COMMONWEALTH OF PENNSYLVANIA
JOINT STATE GOVERNMENT COMMISSION

PUBLIC PENSION MANAGEMENT & ASSET INVESTMENT REVIEW COMMISSION HEARING

STATE CAPITOL
HARRISBURG, PA

IRVIS OFFICE BUILDING
ROOM G-50

THURSDAY, OCTOBER 25, 2018
9:30 A.M.

BEFORE:

REPRESENTATIVE MICHAEL TOBASH, CHAIRMAN

TREASURER JOSEPH TORSELLA, VICE-CHAIRMAN

JAMES BLOOM, COMMISSIONER

BERNIE GALLAGHER, COMMISSIONER

MICHAEL TORBERT, COMMISSIONER

STAFF INCLUDED:

SUSAN BOYLE
ASSISTANT DIRECTOR OF RESEARCH, HOUSE OF REPRESENTATIVES

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PROGRAM MANAGER, TREASURY

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GLENN PASEWICZ
EXECUTIVE DIRECTOR, JOINT STATE GOVERNMENT COMMISSION

ELISE YODER
PROJECT MANAGER, JOINT STATE GOVERNMENT COMMISSION

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: Good morning and welcome everyone to our third and final hearing. The commission has done a good deal amount of work so far. I just want to welcome everyone, including testifiers and members of the audience and interested parties.

Seeing that we have got a quorum, we have all our commission members here this morning, I guess we'll get rid of some of the formalities. But the first thing we need to do is approve the minutes from the prior two meetings. I understand that the commissioners are in receipt of the July 30th, 2018 minutes from that meeting.

Can I have a motion to accept those minutes?

COMMISSIONER BLOOM: So moved.

COMMISSIONER TORBERT: Second.

CHAIRMAN TOBASH: Second?

Seeing a motion and second, all in favor.

(Unanimous vote.)

CHAIRMAN TOBASH: Thank you.

And September 20th, 2018 meeting, I believe we're all in receipt of those minutes, as well. A motion?

VICE-CHAIRMAN TORSELLA: So moved.

COMMISSIONER BLOOM: Second.

CHAIRMAN TOBASH: Second, thank you. Motion and second, all those in favor.

(Unanimous vote.)

CHAIRMAN TOBASH: Okay. Thank you very much.

So as we continue to move down this path, we've got a tremendous responsibility that continues to lie in front of us and we're moving along very quickly.

And I just have to continue to say that I'm gratified by the amount and willingness of world-class testifiers to come to Pennsylvania to try and support our efforts to be as effective as we can with retirement benefits, the funds that we have under management right now, and helping to improve the performance of our pension organizations.

With that said, we will be moving along and we will be challenged to get our report completed by the end of our six-month period. There's much testimony that will be, has been developed and will be incorporated into the report.

And with that said, we've got a rough draft that we've got right now. And we want to submit that and put that into circulation to the commissioners at this point in time.

As I mentioned, the first meeting that we had was on May 30th and the report is due six months after that and we've got an outline here that I want the commissioners to have. And my hope is, at this point in time, that we'll have an opportunity for each commissioner to take a look at that outline and weigh in with the potential to offer some additions, potentially some commentary on amendments, and an opportunity to develop any additional information that they think needs to be included in the final commission report.

With that said, at this point in time, this is a rough draft outline. It is something that is not the final product of the commission.

I can just say this, that the commission has tried to be as inclusive as we possibly can in taking testimony that has come forward, and sometimes with a little bit of difficulty. I mean, as you can imagine, going out into the investment arena, it is oftentimes difficult to get people to come to Pennsylvania and offer their expertise. Many have done so, but there were many others that were approached. And the work that has been developed by the commission through testimony, I think, is very important. And I think it will help us, again, to have these systems perform at a very high level.

At this point in time, we've distributed that. And I just want to try and communicate a little bit more of the potential time line.

My hope would be that prior to Thanksgiving, that we have any additional information that other commissioners would like to incorporate into our final product. And that would be the week of Thanksgiving week, or the week of the 19th of November.

So here's my request. We've gotten a rough outline into the hands of the commissioners. If we can develop any additions or alterations that they think would be important, we'd like to have that information back prior to the 19th of November. At that point in time, I would encourage commission members to work with staff, to continue to help develop that document.

And for a final approval of a document, it is our intention, my intention, to have a meeting the week of December 12th. So the week of December 12th is when we would like to approve a final document that includes the work that has been consolidated through the offices and the testimony that we have received so far.

Commissioner Gallagher.

COMMISSIONER GALLAGHER: Thank you, Mr. Chair. I appreciate the time line. That's helpful in terms of the capacity of the commission and those helping us to prepare the report.

I would like to just ask in terms of logistics, in the effort of not duplicating efforts, how can we best be more efficient in that if we're all working on the same parts of this outline, that seems duplicative. How can we avoid that? Do you have any thoughts on that?

CHAIRMAN TOBASH: Yeah. So I mean, again, I'll thank the work of the Joint State Government Commission. They are the logistic element of the commission. So we have been communicating generally through them and I think that the coordination will continue to be done as such.

You know, Bernie, as this report comes together, we'll be voting on a final product and we want you to be able to work with, and other commissioners to be able to work with staff. So let's coordinate through Joint State Government. We'll be in close contact with our consultant, Dr. Monk, as well as other people. Susan Boyle from the House staff has been very helpful, the Treasurer's Office has been helpful. We'll try and communicate to the best that we can to make sure that all commentary is included in the report.

