point. I believe they're also discussing stress testing they do. So if any of the commissioners would want to see firsthand one of the major pension funds in the state and how they handle the stress testing internally, it would be an excellent opportunity.

MR. DRAINE: And one of the things that we did in preparing our report, which we certainly appreciated, because this is incredibly useful for us, is have, you know, a call with PSERS and with their actuary to, you know -- because the purpose of everything we do is to try to say, you know, is to start off by matching the plan actuary projections as kind of the baseline, and then asking, "Well, what happens if different things change?" And so working with the plan actuaries to make sure that we were taking the same inputs and understanding it equivalently was critical to our analysis.

CHAIRMAN TOBASH: Excellent. Thank you very much.

You know, just one real quick last -- two words, discount rate. You mentioned seven and a half, we're at seven and a quarter for both systems right now. How does that affect, do you think, our ability to manage the debt that we have currently and forecasted through the future?

MR. DRAINE: So each one is, you know, the higher your discount -- you know, I think the way we think about it, you know, which is maybe not the most intuitive way, is that if you overshoot in your discount rate or undershoot on your discount rate, it changes just when you're going to pay. You pay the bill, right? You owe pension checks to workers and retirees. And so if you set it too high, you know, and you undershoot in an earlier year, it just means your bill later gets bigger.

Kind of the other piece of it -- and something that I think, you know, we kind of thought we were going to see in our stress testing analysis, but really was emphasized by it -- if you remember back to that slide we shared on Virginia and Wisconsin, and, you know, the -- kind of, we had three sets of bars for each state. And each of those is looking at a bunch of different runs, you know, simulated investment scenarios, all of which equals, you know, in one case seven percent, the expected rate of return, another 6.4 percent, kind of one of the scenarios that we looked at. And then the other, kind of a particularly low return scenario.

In other words, in each of these scenarios, the long-term investment was the same. And yet, the amount that employers had to pay varied tremendously. And you can see this in the kind of lived experience of, over the last 30 years, public pension plans have more or less hit their investment targets. And yet, we see $1.4 trillion in unfunded liabilities and we see severe strains in many states. And so, it doesn't just matter what your long-term investment is, it matters when good returns and bad returns arrive. And I think that has ended up being an underappreciated aspect for the risk for public pensions.

DR. SPATT: And I would emphasize that the amount of underfunding that people talk about, because it's usually based upon these seven percent-type rates, is vastly understated. And I think that's very important.

At a minimum, I would recommend that if one can't do away with that, perhaps because of the GASB treatment or for other political reasons, that one provide a second disclosure that would be -- whether it use the Treasury prices or maybe some spread, maybe single A bond prices or something like that to discount the cash flows. You know, if you're using a three or three and a half percent interest rate on the liabilities, because as I commented earlier, those liabilities are riskless, the amount of underfunding is going to be obviously dramatically higher and I do think that both the public, and I think the workers and beneficiaries, they should know that. They should know that. And this is, I think, a potentially important, yet another important dimension of transparency, which has obviously been an important theme today.

CHAIRMAN TOBASH: Thank you again so much for your testimony. The commission may be back in touch. We appreciate your consultation.

DR. SPATT: Happy to provide any assistance I can to the commission.

MR. DRAINE: Thank you.

CHAIRMAN TOBASH: Okay, great. I will make, again, a brief introduction.

We appreciate our last panel here. I know it's a long day with just a lot of information. And I think our first testifier is Ken and then I see it listed as Kenneth, so I'll say Ken Kent, if that's all right, consulting actuary from Cheiron. And we appreciate the work that Cheiron has done for the Commonwealth in the past. The consulting actuary has served, or is currently serving, as a vice president of pensions for the American Academy of Actuaries, president of the Conference of Consulting Actuaries, and chair of the Joint Committee on the Code of Professional Conduct, an advocate for vigorous stress testing in public pension management. Thank you very much for your presence today.

MR. KENT: Thank you, Mr. Chairman.

Thank you, commission, for inviting us to participate in this plan.

I do have over 40 years of experience and I have a fair amount of experience with the Commonwealth, to be clear. I think you call it PMRS. I was an actuary on PMRS. I'm also the actuary for the city of Philadelphia. We've also done work for the IFO. And in the past panel, where there was a discussion with regard to stress testing, the last go-round we provided them with stress testing of some of the legislative alternatives for their purposes. And before them, I worked with PERC.

I'm going to use a dialogue -- not a dialogue, but a handout. I'm going to read from it. I'm less comfortable doing that than just presenting, but I want to try to stay on track.

Since joining Cheiron in 2005, stress testing has been an integral part of my consulting for every one of our clients and is included in every actuarial valuation report. Today I'm going to present some background on why stress testing has come to the fore, define what it is, show how it works, and discuss its importance and demonstrate why it is, in our opinion, an essential tool for decision-making.

Pension systems are constantly in the news and mostly in terms of those with severe funding challenges. Gradually there are those emerging with success stories, but news is made through crises over successes. We continue to see funds have reached the tipping point, particularly with large multi-employer plans and some public plans that seem to be up against a wall.

The actuarial community and think tanks have made note with a consensus that seems that while not a solution, stress testing is an important aspect of measuring the risks and addressing them to mitigate the trends of systems and correcting them.

We have always felt that while the valuation process is necessary to benchmark the current progress of your valuation system and determining an actuarial determined contribution rate in meeting sound funding policy, to actuaries, financial stability for retirement systems, for a large part, has been the reporting representing a historic view of funded status.

When the valuation reports come out, the numbers are already history. The markets may have well moved. Unless the report provides projections of future funded status, you have no certification of the effectiveness of the funding policy. You don't know if, on a projected basis, it's going to improve the status and how quickly it will do so. And without an illustration of the alternative results besides those that are used as the actuaries best estimate of assumptions, you have not met or represented the risks of the system by disclosures and valuation report.

One thing that actuaries are easily willing to tell you is that you're never going to absolutely meet our assumptions from year to year. We hope you get close, but there's volatility.

So the first piece in a valuation report projection is a deterministic projection, where we show where things are going to go if you meet our assumptions. The second piece is stress testing.

A retirement plan is a financial system similar to a bank or an insurance company. The other systems are obligated to monitor their solvency through regulations to demonstrate their continuous viability and behavior under alternative economic environments to demonstrate their ability to hold up.

Anyone following the yearly concerns with Social Security are aware that, in their reports, they show three alternative assumption sets, their best estimate, an optimistic, and a pessimistic, and interestingly enough, unlike many pension funds, Social Security's greatest concern on volatility is demographic because their investments are defined already as U.S. Treasury notes.

So their stress testing is what happens if the population doesn't change as expected and doesn't grow so that you have new members coming in, paying into the system to cover the obligations for those who are receiving payouts.

To incorporate stress testing into your decision process, it's important to know its limitations. Stress testing is not a solution, but a forward-looking measurement of potential outcomes. It's not a decision, but a valuable form of information by which you can compare the impact of decisions on future outcomes. It is not a risk, but a visualization of the current and future risks and the ability to compare the implications of decisions on those risks. So stress testing measures the risk of a financial system's ability to meet future obligations.

For pensions, when we model them, things usually look like they will work out because when contributions have to increase to respond to financial conditions, the funded status always improves. This does not necessarily work where public plans are limited by a maximum legislative contribution rate, as was the case in the past for Colorado and why, as you saw, Colorado had a potential for insolvency. But what is not accurate is the assumption that the resources are available or anticipated to be available to achieve the funding, and we call that sustainability or unsustainability when the contributions get to a level that a public entity can no longer afford to make the payments.