COMMISSIONER GALLAGHER: Very good. Thank you.

So is Joint State Government Commission drafting the report, so we should just all send it in and they'll integrate it?

CHAIRMAN TOBASH: So there will be different elements of the report. Some of them will come from my office, including the help of the legislative staff that we've got here; the Treasurer, their office has also taken much time and effort in coming to some conclusion and opinion and they will include their work in the document; other commissioners are welcome to do the same; and Joint State Government will be the facilitator.

COMMISSIONER GALLAGHER: Fantastic.

You know, given that we're going to give recommendations on transparency, as long as this whole process is transparent, then I think it will work out great.

CHAIRMAN TOBASH: Great. Thank you very much.

Seeing as we're going to continue to move forward, it's our intent, prior to November 30th, to have a rough draft, to finalize that draft for December 12th. Again, we want to be as inclusive as we possibly can and I think the process, quite frankly, has been gratifying to me.

You know, I knew that at the time that this law was established and the commission was established, that we would have a lot of work in front of us, and the magnitude of work, quite frankly, was a little bit beyond the scope that I expected. But with all hands on deck, I really, truly believe that we will come up with a document that is a laddered approach that can be given to the general assembly in their effort to make sure that as an organization that has established these retirement benefits and, you know, these retirement organizations, that we are keeping our eye on the ball to expect world-class performance for Pennsylvanians, because they really are a huge part of Pennsylvania's economy. And the fact that retirees are expecting a benefit that they've been promised, it's important for us to be mindful and make sure that we are expecting the performance that we can truly obtain.

Is there any comments from any other commissioners at this point in time?

(No response.)

CHAIRMAN TOBASH: Great. Okay. So we've got a busy day in front of us. I'll talk about our first technical difficulty of the day.

I believe that on the screens, you'll notice that there is a presentation there, but that will not take place until later in the session. And we're just going to have that there. It's not what we are talking about.

I think, Dr. Monk, that will be your presentation later on. But it's my understanding that SERS and PSERS are not offering any graphics, and we are going to hear from them, I believe, first. I think they are first up.

So with that said, we've got recommendations from the systems, Terri Sanchez, the executive director of SERS; Bryan Lewis, their chief investment officer of the

State Employees' Retirement System will be our first testifiers of the day. We're anxious to hear that testimony.

I'll just note that on October 10th, I sent a note. I think it's often very productive to be able to testify and take a look at yourselves. And I think with an early conversation after the commission was established, I had an opportunity to talk to Ms. Sanchez, as well as Glen Grell from PSERS. And there were some concerns about the way the structures are set up and some opportunity that those systems believe could be taken advantage of for them to operate more effectively and perform better.

So with that said, we're anxious to hear testimony today from both PSERS and SERS about just what they see within their operations that might be changed in order for them to operate at peak performance.

So welcome to the SERS testifiers. Thank you very much.

Okay, Terri, go ahead, lead us off. Thank you very much.

MS. SANCHEZ: Good morning. Thank you, Mr. Chairman and members of the commission, for inviting the State Employees' Retirement System here today to provide testimony.

My name is Terri Sanchez and I'm the

executive director of the State Employees' Retirement System. Joining me today to testify is Mr. Bryan Lewis, our chief investment officer.

Bryan has been with SERS since 2016. I have been with SERS since May of this year. And I can't think of a better time to be with this organization. For SERS, it's a time of tremendous change on many fronts, change that as one who stands in a fiduciary status to the 240,000 members of this system, I'm proud to be part of.

The State Employees' Retirement Board is in the process of enhancing board governance by adopting leading governance policies and practices that improve the effectiveness of the board to better serve the needs of the retirement system's members and employers with corresponding benefits to the taxpayers of Pennsylvania. We're also implementing one of the most comprehensive pieces of pension legislation in the 95-year history of this organization, Act 5 of 2017. And we're evaluating how we can capitalize on this opportunity to better serve all our members.

In addition, we have stepped up our efforts to pursue quality investments at reasonable costs. We stand strongly behind our steadfast dedication to honesty and integrity, and we're working hard to further advance our strong commitment towards providing as much transparency as possible without breaching our standard of care and fiduciary duties.

I hope you'll come to realize that the goals of this commission and those of the State Employees' Retirement System are more alike than different.

We're here today to respond to the goals of this commission and those of the State Employees' Retirement -- I'm sorry -- to the commission's request to receive the benefit of our perspective on specific, workable actions that can be taken to reduce investment expenses and improve investment and investment-related operations and generate actuarial savings of $1.5 billion over 30 years from the effective date of the legislation that created this commission, Act 5 of 2017.

SERS has been committed to finding and implementing positive practical approaches to strengthen the operational efficiencies and oversight processes of the system, with the ultimate goal of maximizing results for its members and paying promised benefits, benefits that were earned. These are responsibilities we do not take lightly.

Last year, the system paid approximately $3.3 billion in benefits to its members. Of that, more than 90 percent, about $3 billion, was paid to members who live right here in Pennsylvania. These $3 billion represent actual lifelines, providing important means of support and even survival, not only for SERS members, but for the thousands of small businesses across Pennsylvania that rely on them as valued customers.