Stress testing provides insight into how much those contributions can vary, allowing for sensitivity testing to define what is and is not sustainable and allows for the measurement of alternatives to mitigate getting to that unsustainable threshold. Your Act 5, for example, is an illustration of addressing finding some of those alternatives to avoid what might otherwise be considered unsustainable.

A practical illustration, we all watch the weather and especially when a storm is coming our way and we can see that they show us maps of likely trends, where the storm will hit. And in this instance, it shows the probabilities of each of those different points in time. Applied to a pension plan, we start with a baseline projection. In this case, we're illustrating a cost projection. And you see where, while the numbers, they are small, but the funding cost is 12.2 percent and gradually going down to 11.4 percent. So we look at that as a trend and an expectation that costs are gradually going down. Now, it might be a system that adopted a new tier and as new entrants come in and replace older participants, the costs are going down, something that you anticipate with Act 5.

But when we take that same projection and instead of applying the assumed rate of return each and every year, we let that rate of return vary within its expected range of volatility, because it represents a diversified portfolio, you may come to a very different conclusion in terms of what you should be budgeting for. Instead of a 12 percent, you might be budgeting for something like a 23 percent and taking advantage of those years when it's less instead of having to suddenly ramp up because you haven't looked at the risks if things don't turn out as you project.

Taking these same results -- let's see -- no. It's not going to work. What this previous slide (indicating) was supposed to show you is an interactive --

(Interruption.)

So on your printed copy, which we printed in the event --

To perform a stress test and a stochastic one at that, what happens is the first thing we do is that line that goes across the graph is the deterministic projection, the best estimate. We then run a thousand trials, allowing future returns to vary amongst, within the range of expectation based on a portfolio. And what you then get is a distribution of likely outcomes. That distribution then tells you that, "well, we might expect the costs to go up."

(Interruption.)

Well, in this one (indicating), we see that the costs are going down, but the distribution --

VICE-CHAIRMAN TORSELLA: (Indicating.)

MR. KENT: -- thank you.

VICE-CHAIRMAN TORSELLA: You're welcome.

MR. KENT: You're really missing the best part of my presentation because it's not working. So -- all right.

But what you see is the distribution where the costs can vary over time. So, for example, in this instance, at the end of the projection, we see that the costs are around 10 percent.

I've got a copy. You can look at your own.

VICE-CHAIRMAN TORSELLA: It's for them, not you.

MR. KENT: Oh, okay.

But by 2032, those same costs, there's a 20 percent chance those costs could be 18 percent instead of 10, and there's a chance that those costs could be zero. Similarly, there's a 70 percent chance that those costs could be as high as 30, 31 percent or zero. And there's a 95 percent chance that those costs will be under 47 percent and still zero. The reality is that if you turned around and said, "Well, our costs are currently 12 and we cannot sustain a cost of 30 percent or more," then what this tells you is what the probability is that you might hit the 30 percent and how soon that could happen. With that kind of information, you could turn around and ask the question, "what can we do today to avoid that unsustainable event occurring?" Without this information, you have no idea what's coming down the road.

One of the key things that we find is most important when talking about pension plans and looking at those plans that have recovered well and those plans that seem to stagger at trying to recover, even though as you heard, the market returns have been pretty good, is the net cash flow of a retirement system.

Net cash flow is contributions in, less benefit payments and expenses going out. Most mature systems, and both of your systems, have a negative net cash flow. That's common. That's why you prefund because it's anticipated at some point in time that that will occur, but the magnitude of that negative cash flow can have a direct effect on how well you can recover from an adverse market.

So on this first slide (indicating), we show a neutral cash flow. Contributions equal the benefit payments and expenses, but we showed two scenarios, a seven percent return each and every year and a return that goes down and up, but on average adds up to seven percent, and after ten years, you're at the same place.

If we in turn look at a plan that has a negative four percent cash flow, which is not uncommon in mature plans, we see that, in fact, if the markets go down first and then back up, still returning a seven percent, you're behind where you would otherwise be. And the reason is because money goes out the door whether you earn money or don't earn money. And if it's not there to recover, then you don't get the earnings back on those dollars. So the effective return here, instead of seven percent, is 5.42 percent, and that's why many systems continue to be surprised and frustrated by, "hey, we've had good markets, why isn't our funded ratio improving?" And it's a function of negative cash flow. Stress testing incorporates negative cash flow in looking at your projections.

The next slide is, to be fair, what if markets go up and then down? Well, you will be ahead of the game, but you won't be as ahead of the game as you might have anticipated after seeing those favorable markets, which is what everybody was feeling in the early 2000s after the 90s rolled through and seemed to demonstrate there was no way to lose.

So how do you use stress testing in terms of decision-making? Well, if -- and these aren't your numbers, but if your assumption was seven and a quarter percent with a volatility of one standard deviation of plus or minus 14 percent, this would be a projection of the future funded status you'd see where you could be. If you turned around and said, "Well, that's all great and good, but I'm not sure that we could really live with a funded status in 2026 that would get close to 40 percent," then you turn around and make decisions.

If your first decision is "let's reduce the discount rate, but leave the asset allocation alone," well, you've increased your liabilities, you've decreased your funded ratio, but you maintain the seven percent -- you've maintained the 14 percent volatility and you don't see much of an improvement. If instead you said, "We're reducing the rate, let's take the opportunity to also reduce our exposure in the markets by reducing our asset allocation to target that rate instead of continuing to target a seven and a quarter percent," you could see that now, using stress testing, you can demonstrate the implications on the reduction of the risk that the fund is potentially exposed to. And that's just one illustration of how stress testing, as part of the decision-making process, not only for asset allocation, but for benefit design and for any of your other aspects of assumption choosing, can be of value in providing for the decision-making process.

So without projections, you have no idea if your funding policy works. Baseline projections are never right. Uncertainty increases over time. Most pension plans today are mature and mature plans have negative cash flows. Negative cash flow plans are most vulnerable and forward-looking potential outcomes are important decision-making factors.

I left that one in. (Indicating.) This is an illustration of stress testing if you go on Google and find a couple of pictures. (Indicating.)

CHAIRMAN TOBASH: Very good. Thank you, Ken.

Next up, Bob Stein, former chair of the Society of Actuaries Blue Ribbon Panel on public pension funding, from the Society of Actuaries. And I will make mention again that Act 5 brings particular mention of us delving into that and utilizing the work that they have done.

Mr. Robert William Stein, former chair of the Society of Actuaries Blue Ribbon Panel, served as global marketing manager and partner for the Actuarial Services of Ernst & Young. Among other things, he's been a certified public accountant and a fellow of the Society of Actuaries, a member of AICPA, and a member of the American Academy of Actuaries.

Bob, thank you very much for being here today. And as I mentioned, we are tasked with coming up and trying to implement some of the recommendations of the society.

(Interruption.)

MR. STEIN: Well, thank you very much. I'm pleased to be here this afternoon for a brief discussion of the Blue Ribbon Panel's recommendations on stress testing and risk management and financial management work more broadly. I know you've had the material in advance. I'll try to be brief and get on to the question-and-answer part of the program.

Just a reminder, perhaps a refresher of who was on the Blue Ribbon Panel and what our charge was. I think we had a very strong membership on the panel. We had, what I'll call, left- and right-oriented think tank experts on pensions on the panel. We had the former CEO of the PBGC, we had a number of top actuarial, governmental, and union representatives on the panel. It was very interesting dialogue over the course of a few years.

We started our work in early 2013 and issued our report in early 2014. So we've been encouraging the adoption of stronger financial management practices, including stress testing, for a very long time. And I'm glad to see that the Actuarial Standards Board is now moving in that direction and that practice seems to be moving in that direction, as well.

Just a reminder, perhaps, of what the major risks are. To some extent, this is not new news, but perhaps it's interesting in the context of today's conversation where the vast majority of the discussion has been around the interest rate. I think it's wise to remember that there are a number of other major risks to public pension plans and plans in general. And I've identified some of them here. (Indicating.)

I think it's clear the -- we would agree, no doubt -- that the top two risks are investment performance and I would put as a close second the ability to consistently make contributions into the plan. I think in both cases, the Pennsylvania plan has had some adverse experience, so I suspect that you know the damage that the manifestation of these risks can do reasonably firsthand. But as some of the discussion alluded to today, some of the intergenerational issues, some of the workforce composition issues, I do think it's good to keep in mind that longevity, that is the lifespan of plan members, and the composition of the workforce, how many active versus how many retirees, are also very significant risks and they have become more apparent in recent years. And our area is really where most plans should be completing additional analyses often of the scenario in stress testing type.

In all cases, I would agree with the general consensus here today that scenario and stress testing is really important and I attribute that to the fact that it can perform three key functions for you. And by "you," I mean in this case the trustees and the staff that drives decision-making.

First, as Ken and some others have indicated, stress testing and scenario testing can quantify the financial consequences of the occurrence of risk. By that, I mean it can identify the impact of risk on funded ratios and on contribution levels and dollar amounts, two of the most commonly viewed metrics in a pension plan. Secondly, it can provide a framework for analyzing alternatives for managing the risks, that is, looking at options for reducing risk before they occur. Ken's conversation touched on that at the tail end of his presentation, and that's a critical element. And thirdly, it can aid, that is, stress testing and scenario testing can aid in the development of action plans for responding to and managing the consequences of risks once they occur. So it can be a, you know, "how big is the problem, what do I do beforehand to manage those risks," and setting up some actions in advance of risk manifestation so that one is better prepared to deal with the outcome of the manifestation of a risk event.

Ken has already defined and illustrated stress testing, I won't repeat that. I'll just focus on the panel's recommendations, which really focus on investment performance and contribution discipline.

First, as was alluded to in some of the prior conversation, the panel recommended that one analyze the impact of what I'll call normal volatility about the assumption. In the context of investment results, I think we all know that investment results, be it seven and a quarter or any other number, do not just come out year by year at the same level. There is volatility about that outcome. So even if we have picked the right long-term average return, that volatility about the assumption generally provides adverse consequences to the financial condition of a plan. And the panel recommends that that so-called normal volatility about the expected result be analyzed and more clearly understood than it is today.

Secondly, clearly, we focused on stress testing. In this regard, we recommend that 20 years of stress be considered in the analysis. That is 20 years of consistent adverse experience and that the financial outcomes, the financial results and implications on the plan, be projected for 30 years. We say 30 years because we think that will enable a user to analyze a year by year impact of the stress on contributions and funded status, see it emerge over time, as the experience deviates from the assumptions. And I think it's an important element of deciding when to act and when not to act.

The levels of stress that we recommend be considered are relatively severe, investment performance of three percent above and below the expected level of return, again, for 20 years consistently. We selected that because in 10 percent of the 20-year returns going back a century or so, that was the outcome. Over a 20-year period, results were 3 percent lower than the mean return during those periods.

And secondly, we strongly suggest that contributions be looked at, as well. And we recommend that scenario testing, stress testing, be performed at the assumption that 80 percent of the recommended contribution is actually made on time and in full.

This is a very simple example of the nature of the output of this exercise. (Indicating.) It's a slightly different form than what Ken provided, but it's a simple example of showing the impact, in this case, of the contribution, the effect of the stress event on contributions as a percentage of payroll. It's a sample plan, it's not the Pennsylvania plan. And I would simply highlight the top line here (indicating). Not unlike one of the charts that Ken showed, I think that shows the impact on contributions over prolonged underperformance in investment results. And I think it begins to hint at how the information can get utilized.

And I think that's the key question that you've been asking some of the panelists today and need to focus on. How can stress testing be used to answer critical questions? Can it be used to improve decisions that affect plan finances? I think you're hearing soundly, the answer is yes. Yes, it can. And I would say first and most importantly, in my opinion, scenario and stress testing makes it able for a plan to determine how much risk should be taken.

Ken alluded to this in some of his discussion in the jargon of risk management, known as defining your risk appetite. But it allows, once a risk appetite is defined, it allows the development of actions to keep the risk within those boundaries.

Stress testing might show -- this is a slightly different example, perhaps, verbally than the one that Ken provided -- but stress testing might show that in half of the future scenarios, the funded ratio will fall below 60 percent. That, of course, will drive up contributions. Trustees and staff in that situation can then debate whether or not they find that acceptable. Are they okay with that outcome? If they're not, then they can, as Ken indicated also, they can begin to examine options to reduce two things. One, the likelihood that that outcome will occur, and secondly, its order of magnitude if that event does occur.

And while asset allocations is a critical element to move to in terms of addressing that potential outcome, different funding assumptions is also part of that, meaning different investment return assumptions. And I would also put on the table different funding methodologies, for example, moving to a level dollar amortization for a gain and loss amortization.

The Blue Ribbon Panel also believes that scenario and stress testing is an essential tool when considering plan changes. And I think I would probably state as strongly that scenario and stress testing is really the best way, maybe the only good way, to get objective evidence of the affordability and sustainability of proposed plan changes, and that an analysis should be done, of course, before those plan changes are adopted.

I'd like to turn briefly, as I work towards closing, to spend just a few minutes in some of the other risk measures that were recommended by the Blue Ribbon Panel. These are not as complex as stress testing, easier to understand, but they can be quite powerful.

This first slide (indicating) is a simple visual history of trailing portfolio returns as they emerge over time. And it's compared to the assumption of this particular plan. This is not the Pennsylvania plan, but it is a real public pension plan. This suggests that well before the financial crisis, the plan was encountering stronger headwinds and perhaps should have acted on the investment assumption well before it did, which was in 2016.

I think the Pennsylvania experience, which I've shown there (indicating) in simple tabular form, I've just provided the two measuring points, a 10-year trailing return ending last year and a 20-year trailing return ending last year. Obviously, both show a fairly sizable underperformance compared to the assumed returns. And I think a history of trailing experience compared to the assumption would help shed light on whether the risks being taken were becoming significant a considerable period ago and whether at some earlier time, it might have been warranted to begin to address more seriously the investment return assumption.

All of that information, though, the trailing information, is obviously backwards looking. This measures -- this measurement that I've got here (indicating) looks forward. It uses forward-return estimates using the methods that have been recommended by the Blue Ribbon Panel. I think one of the panelists in the earlier session referred to some of the capital markets theory on how to establish these rates, risk-free rates, plus spreads, and that's what the Blue Ribbon Panel had recommended.

Here (indicating) I've compared the Blue Ribbon Panel forward-return estimates with the Pennsylvania plan's investment return assumption as I understood it, which I got off the website. I hope I did that right. It looks okay, from what I've heard.

Again, it shows the forward assumption, which the panel recommends be the basis, the strong basis, for establishing the investment return assumption in the funding process. Not everyone has complete confidence in the forward-looking estimation method that we've used here (indicating). As was mentioned earlier, it's commonly used in the finance industry. And it's a good indication, one of many, but one indication of the risks being taken in the investment return assumption, and I think it says a lot about the need for all plans to take more timely action on the investment return assumption.