To put this in a long-term perspective, over the 25 years, the SERS fund has earned over $50 billion and has paid $48 billion in retirement benefits. The SERS Board and team of investment professionals made difficult investment decisions in the best interest of its members through multiple market environments, cycles of suppressed employer contributions, unfunded benefit enhancements, legislative changes, and challenging political headwinds. In spite of these challenges, SERS returned 8.4 percent and outperformed a 60/40 index portfolio net of fees over the same period.

In short, we take our responsibilities as legal and fiduciary protectors of our members' retirement funds very seriously. And I think that will become evident throughout our testimony.

The fact is seeking relief from investment fees is a way of life at SERS. The system has been reducing investment manager expenses over the past several years, and in the past year, has reduced annual investment manager expenses by $32 million. That would be 46 -- or expenses have been reduced to 46 basis points.

We're happy to have the opportunity to share our plans and perspectives and even some of the accomplishments that have been realized since the beginning of 2016. Before we get to those cost-saving items, however, I'd like to take just a moment to assure the commission, our members, and the public that the State Employees' Retirement Board has an ongoing commitment to demonstrate transparency in its reporting of fees and investment expenses while working within our legal and fiduciary framework.

Each year, SERS reports investment and investment-related expenses, including ongoing management fees and performance or intent of fees to the general public in two reports, our supplemental budget book and our comprehensive annual financial report. Although SERS reports management fees and expenses paid to private partnerships, these amounts are typically returned to SERS later in the investment cycle. These returned amounts, however, are not retroactively adjusted in SERS fee reporting. So if anything, these management fees and expenses are overstated.

In an effort to ensure that all management fees and expenses are calculated and audited in a consistent, ongoing manner, SERS Office of Finance and Administration has created and implemented internal controls that comprise very detailed processes and methodologies. It's a multistep process designed to ensure that all relevant financial data reconciles and that management fees are calculated accurately and reported properly, so we don't pay more than the contractually negotiated amount.

Where the confusion comes in is with the term profit sharing, what the industry refers to as carried interest. It's our opinion and the opinion of some of the previous testifiers, as well as others in the industry, that carried interest is not a fee. In exchange for providing the capital for an investment, SERS is entitled to the majority, typically 80 percent, of the partnership profits. The general partner then receives its share of the profits, typically 20 percent, minus fees and expenses as noted. The general partner profits are determined only after, one, all prior management fees and expenses paid by SERS are returned to SERS, and two, the capital contributed by SERS is also returned to SERS. While we understand that the general partner's 20 percent of the profits of a successful investment could be a significant amount, this type of compensation structure works very well to align the interests of the general partner with those of SERS. When the general partner succeeds, SERS succeeds. Typically, for every dollar of profit the general partner receives, SERS receives four.

That being said, because SERS and others in the industry do not consider carried interest as a fee, it isn't something that historically has been reported or tracked by SERS. It was never hidden and there's nothing shady going on here. It simply wasn't something that was reported or tracked. And there's a very big difference between one and the other.

We're working in the midst of an industry where new standards are emerging and SERS is open to these standards. In fact, State Employees' Retirement Board Motion 2018-15, passed just this April, specifically directed SERS staff to request general partners of new investment opportunities in private markets to begin adopting and completing the Institutional Limited Partner Association fee disclosure template effective immediately. Similar requests are being made of general partners of existing investments in private markets effective January 1, 2019. So we are well underway in our efforts.

Thank you for your indulgence in letting me shine some light on this important matter. I'll now turn the microphone over to Bryan Lewis, our chief investment officer, to discuss our ideas for cost savings.

MR. LEWIS: Thank you, Terri.

Let me first say that SERS believes that the benchmark $1.5 billion in actuarial savings stated by the commission is an achievable goal. To arrive at that conclusion, we worked closely with our actuarial partners at Korn Ferry to perform projections as to what it would take to reach the $1.5 billion mark. Based on the projected assets for each of the next 30 years, we estimate that in the fund, if the fund were to reduce investment costs by 4.5 basis points and sustain that reduction in each of those 30 years, it will be sufficient to create an estimated actuarial savings of $1.5 billion as of June 2047.

For the record, we were working diligently on ways to trim investment expenses even before Act 5 became law.

Since the beginning of 2016, SERS implemented a number of measures to reduce costs. We transferred $2.5 billion of actively managed public stocks and strategies from active management into low-cost investment strategies. At this point, nearly 80 percent of SERS public stock portfolio is invested in low-cost investment strategies. We negotiated lower fee structures with public stock and fixed income managers as a part of our ongoing due diligence, not because it was a new initiative, but because it's a part of the process of managing a portfolio.

We liquidated eight hedge fund strategies and transferred nearly $900 million from these hedge funds to strategies that include low-cost investments. We consolidated fixed income portfolios to take advantage of more favorable fee structures.

Within private equity, we negotiated to have supplemental components to our investments called sidecars that charge no fees, thereby reducing the management fee in the total investment. We've invested in private equity co-investment vehicles with no fees charged on committed capital. We've gotten a 35 percent reduction in some cases on the invested capital and a 50 percent reduction in the general partner's profit sharing due to this agreement.

We reduced the number of private equity managers in which SERS has invested and our pacing model while increasing the size of our commitments, thereby hitting certain investment size thresholds to reduce management fees. We've also worked closely with our sister system, PSERS, so that the two agencies who invested in the same investment opportunity recently could benefit from reduced fees based on that combined effort.