Two other quick measures, some of which were actually referred to the Q and A after the prior panel. The Blue Ribbon Panel believes that another strong risk measure can be developed by computing the plan liability and the contribution at the risk-free rate. This was discussed earlier. The difference between these risk-free measures and the plan's calculations using the assumed investment return helps to quantify the reduction in the plan liability and in the contribution that's attributable to earning returns in excess of the risk-free rate.

In this sense, it's a measure of the additional costs that would be incurred if the assumed out-performance in the portfolio of a treasury does not occur. The panel believes this broadly quantifies the magnitude of the risks in the return assumption and illustrates the consequences, i.e., the increase in costs, of not achieving the assumed rate of return over the long-term.

And finally, last, the Blue Ribbon Panel recommends that the plan's contribution be compared to the contribution that it defines as the standard contribution. That's a contribution based on clearly achievable investment results, typically a much lower investment return assumption, and funding methods that are designed to fund benefits over the employees' remaining working lifetime. The investment return assumption is based on our forward-looking return methodology and unfunded liabilities are amortized over 15 years. And the difference between the plan's recommended contribution and the standardized contribution helps to quantify the magnitude of the additional risks taken, not only in the investment assumption, but in the aggregate funding program.

In closing, clearly, many assessments of the risk to a plan's financial health can be made. We've noted some here today. I clearly think that the scenario and stress testing approach is the best way to accomplish two critical things. One, quantification of risks, I think measuring how bad it can be and expressing that in understandable terms as they measure the funded ratio in terms of the change and the contributions as a percentage of payroll is critical information for all users. And finally, I think it provides, really, the only objective and disciplined framework for making decisions about how to control and manage the risks being taken by the plan.

The Blue Ribbon Panel strongly encourages all plans to adopt the scenario, stress testing methods and to do some of the simple mental measures that I've just referred to.

I thank you very much. I hope that's been helpful and understandable, and look forward to questions.

CHAIRMAN TOBASH: Extremely helpful, and thank you.

So last up, I call him the new kid on the block, Joe Newton, Gabriel Roeder Smith Consulting. They were founded in 1938 and they have worked with many plans, including the infamous Detroit pension plan. They've done actuarial work for the Texas Retirement System. Public pension plan clients include Colorado, Hawaii, Rhode Island, South Carolina, Washington, Wyoming, and Texas. And he will testify today on some practical examples of stress testing.

Thank you, Joseph. Thank you for being here today. We appreciate your help to this commission and to Pennsylvania.

MR. NEWTON: Thank you. Thank you very much. And thank you for trying to discredit me before I get started, appreciate it.

CHAIRMAN TOBASH: Only just lamenting the fact that when I look at my fellow commissioners and your other testifiers, youth is your advantage, I think.

MR. NEWTON: All right. We'll go with that. We'll go with that.

Okay. Thank you. Thank you for letting me come speak to you today.

I don't work in any plans in Pennsylvania, so that could be good or bad, right? So we'll let you guys judge that. But I do work with nine other states. And for my company, I'm the developer of our stress testing software. So I get to see lots of other states even then. So I have a pretty broad perspective and experience with these different types of stress testings.

And so what I'm hoping to do today is just show you some very practical examples. Because what I see a lot with these stress tests, and especially the more extreme the stress test gets, is you go through the process, you create the expense, you know, the actuarial expenses of creating it, you give it to the decision-makers. They say, "Thank you." They put it over here on their desk, and now we move on.

And so what I try to do is get very practical with this information and the decision-makers and try to give them something that they can actually use to optimize their situation. Because you want to try to optimize the things you can control because there's lots of stuff you can't control or there's lots of things that just cause lots of friction to try to control. So try to optimize what you can control first.

And so what I'd like to do here, just look -- you've heard the definitions, but I've underlined some pieces, these are (indicating) definitions you can get off Google or different websites. And I've just underlined some important pieces here. Setting hedging strategies, ensure proper internal controls and procedures, efficient streams of cash flow and payout layouts, okay? So they're talking about the decision-making part of the process and your procedures.

From the Federal Reserve's website, here at the bottom (indicating), this is what they're saying while they're doing this to the banks. And I've underlined three main pieces here. Unique risk is the last one, I want to talk about that one first.

The Pew report, one thing I think is really nice is to read through the Pew report to give yourself a broad perspective because they looked at 10 different plans, and what jumps off the page to me is how unique the risks are. They are not all in the same situation. They don't all have the same outcomes due to the same stress. And so you can't put yourself in that situation either.

All the time, my clients say, "Well, wait a minute, I hear about my peer X and they've having to do YZ and A." And I'm like, "Well, yes. They need to do that because they're in that situation and here is why they're doing that. This is why it may not be applicable to you."

It works the other way, too. "Why are we having to do this? Why is it so much harder on us?" Well, here's why. You know, "here's exactly what's unique about you." So that's important, and right here (indicating) on the Federal Reserve's website, they recognize that.

The other two pieces are, can you make it through short-term, right? Can you make it through the short-term and then, what are your policies and procedures to help you come out the other end? And so that's what we're going to look at, and that's the idea there.

So the purpose is not to just take the retirement system and blow it up, okay? That is not useful unless your goal is just to close the plan, then yeah, that's probably what you want to do. But that's the whole reason why the membership doesn't want to do this at all, is because they want everything to look great. Okay, neither of those are good.

So imagine you're an engineer, you're a car company, and you're trying to come up with good ways to do seat belts and airbags. Okay, so you could run the car into the wall at 200 miles an hour and just obliterate the car, or you could run it into the wall at 10 miles an hour. Neither of those are teaching you anything, right? You're not learning anything about your seat belt or airbags. You want to be right there at the point where things are going wrong, right where they're going wrong, and that's where you can learn the most. And then you can start working on the little pieces, go back to the drawing board. Okay, how can we change it so that when -- right now, at 53 miles an hour, everyone lives and at 55 miles an hour, everyone dies. Well, how can we change that so that's 65? Like, what can we do to try to push some of these points out? So that's what the stress testing can help you with.

So what can you look at? How is your funding policy going to react? Why do you have your current assumptions? This is one piece of the puzzle, how strategic some of your assumption setting can be. And there can be a why, not just "because the actuary said so."

Why do we have different assumptions and methods than our peers? How is this going to change over time? A lot of systems might be okay right now. But it's easy to see, you know what, eight years from now, this is not going to work out, or the opposite. Okay, right now you're having to go through this really bad scenario, but if we can make it through the next eight years, it really starts to open up some possibilities.

What procedures can provide discipline during good times? And this gets back to the benefits talk earlier. Almost all pension plans across the country, you can point to some decision that was made during the good time that is causing problems now. So that's something to -- how can you self-impose discipline? And that can come out of stress tests. That's probably the most important thing to come out of stress tests.

And then why did we make those past decisions? I get this all the time. In Hawaii, we worked and worked and worked for years to get a solution put in place. And the solution is going to work and it's going to take time, but it's going it work. But the first two years after the solution was put in place, they had really good market returns. So all of a sudden, it looked like maybe they didn't have to go so far, maybe they didn't have the contribution rate -- didn't have to go quite so high. And so you get all the talk, "well, let's pull back on that." No, no, no. Stress tests can help you say "no."

You made a good decision. You have a 28-year problem, stop worrying about it, and let's move forward. Don't try to gobble at little cookies. Get your hand out of the cookie jar, and let's go forward, right? So that's the part there.

So what's the typical way of doing it? That was just talked -- it was just discussed, a couple of scenarios there. Typically, it's investment returns and typically, you take your model and you just start putting different investment return scenarios into the model. So you're choosing the model and you're seeing what the reaction is.

And this is just a sample one here (indicating) we do for clients. It's just funded ratio over time, given -- you know, it's just a very deterministic, very simple model.

Now, the one thing it does show is what I call the one percent test. And as Mr. Stein just discussed the three percent test, basically just saying, "Well, what if you underperform by three percent, or you might use some low standard deviations?" Well, one way I look at it is, if you can't pass the one percent test, then you can't pass the three percent test. And so I feel like your funding policy better be able to handle the one percent underperformance because that is going to happen. Like the three percent underperformance, maybe, maybe not. But if you're looking at all periods of decades out into the future, there will be a decade when you underperform by one percent and your funding policy needs to be able to handle that or you've already set yourself up for a problem, right? So that's why we do the one percent test and start out with it.

And I've actually got a lot of traction because if you can show someone, "look, if we just miss by 60 basis points, this thing falls apart," that's going to get action. Telling someone if they miss by 300 basis points, there's going to be a problem, well, okay. Well, come talk to me when we miss by 300 basis points. Like no one is going to be willing to stick their neck out for that.

My experiences, in general, in the political process, it's very difficult to think -- you know, extreme scenarios don't get as much action. It's the real ones, it's the one that, "oh, that can happen and will happen, we're not ready."

But I want to talk a little bit about a different way of looking at it. I try to look at it backwards, okay? Because lots of people -- you can come up with these different scenarios. But in general, they're just arbitrary. Okay, we're going to run one percent lower, we're going to run three percent lower, we're going to run five percent over time, like you're just coming up with these things. And based on your bias, you may select one over another one. You know, what if 5.8 percent return over time is where the line is that it goes from being okay to not being okay? Well, if you want to make the plan look good, you use the six. If you want to make the plan look bad, you use five and a half. Like you're able to kind of move that around.

I worked -- and then you might get a stress test that doesn't help you because you're not hitting the line. Again, it's where is the action?

I like the other way around. Define a bad outcome. Okay, we're currently putting in 30 percent of pay, we don't want to put in 34 percent of pay. Great, there's your line. What scenarios create 34 percent of pay? And you can get a lot -- the decision-makers, I find, can relate to that quicker. Because they can say, "Okay, how likely is that outcome? What can we do to manage that outcome? But we can all agree that's a bad outcome." We don't -- "We're currently 60 percent funded; we don't want to be below 50 percent." Okay, well, then draw that line. What scenarios push you below 50 percent? And everyone can agree that's a bad outcome.

And so, this was just a sample (indicating), there's lots of lines here. But this is a client we have where there's a corridor of plus or minus five percent of pay. The contribution rate can't go above five percent on the top or there's certain things that start happening. Likewise, it can't go below the five percent. So we just turn it backwards, and say, "Okay, what returns, what types of scenarios hit the line and at what time period? Are you comfortable with that?" Like, for example, the six and a quarter out at the end (indicating), that's the one I'm most struggling with. You know, the five percent over the next ten years, you know it's definitely possible, but that's a couple of percent range. We probably can make that. But only having 75 basis points range over the next 30, that one I feel less confident about. Like that's the one I want to watch and that's the one we're going to pay attention to.

This is another way of just kind of getting to the same idea. (Indicating.) This is stochastic modeling (indicating), so you're showing the percentages that have been discussed. And so the bars represent 25th to 75th percentiles. So the bottom of the bar is your 25th percentile. You have a one-fourth chance of being below the bar.

This is actually a good -- I mean, this is probably how you'd like yours to look. (Indicating.) You're currently 83 percent funded. You're moving towards 100 percent funded. And so you look up there where the -- see where the line kind of starts to just hold itself? (Indicating.) You know, even in the bad outcomes, you start seeing it just holding itself. So it's like, well, what's happening? Well, your funding policy is picking up the difference. The funding policy is kicking in and holding that line.

And so I had a board member look at that and said, "Well, that's great, but I would really like to hold that line above 80," even though, you know, 80 percent to me is just an arbitrary line. But to him this was important. What would he have to do to hold the line at 80? I said, "Well, okay, let's look at that."

So the answer is you have to shorten your amortization period. You have to make it so that you react faster, a little bit faster, as things are not going your way.

Well, that sounds great, but what are you giving up? There's never a win-win win-win win-win. There's always -- you're going to have to give up something.

And so the shorter your amortization period for new loss, volatility. That's the thing you're going to have to look at.

And so what we did is measure that out for -- and that's what we're showing you here. (Indicating.) So the top line is that 25th percentile, the bottom of the bar, okay? It's where the bottom of the bar sits based on the amortization period. The bottom red line is how much annual volatility in your contribution rate you're going to get, in general, depending on that amortization period, plus or minus. Doesn't always go up, right? We've lived in a

20-year period where it only goes up, but it doesn't only go up, okay? There's going to be up and down.

But then you see it at 25 years, which is where they're at. They're at 77 percent, where it's held, and they're getting about 66 basis points of volatility. And so to hold that at 81, are they willing to accept 77 basis points of volatility?

And so you think about, like, for a typical employer, especially like a city, about half their budget is paying a lot of times, right? So 77 basis points means you're getting about 35 basis points of volatility in your budget annually that you can't predict. Are you okay with that?

And so to me, that's your trade-off. There's where you're using stress testing to make that decision.

And here I'd like to point out, if you want a suggestion from me to you, the Pennsylvania Legislature, you currently have 30-year layered, okay, so a new gain or loss is 30 years. I'm not talking about the current unfunded liability; I'm talking about a new loss that we don't know about right now. Well, look at this graph right here (indicating), look at this graph, it's what's happening. Every time you go for five more years, the top line is taking another whole step down. There's no diminishing return, there's no slowing down. But every time you go out on the red line, you're getting less. So you're getting less reward for taking that, another unit of risk. See what I'm saying?

So to go from 15, it's 104, and you're at 85. So to go to 20, it's 77. So you get about 30 basis points of volatility dampening and you had to give up 4 percent on your funded ratio. But to go to 25, you only get another 11 basis points of volatility dampening. You go from 77 to 66, but you have to give up the same 4 percent in risk. And so I'm just saying, if you're sitting out here at 30, well, look how much -- there's really no difference between 25 and 30 in the grand scheme of things. Seven basis points difference in your contribution rate. But you can move that risk closer so it doesn't cost you much over time.

So that's one thing to think about, is why you're at 30. You're probably at 30 because it was negotiated on the day when you're trying to go through the process and maybe it cost you a little bit more to go with 30, and so people don't gravitate to that. What I'm talking about is a new loss in the future. What are you going to do with that next one? This is something that can help.

Okay, so just to go forward. This is the perfect scenario. (Indicating.) This is the one you'll see lots of times. This contribution rate is going to go flat till you get to 100 percent funded and it drops. Okay, this doesn't exist. We just talked about this. This isn't going to happen.

And so what drives you crazy is you see so many decisions on funding policy made in this scenario. This is not the scenario. This isn't going to happen.

So I'll just ask you the question. Here is two funding policies, both that have the same. We'll call them funding ratio risks, or downside risks. Which one would you rather contribute? Would you rather contribute the red line or the blue line?