So naturally, we are proud of what we've accomplished thus far, but we are not finished yet. At the direction of SERS Board, we continue to work with our consultants to pursue cost savings wherever feasible and beneficial to the fund with investment risk and return considered.

One cost reduction tactic is to participate in no fee, no carry, or reduced fee, reduced carry co-investments alongside general partners with whom SERS has made primary fund commitments. These co-investments help reduce the aggregate fee burden on dollars deployed with general partners. As noted, we already are working with several general partners who offer co-investments to SERS and have expressed further interest in completing co-investments.

Another key cost reduction SERS has begun implementing is negotiating management fee reductions with the eye towards founder's fees or first closer terms. Private equity and real estate funds sometimes offer incentives to first or early closers by offering management fee discounts. Where possible, SERS can achieve these discounts by committing to general partners in a first close. The resulting management fee discounts can range from five to twenty-five basis points.

Another way we continue to reduce investment expenses related to management fees is through building strategic partnerships with managers that invest across various fund products. The formation of strategic partnerships typically involves large commitments to managers that are divided at an agreed upon ratio along various strategies in which the manager actively invests. Such partnerships are often diversified across sub-strategies, geographies, and investment types, thereby creating diversification within the broader portfolio.

SERS is also researching internal asset

management opportunities for both public and private markets that are designed to reduce the amount of fees paid to external managers. To ensure SERS is implementing a best-in-class framework, we planned a contract with a consultant to assess SERS' existing systems and processes, identify operational risks, gaps in current infrastructure, and human resource requirements, and then present a viable solution that details the pros and cons of the various options, systems, portfolio management, trading, middle and back office functions, compliance, and risk management. And we will also ask the consultant to help us evaluate the cost of the successful implementation of an internal asset management program.

With that, I'll turn back to Terri.

MS. SANCHEZ: Thank you, Bryan.

And thank you to the commission for asking us for our perspective on what the general assembly can do to help us improve efficiencies and reduce costs.

The State Employees' Retirement Board and staff stand in direct fiduciary status to the fund. All of the requests that follow are absolutely consistent with the fiduciary responsibilities and duties of the board and staff in administering the fund for the exclusive benefit of the members with the skill and care that a person familiar with such matters would exercise.

Specifically, we would ask that the board be given the decision-making authority for organization, position complement, and compensation for management employees in place of the Commonwealth's Executive Board.

Having maximum flexibility in the ability to increase our staffing complement will allow us to continue with the cost-saving improvements that are already underway. The addition of high quality, specialized staff in the investment and investment accounting areas will help us to improve our investment and financial operations and audit capabilities and to reduce costs. Increasing our staffing complement will also enhance our ongoing effort to implement and grow our internal asset management capabilities. We've seen the promise that this effort holds from our own experience and from learning about the actions taken by some of the elite public pension funds. Having control over the ability to set compensation levels allows the board to attract and retain high quality expertise.

We ask that the board be given greater flexibility to more efficiently procure goods and services. We ask that the board be given the ability to determine its budget without having the Office of the Budget approve or alter the board's budget requests. There is no entity better positioned to make the necessary fiduciary decisions regarding the investments and disbursements of any of the moneys of the fund than the board.

In addition to the specific items listed above, I would ask the general assembly to remember that administrative limitations imposed upon the ability of the board to efficiently administer the fund and manage SERS operations and any restrictions on how the board can invest the assets of the fund have consequences. Administrative burdens or substantive restrictions can, to a greater or lesser degree, increase costs or reduce the ability of the board to achieve desired investment returns. This applies to both current statutory regimes or future statutory changes. The board must be given maximum administrative flexibility and investment authority in its ability to satisfy its fiduciary duties and obligations.

The items just stated are all important and achievable goals, but there is one more that holds even greater promise and would go a long way towards demonstrating that Pennsylvania is serious about its commitment to public pension reform. This is by far our biggest ask, if you will. I ask the commission to consider the benefits to the fund, to the members, and to the Commonwealth of consistently paying the actuarially required contributions to the fund year after year, as this administration and the general assembly have done for what is now the third year in a row -- and I thank you for that -- an amount that combined with investment earnings would be sufficient to pay promised benefits in full in a cost effective manner. We have seen firsthand how persistent underfunding can jeopardize a plan's sustainability, eating away at the asset base, forcing decisions to liquidate investments at the most inopportune times, and pushing a retirement board to reach more returns that it otherwise might not need to, returns that are often reached through expensive investment alternatives.

At a previous hearing, we heard testimony from other systems who had more passive, less expensive investment strategies than SERS. It is important to note that these systems acknowledged that had they not been in the healthy financial position that they were, their investment approach would not be possible. After years of suppressed contribution rates, SERS is not in that position. And given our position, alternative types of investments are critical to meeting the assumed rate of return so that we can continue to pay promised benefits in perpetuity.

None of us want to take unnecessary risks. And quite frankly, as fiduciaries, we cannot and should not take unnecessary risks.

Perhaps this commission can help position us so that we can, in good conscience, move towards an asset allocation where we not only look to get the best return for the risks we take, but where we also can take less risks overall and pay promised benefits cost effectively.

So how might you do that? One way would be to recommend consideration of an amendment to the Constitution that requires the legislature to incorporate into the State Employees' Retirement Code a dedicated funding source and a contribution payment amount that is based on sound actuarial methods and assumptions consistent with generally accepted actuarial standards of practice, ensuring funding at an amount that cannot be impaired by the changing priorities of elected officials, insulating it from the unpredictability of the appropriations process, and preventing the manipulation of amortization methods and other funding deferral mechanisms that have cost the system approximately $8 billion since, through 2017. Those assets could have offset the unfunded liability and provided more investment flexibility to the retirement board, flexibility that may well have included an asset allocation with more lower cost investments.

What has been suggested here is a heavy lift, no doubt, but it is a lift that several states have already made, some in reaction to situations much more dire than ours. But perhaps Pennsylvania has an opportunity to be proactive and attempt to implement elements of the Government Finance Officers Association funding best policy, best practices and of the Conference of Consulting Actuaries funding policies and practice guidelines now, preserving the good that this administration and general assembly have accomplished and ensuring that future administrations and general assemblies do the same.

Thank you for your time and your attention to this critical issue. And we're happy to take your questions.

CHAIRMAN TOBASH: Ms. Sanchez, Mr. Lewis, thank you so much for your testimony. It's really important, your perspective is really important. And you're right. There's a lot of heavy lifting that needs to be done.

And I just want to acknowledge the fact that the Auditor General did an audit of your organization, I think, in July of 2017, and it acknowledges some of your work towards fee savings. And we're gratified to hear, I think, that you believe that you can get to 1.5 billion in savings. That's terrific. That's a terrific prospect for the future of the Commonwealth and for the participants in these plans.

There were many people in 2010 that didn't think we could stick with a payment schedule to get to the arc. And I can tell you, I think that the general assembly has gotten a wake-up call with our massive underfunding right now and we certainly don't want to go back to days of underfunding systems that are so very important, as we continue to dig our way out of the hole.

And I also thank you for your initial comments that we are very much aligned, and I hope that this relationship works out to be a very fruitful one in that recommendations that are delivered to the general assembly and the administration and inevitably the system, SERS, are acted upon and we can maybe even do better than that 1.5 billion.

I hear some of your recommendations to the commission and your belief. And I have not been in this room very often where I haven't heard "less mandates and more money." It's a popular theme among every organization that we deal with, and I get it and I understand it. And I think that you're spot on in pointing out the fact that underfunding over a long period of time has gotten us in the circumstances that we find ourselves in right now.

But as far as more specifically in the governance area, you talk about more flexibility with your board. Is there any other governance changes that you believe could be implemented to the way that these systems, your system in particular, is managed to make you more effective and end up being able to deliver better results?

MS. SANCHEZ: Do you want me to start on

that?

MR. LEWIS: Sure.

MS. SANCHEZ: I think there are some things that we can do to improve our governance. In fact, we're currently in the process of implementing a number of governance improvements that we had taken on when we did a study of -- the board had a study done a few years ago by Funston. And specifically, we asked them to come in and take a look at the board's governance structure and processes. They worked on that for well over two years and I am very happy to say that just at the last board meeting, we approved a number of changes and we're approving more that will take effect around January 1st of 2019, and those things should have a significant impact on the way, on the efficiency and how the board operates. The board itself is very happy to have those things implemented.

MR. LEWIS: I would say from the investment perspective, I would reiterate our ask for the board to have the ability to have complete complement and budget control to give us the resources and the flexibility and speed to be able to set up an organization to be able to most efficiently manage the assets.

So we talked about internal management as a possible opportunity for us. As I'm sure you've heard before, there's an initial investment for staff and systems to build up in order to achieve those long-term cost savings. Particularly within private investments, we see some of the world class and top pension funds have very sizable staffs, but they also have very minimal costs as it relates to these types of investments. And so it's my understanding, under the current process of both staffing, complement approval, and budgeting, it's sometimes not as dynamic as the system may need to be able to build out the scope in an effective manner to reach the efficiencies that we would like, again, in a timely manner.

CHAIRMAN TOBASH: So I mean, the system was established, I think, in 1923, so you're going to be 100 years old pretty soon. And I think the law that you're acting under right now is from 1974. But you're exactly right, the general assembly, they determine the retirement classes and they determine the benefit levels and determine the payment schedules and they determine, ultimately, the governance. What do you think about the appointment process and the way your boards are structured and made up?

MS. SANCHEZ: I think that's probably best left up to the policymakers. We try to have a board, work with whatever board that we have that leads our system and support their initiatives. My most important thing is that whatever board we have takes their duties as a fiduciary as its foremost duty. However we can do that, I certainly would be supportive of.

And I'm not saying that our current board does not. I'm just saying, should there be any changes, their role as a fiduciary to the members of our system is most important.

CHAIRMAN TOBASH: Okay. Thanks.

So you work with your peers sometimes. Do you see any other systems similar to yours that have different board structures that you think are more effective as a result?

MS. SANCHEZ: I haven't specifically spent a lot of time looking at that, I'm sorry to say, but I can go back and get some research and get that to the commission.

CHAIRMAN TOBASH: That's great. I just want to bring up two other terms really quickly. I don't want to take too much time here.

But we live in a world right now where two terms are held in high regard, number one confidentiality, number two transparency, right? They're both -- but they're competing interests at some point in time. Just tell me a little bit about the culture of SERS and the idea of transparency as we evolve in a more transparent world and the idea that ILPA now is setting up a framework that we can operate, a blueprint that hopefully we can all operate within that makes us a little bit more visible.