And so, what I call the hybrid, or a funded floating policy, basically, what you -- this is the discipline. In the future, when the contribution rate might, could go down, when the actuary and all of his black boxes says, "Yeah, we can go down by 30 basis points in contribution rate," don't. If you're 60 percent funded, then come up with a rational reason that the contribution rate should never go down. Like if you just think about it that way, you know, the math might say so. But no, hold the line.

And so you see the red line just stays up, the blue line goes down, comes back up, goes down, comes back up. You're not having to -- because, you know, when the blue line goes down, you're going to spend that money, and then it's not there anymore. So when it goes back up, people are going to yell. They're going to forget that it went down.

And so, this is huge. We can put these types of policies in place and show the client that 75 percent chance, your contribution rates will never go up again. And if you can make it four years, if you can get four years without having to go up, you're up to 90 percent chance your contribution rate will never go up again.

So we've got Utah working on this. And we've now been able to lower their discount rate twice and not increase contributions, okay?

This is what I'm talking about being strategic. Looking at this thing optimizing, because this is not going to cost you benefits. It's not going to cost you much. It's not going to cost you anything next year. It's the next time it can go down, don't let it, okay? It's simple. But that's what that is.

And this actually showed up in the Pew report, so I put this (indicating) in there because Pew, I thought, did a nice job with this one. This is -- you see on the right here (indicating), South Carolina uses this same approach. Look how narrow, okay?

So again, just don't let it go down. If you don't let it go down, you don't have to come back up, and you will. We know, it's not just going to go straight down.

It's going to do some of this. (Indicating.)

Okay. All right. For the time, I'm going to skip that one. (Indicating.)

Here (indicating) I just want to talk about benefit provisions real quick. We talked about it earlier, the discussion was on the Wisconsin COLA. But I just want to reiterate that. There's nothing that shows positive results in the stress tests like these contingent COLAs. And you can see how much narrower that is. (Indicating.)

So I'm not talking about gain sharing, some of these old provisions you used to hear about, where you just assume zero COLA, you're not funding to a COLA, and if things happen to be great, you pay a COLA. Like, that's not what I'm talking about. I'm talking about funding towards a COLA. So your intention is to give it and you're trying to get there, but if certain contingencies aren't met, that's one place where the liability can begin to release some of that liability and not just shift it all downstream to your new hires, which is kind of the traditional approach.

And so I just want to talk in general, across all the clients I've done over time, what's some constructive things you can think about just from stress testing that are probably going to be true. One, this was talked about earlier, if your funding policy doesn't automatically adjust in bad outcomes, it's not going to work. You have to have a funding policy that will adjust to bad outcomes. Two, funding policies that enforce discipline and hold rates up appear to have a profound impact on these outcomes. Three, and this one's a little bit maybe against the grain, but you can get too short on these amortization periods, I think. Because you begin to create so much volatility that that's an unsustainable outcome in itself.

And what I'll do a lot of times with clients is run, say, a thousand scenarios. So I run all these generated random scenarios and then go in and actually pick the ones that are really close to my expectations. So if I'm expecting seven, run the thousand scenarios, and pull the 15 scenarios out that are 695 to 705, that are the actuals. So these are ones meeting the assumption and show that to the client, and say, "Could you do this?" Because what you'll see is like, it's all of this (indicating), can you absorb that? If your amortization period starts getting too short, you can be in a situation where you could meet all assumptions, you could meet everything as expected, but you can't absorb three percent of change in a year in your contribution rate. And so how are you going to balance that? And you say, "Well, we" -- then you go to the other end of the spectrum. No. We showed that, too. If you go too far the other end, you're off on the other end, you're not reacting fast enough.

So you just have to be careful with that. And it's going to be different across all the different clients. Anyway -- and then benefit visions on the COLA.

(Indicating.)

Anyway, my main point, just with everyone else, every system has risks. There's no no-risk scenario out there, so you shouldn't be scared of it. But again, focus on what you can decide upon, not on just a given outcome.

CHAIRMAN TOBASH: Thank you. Outstanding testimony from everybody, just really important.

I do have a question for Bob.

Will the Blue Ribbon Panel, will they be able to submit to the commission their recommendations? I know you're retired.

MR. STEIN: Well, I was when I ran the panel, as well. But the panel, technically, has been disbanded. I'm not sure we're going to get them back together again to make a formal recommendation. I'd have to talk about that offline with you and with the Society of Actuaries.

CHAIRMAN TOBASH: That'd be great. If we want our consultant to be in contact with you, could you be the point person for that discussion?

MR. STEIN: Sure. Absolutely, absolutely.

CHAIRMAN TOBASH: And then, if we can get information on the report that was developed, that would be important, too. So we'll have our consultant, Dr. Monk, reach out to you, if that's --

MR. STEIN: Okay. You have not received a copy of the full report?

CHAIRMAN TOBASH: Yeah, that's --

Okay, great. Yeah, here's what we'd like to do, we'd like to submit the full report to the Joint State Government Commission for circulation as part of the commission's work. So we'll have them reach out to you.

Thank you.

So, you know, I think it's so -- your testimony was so compelling because one of the things that I struggle with as chair of the commission is the ability to have the recommendations from the commission implemented, so real life scenarios on how to implement these things can be extremely difficult. I know that we've worked for a number of years getting some changes in plan design, and I think many of my colleagues and myself have the battle scars to show for those efforts.

One of the things that I notice in the marketplace and our practice is that you have got participants that are suing people in fiduciary capacities of 401k plans. It's not uncommon today. And I kind of always look, you know, when is the day going to occur when defined benefit participants start going back after, or taxpayers start going back after the fiduciaries of defined benefit plans?

And you went through some tough times in Detroit. Can you tell me about your perspective on that and using that as a catalyst to implement change?

MR. NEWTON: Well, just to be transparent, I was not personally involved in Detroit, that's our south field office, and what happened there. So I want to be careful about what I say too much because it's a little hearsay, you know, to me.

CHAIRMAN TOBASH: But I think just from a broader sense, just the fact that --

MR. NEWTON: I would say the biggest issue with Detroit was not the pension systems, the biggest issue with Detroit was the sponsor. And if you go from two million active population in the city to 600,000, just about any debt of any kind or any future promise you've made to anyone is going to be a problem. And I think that's, that's really the biggest source of the issues.

I mean, there were a couple of poor decisions with some of the pension obligation bonds and things. But really, it's hard to look at that, you know, situation from just the pension perspective and say, "Well, that's what caused all this." Well, no, I mean, if the revenue of the plan sponsor drops two-thirds of what it was, there's lots of things you're going to have to deal with, including pension plans at this point. So --

And then, you know, it's all happening at the worse time, right? It's a perfect storm. It's when the investments aren't doing well. It's when the investment expectations of the future aren't doing well. It's when longevity is increasing. It's when -- so it's, so your active population is declining, your revenue stream is dropping off. You're missing the liquidity that was just talked about. So, you know, the timing was as big of an issue as anything else.

CHAIRMAN TOBASH: Yeah. I just think from the general perspective that participants in defined benefit pension plans, you know, can look at them, at their fiduciaries, the same way that people are on a private sector 401k plan right now. And the fact that we have become that society is really important for fiduciaries of these plans to be mindful of things like stress testing and costs associated with the plans. So thank you again very much for your testimony.

Vice-Chairman.

VICE-CHAIRMAN TORSELLA: Thank you very much. Fascinating panel and great testimony from all of you.

And I think the chairman's message to those of us who are fiduciaries of the plan is the risk, the real risk, that if we don't wrestle with costs and aren't clear about risk that we face. And that's an important, sobering reminder.