MR. LEWIS: From an investment reporting perspective, we've seen the industry become a lot more transparent within the last five and ten years, particularly within private equity and private real estate where the ILPA template will become most useful for us in gaining the information and having the ability to report it. It's, you know, a welcomed change for not only us at SERS, but I think the industry at large. And you know, we're completely supportive of that and we look forward to working with our GPs to make sure we get all that information to be able to provide it and report it as requested, required, and in the most transparent manner as possible.

CHAIRMAN TOBASH: Great. Thank you. Thank you again.

Mr. Vice-Chairman, questions?

VICE-CHAIRMAN TORSELLA: Thank you, Mr. Chairman. It's good to be here.

Thank you to everyone who's from the commission, the commissioners, the Joint State Government Commission to our witnesses.

And I note the hint from my fellow commissioners. I'm the only person who got a jar of mint-flavored chewing gum here this morning, so I assume that is a message from someone to me.

Terri and Bryan, thank you.

I want to, number one, underscore what you said about the importance of the arc. I think that -- the importance of making the arc, and I think that's something we can never say too much. It's been some good recent history, but it's very recent history. And if it represents a new chapter in a longer story, that's encouraging and let's hope it does, and do our part to make it so.

I also want to echo what the Chairman said about the efforts that you have made to reduce investment costs, which are broader than just fees, but costs. And as I said yesterday, I think the change from 2016 to 2017 is worthy of note and praise. I think that's a substantial reduction in the basis point cost of investing the funds and SERS deserves applause for that. I have issues with what we're not reporting yet, but believe that you are headed in the right direction getting there. And that year over year, that represents real progress and should be held up for praise.

I want to ask you, the savings that you've achieved, do you believe any of them have come at the expense of return?

MR. LEWIS: I would say that in some cases on the public side, in the short term, the answer is no. I would say in the private investments that will remain to be seen, as you're well aware of the structures and how the fees and expenses are calculated and discounted. And there are longer time periods just from an investment horizon. But I would say on the public side, the efforts that we have taken have not impacted the returns.

VICE-CHAIRMAN TORSELLA: Sure. But on the private side, believe the side of the judgment of history. When you made your changes, you believed you were -- you could both achieve the savings and the return?

MR. LEWIS: Yes, both considerations, and I believe we can.

VICE-CHAIRMAN TORSELLA: Okay. On the discussion about resources and complements and autonomy, I want to ask if that request is made in the context of thinking about SERS or thinking about how SERS and PSERS might work together in a different future where there's some more explicit cooperation and consolidation.

MR. LEWIS: I would say, my thought in making that request is under the current construct and operating environment. However, the basis of that request is based on broader industry practice and examples of success of having the right number of investment professionals to manage the assets that a plan is responsible for.

But I would say in general terms, both organizations or all organizations, even if we are, as we have done in certain limited, yet productive ways, worked together, having enough resources to coordinate effectively is very important. And so I would not say that -- PSERS will have to speak on their own behalf as it relates to their needs and their requirements. But I think for any organization managing over $30 billion, it's important to make sure you have enough of the appropriate resources to do that.

VICE-CHAIRMAN TORSELLA: Sure. And the point on alternatives -- and I don't think I heard the testimony of some of the other state systems quite the same way you did. I thought they were talking about something broader than a focus on costs. They were talking about the particular ways they operated with a lot of in-house and some other, a certain degree of autonomy, but we can get some clarification.

But on the idea that alternatives are the only sure way of achieving higher returns, I guess I'd like you to talk about the experience at SERS with real estate and hedge funds in recent history with what kind of implications -- and again, history, you're not responsible for the history of the fund. You're both relatively new to the fund and have been moving in some great directions, but as an object lesson in how much we can say for certain what's going to work when we pay for those investments.

MR. LEWIS: I think I'd like to take the

approach of answering the question and saying that we don't believe that alternatives are the only way. We don't also believe that what the other CIOs who presented here earlier stated that, that it was an either/or.

It's our, the organization, based on the investment policy and strategic plan, it's our belief that we are required to provide a well diversified portfolio that will give us the best opportunity to meet our required return in all market environments. And it is our belief that alternatives, as a percentage of the portfolio, will give us a better opportunity to meet the required return over longer market cycles.

As you know from our asset allocation, 60 percent of our portfolio, over 60 percent of our portfolio is in public markets as it stands today. And there is no concerted effort to reduce the importance of public markets and public investments in the portfolio. They provide great benefits, such as liquidity, the ability for us to pay benefits in an efficient and less detrimental way. However, we do believe given the expected returns going forward and the market environments that alternatives have a place within a well diversified portfolio.

VICE-CHAIRMAN TORSELLA: Thank you.

CHAIRMAN TOBASH: Commissioner Gallagher.

COMMISSIONER GALLAGHER: Thank you,

Mr. Chair.

And thank you. You know, Ms. Sanchez and Mr. Lewis, I'm still stunned by the fact that the system has provided $50 billion in benefits to our annuitants and retirees out there. And I can see that being a tremendous gyroscope to our economy in Pennsylvania. So thank you for making that happen every day.

And again, I'm still staggered that, I'm shocked that some of the policy decisions that were made under this roof not that long ago cost our system $8 billion, and you're in the position of needing to pick up the pieces. So thank you for enduring that and doing the best you can every day.