And I love the analogy, by the way, of the crash testing, that there are folks who could use this, who may want to drive the car into the wall, then there's folks who will want to use this to show that there's no danger at all. But looking at this is, how do we figure out, you know, when the use of an additional seat belt will save us is a great way of thinking about it.

One very easy question for all of you, should a stress test be conducted by an actuary or by an investment consultant? And if you can talk about your reasons.

MR. KENT: I'm biased. I'm an actuary by --

VICE-CHAIRMAN TORSELLA: I realize this is a panel of actuaries.

MR. KENT: And a question was asked earlier today, in the actuary valuation process, you have all the information in order to be able to perform a stress test. Stress tests should take into account not only the volatility in investments, but also the implications of the body of assumptions and the potential that any of the other assumptions may not be fully realized in the future. And I believe it should be included in the actuarial valuation report, which is what is looked at by the public as the actuary certification with regard to not only the actuarial determined contribution, but the soundness of the pension fund. So at least including something in the report that says, "Here's where we hope things will go based on our assumptions, but here is the potential risk of the results being different into the future," just so the report is well grounded.

Actuarial Standards of Practice 51, which just came out, is going to require actuaries to make statements with regard to the explicit risks of pension funds that won't necessarily require stress testing yet, but it's the first step in that direction. So that's my answer.

CHAIRMAN TOBASH: Steve, question -- oh, sorry.

MR. STEIN: I will say, if you're looking for -- you know, the mechanics of the process, I think, are probably best done by the actuarial profession as they've got the tools and techniques. And I think they can integrate the investment results, you know, variability around investment results, with the corresponding variability around the contribution levels and other factors that go into the calculation, changing composition of the workforce. So integrating all of the risks into a broad range of stress tests, I think, is something that the actuarial profession is good at doing.

But I would say that on the investment assumption side, and the variability of potential outcomes going forward, there are few actuaries that in my experience have sufficient capital markets knowledge and expertise about what is driving future investment returns, be it in the debt markets or the equity markets, that, you know, a tremendous amount of intelligent, thoughtful input from investment professionals are needed. Now, it needs to be challenged and it needs to be examined closely, but I think without getting that kind of input, you'll end up with more arbitrary, "let's look at this, let's look at that." And I think you want a more reasoned explanation and discussion around what the range of potential outcomes could be.

MR. NEWTON: Right. And I just want to build on that.

I think that's -- for an annual stress test that you're just kind of seeing where you're at, a check-up almost, yeah, it's probably just the actuary at that point.

But one thing we've been working with -- next year is going to be the first time we brought it all together. We're going to do the asset liability study, the asset allocation study, the experience study, all that together in one study. And I think, and once you start thinking about it that way, it's like that's the only way it should be done. To me, why should we have different answers and different results?

I agree with Mr. Stein's point that the actuary is probably -- you know, we can come up with some scenarios, but I feel like a lot of our techniques are a little, they create too arbitrary of outcomes, a little too random of outcomes, just putting Monte Carlo scenarios with log(n) and stuff like that. It just creates too wide of a distribution of outcomes. And so a lot of times I'll try to get, from the investment consultant, "okay, give me a thousand scenarios to run through my model," because I feel like they do a lot better job of capturing some of those nuances and patterns in the world.

But you know, of course, all you're doing now is just adding costs, right? I mean, all you're doing is stacking up if you're going to do it every year. So I'm not sure you have to do that advanced of a project every year. And I'm not sure how much -- if you go through all that last year, how much additional information are you getting next year? So I think you kind of have to split that up.

But I would say, "Hey, you have all these big projects across these different groups. You have one organization, one strategic objective, or very few strategic objectives, shouldn't they all be working together to come up with the best possible situation?"

VICE-CHAIRMAN TORSELLA: Thank you.

CHAIRMAN TOBASH: Steve, Mr. Nickol.

MR. NICKOL: Yes. Thank you. I appreciate your comment, Mr. Newton, about stress testing.

And it's always possible to find an extreme set of scenarios to blow up a system. I kind of react like that when people start talking about applying a 3.5 percent risk-free discount rate. And I would love to have them go talk to the Governor's Budget Office and the leaders of the Republican House and Senate, and the Democrats, as well, with regard to what that would cost the employer if that were put into effect.

And I keep hearing this risk-free scenario, it's just so pie in the sky for me when you have pension funds that are between 50 and 60 percent funded. Can you deter me in those feelings, any of you, as to why -- I mean, what useful information does that provide when you can't realistically fund at that level?

MR. STEIN: I think that's the question, what information can it provide? I don't think anybody, including the Blue Ribbon Panel, is suggesting that the funded calculations use a risk-free rate. But it's presented purely as a measure of risk. How much risk are you taking over and above the risk-free rate in the equity allocation and the debt allocation, let's say, to keep it simple? And what are those spreads? And then you can measure the impact of not achieving that.

So it's simply, I think the panel would present the view that's it's simply a measure of the risk in your underlying assumptions.

So, you know, there's a lot of, as was discussed in the earlier panel, financial theory for measuring the liability at the risk-free rate because it's a risk-free payout. But from a plan management standpoint, the panel would recommend, the Blue Ribbon Panel would recommend, that it simply be used as a risk measure.

We did not recommend that funding calculations be done at that level. We recognize, I think everybody does, it would be unreasonable and unrealistic. And if you did that relatively soon, you're likely to materially overfund the plan and create other problems. So we have used this forward-looking methodology that's based on the risk-free return plus reasonable and, I'll say, highly achievable spreads in the equity returns and the debt market returns and the credit spreads.

So we're not suggesting, I don't think anybody is really suggesting funding at those levels. But using that as a tool to measure how much risk you're taking, I think, is a legitimate exercise, which has now been, I think, incorporated in the Actuarial Standards Board

Requirements.

MR. NICKOL: I guess what concerns me, you know, working for a union, is that those numbers are then often used against defined benefit pension plans, period. And they don't seem to serve a useful purpose except from kind of the enemies of the plans to try to convince everybody to go to 401k-type accounts.

MR. STEIN: I don't disagree.

We had, maybe you know Mike Musuraca from the New York system, New York employee union. He was on our panel, and Mike was a forceful proponent of the thinking that you have just described, that it begins to be misused and used as a cudgel in the negotiations with union representatives. And I think that is a danger.

One has to recognize that, you know, there's a lot of different measures and they don't all point to the right way to fund the program. So, you know, evaluating risk versus funding, I think, has to be separated. Maybe it's a nuance in many cases, but it's an important distinction.

And I'm not aware, I have not read or seen anybody that's actually recommending funding at that level.

MR. NICKOL: With regard to the part of Act 5 that creates this commission, I've always been kind of bemused by the fact that we're instructed to implement the recommendations of your panel. My understanding is what your panel did was make recommendations.

There's currently a comment -- your panel is now disbanded. There's currently a comment period which ends tomorrow, I believe. And it will actually be up to the board itself, or I don't know, the pension committee of the board, I don't know which, to adopt the final recommendations or the final ASOPs, Actuarial Standards of Practice, which could be different than what your panel has actually recommended.

MR. STEIN: That's generally true, sir. A couple of distinctions. One, the panel that I chaired was a creation, I'll say, of the Society of Actuaries to bring together a dozen or 15 experts in this area to try to evaluate solutions or propose solutions to the pension funding problem.

We were not connected to the Actuarial Standards Board in any way whatsoever. The Actuarial Standards Board operates separately and independently. They have adopted and put into effect -- these gentlemen are probably more knowledgeable than I -- ASB51, which is the requirement that stress testing be performed, doesn't really define much about how to do that.