My question is this, there's been some emotionally charged headlines recently accusing the system of hiding fees. Over the last eight years, I've been working on pension issues and specifically five years at the board level at SERS. I've seen nothing but that -- nothing to that. There's been nothing whatsoever but transparency and full disclosure on everything that the system is doing operationally. I was flabbergasted seeing these headlines as they started rolling through shortly after the last commission meeting that were -- statements were made and testimony was provided that I found to be patently misleading based on my expertise in this subject area.

Can you both clarify for the record, is SERS hiding fees?

MS. SANCHEZ: No, plain and simple.

MR. LEWIS: No.

COMMISSIONER GALLAGHER: Thank you, appreciate that.

So I understood, for the report, the system is not hiding fees. However, I would hope that some headlines in the near future would reflect a more fair and balanced approach to what the systems are doing that's positive, on a moving forward basis. Thank you.

CHAIRMAN TOBASH: Thank you.

Commissioner Torbert.

COMMISSIONER TORBERT: As a retired portfolio manager in a wealth management and trust department, fiduciary was always a big word. It scared a lot of bankers. It didn't bother us in our department, but it sure bothered, or worried them, because you always have to put the client first, so that means you have to be transparent, you have to be open, and you have to make sure that they have a comfort level. But I was always on the individual side, not on the institutional side. So there's a little bit of difference there, but the bottom line is always the client. And to me that was always the strong point of anything I ever did.

Having said that, I laud you for all the work you're currently doing regarding, you know, the fees and the investments that you're already doing. Most of yours is in public equities. I was always used to public equities, whether they be bonds or stocks or whatever. And I always, we always wanted to make sure that we had liquidity and that's what concerns me about the private equities.

Now, I see a need for private equity, but it also concerns me about the length of time that you're kind of locked into them when you're in a fiduciary capacity. So anytime you can bring that down and make sure those fees are as transparent as possible -- which sounds like you are doing that.

I was very delighted to hear that you currently work with PSERS. I was under the impression years ago, and even before I got on this commission, that they were two separate entities and they didn't really work together a lot. So to me, that made no sense because if I have a family relationship, you may have 10 accounts in that relationship. Well, guess what? It all gets combined for fee purposes. And so it made sense for, well, you have Pennsylvania and you have the two systems. It makes sense that you work together if you're working on the same investments to bring down the costs. That's the way I did it. So I'm glad to hear you're all doing that. And hopefully I'll hear that from PSERS, as well.

I mentioned liquidity. And funding is always a subject that comes up in a lot of the -- you know, people that have been testifying here, so a consistent funding from the legislature is probably important, as well.

I was on a school board for eight years in the Allentown area. And, you know, at times the funding was up and at times the percentage went down a little bit. So a constant funding probably makes a whole lot of sense, especially in the marketplace that we have now.

So thank you very much for your work and continued success.

CHAIRMAN TOBASH: Thank you.

Commissioner Bloom.

COMMISSIONER BLOOM: Thank you.

And thank you for your work. And I know that in a sense you've just -- certainly, Terri, you've just arrived. And I've seen you in action, I've seen the boards in action. I've been at the last couple of meetings. And it's been very impressive.

The idea of -- which was addressed here a couple of seconds ago -- about hiding fees, that's probably a bad choice of words. But in order to compare how the systems would have done if their money was in public markets as opposed to private markets, you really have to know what the carried interest is because that's part of a calculation to make a comparison between returns from the public and private as to how much you would have put up, and I think that's kind of where the missing money is. So I just wanted to kind of clarify that.

And I don't think anybody hid. I think that's normal practice in a lot of places. It's not a good practice, and it's obvious that SERS and your board are addressing that issue. And I think that's very important.

Now I'd like to get into the weeds. And, Mr. Chairman, if I'm too much into the weeds, please correct me or tell me to quiet down.

You have about, as I can see, about 450 GPs, general partners, in private equity. Some of those are performing, some of those you've labeled as underperforming assets. And you're going to do something to try and market those, I believe, and move them out.

I have a bit of -- I'm not an accountant, but I have a bit of auditing experience. So if you have 450 GPs -- I don't know that my number is right, but I think it's over 400. You've got 400 -- according to what I heard yesterday, there are 400 or so accounting firms that are coming back and telling you that their net asset values are good. I don't know whether those accounting firms are simply reviewing the general partners' numbers or whether they're reviewing the, some of the investments of the general partners, because now you're talking about thousands of companies.

How confident are you in the net asset value numbers that you get? Some of those in the ones that are underperforming -- I've had some experience in this -- are probably less than what you're currently reporting. And if you're going to sell them, you must have some idea about what that price is. And if that price is less than what you're valuating it now, when you take your audit snapshot, that's where they -- in my opinion, that's where they should be priced.

The other thing I was told is, in speaking to various people from the pension funds, is that the active, large net asset values that you get are probably undervalued, that they are probably valued at about 90 percent, 85 percent, of what they're going to be sold at, okay? Again, back to the auditing, they should be valued at what they're worth. I mean, if the general partner thinks they're worth $50 million and they're telling you they're worth $40 million, it's not accurate.

So somewhere -- it kind of skews your overall numbers in what you're reporting as to what your net assets are, if any of this is right. So maybe you could address that for one or two minutes, because I've probably taken up too much time.

Am I too far in the weeds?

CHAIRMAN TOBASH: We're okay.

COMMISSIONER BLOOM: Thank you.

MR. LEWIS: Sure. Let me address a few of the points.