The other two, three, I guess, ASBs that are being evaluated now relate to disclosures, fundamentally, and recommendations on how to set the discount rate and how to set other economic assumptions and also noneconomic assumptions.

And there you're right; the comment period does end tomorrow. But they're really dealing with a variety of issues, some which the panel raised, around setting the discount rate and they may well come up with different recommendations. They've actually left it a little bit looser than the Blue Ribbon Panel would recommend in terms of using this forward rate methodology and setting the investment rate. So I think they will end up in a softer position, in my opinion, than where the panel was.

With respect to stress testing, I think we're pretty much on the same page. We're both recommending that it be done. I think there is a big issue facing the profession around how to provide some, I'll say, guidelines around achieving some degree of consistency around performing stress testing. It's a little bit like the conversation I listened to this morning around cost evaluations. Do you want every plan doing their own evaluations and using different metrics and different tools and so on, or do you want to try to move towards some consistent methodology to understand cost levels? Somewhat the same issue here, a little trickier because, I think, as Joe said, each panel, or each plan is very different and their level of stresses that you want to examine are somewhat different. But nonetheless, I think there is a need for additional guidance from the actuarial profession or as practice emerges, to narrow the range of practice.

One thing that I have witnessed in the pension practice, and these gentlemen may have a reaction to it, is that when there's a permitted variation from a midstream practice for various reasons, practice in reality becomes like this (indicating) -- and I'm a very strong proponent for providing guidelines that keeps the range of practice like that (indicating) so that you do have some rational understanding of what's being done. And you have a little better ability to compare conditions in one plan to the next in your search for solutions and alternative reactions.

So long answer, but there's a variety of players at work here. We made recommendations, some have been adopted by ASB51. I think there still needs to be work done there to, you know, narrow the range of likely practice in the near term.

And the other most important matter, setting the discount rate assumption. I think, in my personal opinion, I think the Actuarial Standards Board is still leaving it a little bit too wide open in terms of range of potential results that you could achieve.

I'm sorry for the long answer.

CHAIRMAN TOBASH: No problem.

MR. KENT: There's a difference of opinion amongst actuaries about that.

MR. STEIN: Oh, yeah. No question.

MR. KENT: Especially the proposed --

MR. NICKOL: Yeah. I have no life and over the weekend, I actually look at the comments that have been filed to date. And it appears that the area that appears to be at greatest disagreement was ASOP Number 4, and particularly investment risk to defeasement measure. And why that would ever, coming up at the solvency costs of disbanding a pension plan when you have constitutionally protected benefits, why you would even want a public bond to come up with that measure or what purpose would it serve? And I'd be curious, I mean --

MR. STEIN: Yeah, the defeasement measure --

MR. NICKOL: My interpretation of what I was reading in a number of the comments.

MR. STEIN: Yeah, I mean, that recommendation in the ASB was consistent with the recommendation that I talked about earlier, measuring the liability and the contribution at the risk-free rate. Fundamentally, the same calculation, slightly different nuance based on the way the ASB defined how to set the discount rate there.

But the panel, I mean, I can't tell you what -- these gentlemen may be able to tell you what's in the ASB Pension Committee's mind when they're looking for making that recommendation. My belief is that it's a reasonable measure of the risk being taken on the plan's asset allocation and its ability to sustain the differential between the risk-free rate and the assumption that they've got in the funding calculation.

You know, today, if you look at a 30-year, 20-year, they're about the same. Treasury, it's around three percent. You're at seven and a quarter. I think understanding the magnitude of the impact on the liability and the annual hurt that you'll experience if you don't get seven and a half or seven and a quarter, and you get three, which is where the risk-free rate is today, that's useful information to me. And I can then evaluate whether I'm -- would I be more comfortable moving down to a lower discount rate and beginning to narrow the amount of the contribution at risk, if you will?

So I view it as an element of the stress testing, an element of the risk measurement process, and simply one data point that tells me something about the magnitude of the risk in the program.

I think most observers would look at that and say, "Well, you know, three is -- I understand the

Treasury's at, I understand, seven and a quarter." I don't know how they got there, but that's a whale of a big risk margin, when you're at stock market highs and interest rate lows. You're not going to get the debt returns going forward. They're only going to go down as interest rates rise, right? The returns are, you know, the total return is going to go down. And we're at all-time highs on the equity market. It's only going to go down, too, in my opinion. So I think it helps to understand what the magnitude of the impact is in the pension plan. That's all. Not a funding calculation.

MR. NICKOL: But you do acknowledge a public plan with constitutionally protected benefits, it's that it's --

MR. KENT: Right. The word "defeasement" rate may be a poor use of defining the measurement.

But I agree with Bob. The difference between that measurement, whether it be Treasury rates or whether it be the entity's ability to float taxable bonds as a more appropriate way of saying, "How could we defease this unfunded if we went to an open market?" The difference between that and your assumption does define how much of the liability you are anticipating through your processes will be covered by additional investment return over a risk-free rate. And it will also help define when you reduce your discount rate, how much risk you're removing, taking off the table with the opportunity that if that amount of risk is still significant, then motivating you to look at additional opportunities in the future to continue to reduce the risk to the system, which benefits all sides.

MR. NICKOL: I guess I just fall back on the, you know, an extreme measure like that.

You know, sitting on a pension board and having been a legislator, some of the stochastic modeling makes a heck of lot more sense to me in terms of convincing me as a policymaker or pension board member as opposed to an extreme scenario of that nature --

MR. KENT: Absolutely.

MR. NICKOL: -- that's unrealistic, can't even be done legally.

CHAIRMAN TOBASH: Thank you, Mr. Nickol, for your comments.

And I think we understand that the actuarial's perspective data is very important and those more data points are very important for some assessment situations.

John, you have a question for the panel?

COMMISSIONER BLOOM: Just one quick question for Mr. Newton.

When you were going through your various scenarios, et cetera, et cetera, did I misunderstand you -- you said that the best way to keep our systems solvent over the long period of time is a consistent -- what's the word I'm trying to use -- not investment but consistent contribution --

MR. NEWTON: Right.

COMMISSIONER BLOOM: -- by both the members and the state. And if we don't deviate from that -- and by the way, you said in the very beginning, that most of these pension funds that have problems are because of euphoria, okay, and we can talk about what took place in Pennsylvania in the late 90s, which I'm sure you're already aware of.

MR. NEWTON: Yep.

COMMISSIONER BLOOM: And that's why we are where we are.

Thank you.

CHAIRMAN TOBASH: So that draws our hearing to a conclusion.

I thank our testifiers once again, very much appreciated. And as I mentioned to the other testifiers, we would appreciate if our consultant or the logistical people in this effort are in touch with you, that you further give us some consultation. It is very valuable to us.

I want to thank my fellow commissioners. I want to thank everybody in the audience. I want to thank the House of Representatives for hosting this meeting today and the Joint State Government Commission for their coordination and effort.

Our next meeting is scheduled for August 16th. We are tentatively scheduled, but we'll get more information in that regard. And again, if you want to submit ideas on further testifiers for the upcoming two hearings, if you can, please do that within the next two-week period. We will move ahead.

So thank you again, everyone. Enjoy what's left of your day. Thank you.

(The hearing concluded at 3:01 p.m.)

C E R T I F I C A T I O N

I hereby certify that the proceedings are contained fully and accurately in the notes taken by me on the within proceedings, and that this copy is a correct transcript of the same.

____

Summer A. Miller, Court Reporter
Notary Public