You're correct. We do have a lot of general partner relationships. I think the number 450 is slightly higher than my count. However, we have gone through a process of identifying what we call core versus noncore. So managers that have performed and we feel as though we want to continue to have relationships with because their strategies fit within our strategic investment plan.

Those noncore relationships have been transferred, due to board approval and action, to an asset management firm that has, that will take over the administration of those noncore funds. According to my account, that's approximately 162 relationships.

That fund will become the day-to-day administrator with oversight by the SERS Investment Office staff and the board. So there's been no ceding of ownership or control of decision-making with this process. We, in effect, due to understaffing, have outsourced the day-to-day management and interaction of what we're calling these noncore funds.

So we feel that this firm will be able to help us and provide us with opportunities on the best ways to either end those relationships, determine a secondary market value, or manage them through termination of the agreement. And so that was an operational decision.

As it relates to the NAV and calculation of the information, I am and the staff is, very confident that the information that we reported in the budget book and CAFR for a number of years, not just recently with myself and Terri joining, throughout history has been accurate. And there's a process that has been in place to help evaluate the accuracy of the data not only that we receive, but also the data that we report.

So each of our GPs have audited financial statements that are audited by the largest Big Four accounting firms and folks who specialize in investment accounting, not only on their calculations, but also on their valuations. That information that we receive, we have an internal investment accounting department that also has processes and procedures that checks and validates information that we receive.

And then the third important component is we also, SERS, we have an auditor who comes in and will check, not only this process, calculation, to make sure that it is valid and there are no -- and there have been no material findings through this process for a number of years of any inaccurate information.

A final component that we have is our private equity consultant has -- we have a relationship with their back office and operation team. They come to our office twice a year to do a review of the private equity information in-house, as well as continued conversation between the investment staff and office.

Now, this connects a couple of points. One, it's a fourth layer of checking on our information as it's received, but finally, this, too, was another example, Mr. Chairman, with the right complement, with the ability to hire and invest, this is an activity that could be done internally, potentially at a reduced cost. But right now we utilize the expertise of a private equity consultant and their operations team to help us out.

COMMISSIONER BLOOM: When you decided what was noncore, was there any conversation about what the value of the noncore would be on the secondary market? And that's really a loaded question because if you say "yes," then that value is the value you should be reporting. So do you have any comment on what you think the percentage is, the haircut is, on the noncore?

MR. LEWIS: I would say that the valuation on the noncore has not been completed as of yet to determine a full secondary value. But that is a part of the process that the board will be presenting in future meetings.

COMMISSIONER BLOOM: Thank you very much.

I'm sorry about the tough questions, but it's just something that I have been talking about since the very beginning of this process.

Thank you so much, both of you, and we appreciate the work that you're doing.

CHAIRMAN TOBASH: Commissioner Bloom, thank you so much for that question.

I think it's important for us to have heard the direction that you're going with those general partner relationships.

And I think you have one follow-up question, Mr. Vice-Chair?

VICE-CHAIRMAN TORSELLA: I do. Just following up on something that Commissioner Bloom said.

Again, understanding that, in the world of private equity, things have changed a lot in 10 years, and at SERS, things have changed a lot in 10 years, and forget how we got here, but is -- if I understand from your testimony, that you haven't historically reported or tracked carried interest. Just to -- let's agree, we won't call it a fee. But is carried interest a profit share? Is it a cost of investing, in your view?

MR. LEWIS: It is not a cost of investing, in my view. It is a benefit of outperformance for both the GP and the LP.

VICE-CHAIRMAN TORSELLA: So you don't view it as a cost?

MR. LEWIS: I don't view it as a cost.

VICE-CHAIRMAN TORSELLA: Should it be reported and tracked?

MR. LEWIS: I agree that it can be reported and tracked. I'm comfortable with that.

CHAIRMAN TOBASH: Okay. Thank you. And just one final question and we'll get on to our next testifier.

Commissioner Torbert.

COMMISSIONER TORBERT: Going back to that liquidity idea. Do you have a time line or a time horizon, when you get into a private equity, as to how long you're willing to be locked in?

MR. LEWIS: Yes. So we manage liquidity on, we monitor it on a daily basis and we report out our liquidity to our board at every board meeting. So folks are fully aware of the liquidity that we have. And we have a liquidity schedule that me and my team monitor as it relates to daily, monthly, quarterly, and annual liquidity availability of different types of investments.

So through that process, when we recommend to the board to make a commitment for any type of vehicle, be it private credit, private real estate, private equity broadly, we have a good understanding of the amount of time, based on the general time frame for these relationships in a private equity agreement, will be 10 years with the possibility of two years of extension.

However, it's important to note that it doesn't mean that all of your capital is locked up for that entire period. Because of the mechanics of the investment process, when a commitment is made, while we are responsible for making sure we have liquidity, if that capital is called, generally all the capital is not called at one time and all the capital is not retained until the end of the contract period. So there are constant calls and distributions that we also track and maintain to make sure that we have enough liquidity to meet the private needs.

But more importantly, Mr. Commissioner, is the fact that our liquidity focus is on making sure we have the ability to make our monthly payments to our members. And so we have more than multiple time periods of liquidity allocation, as well as scenario analyses, that we run in different time periods. For example, if we don't receive contributions from our employer, then we have to still have enough liquidity to be able to pay our members.

If, as we have over the last three years, we do continue to receive -- and we hope that is the case. It makes it a whole lot easier to manage liquidity when you have a dedicated and disciplined funding policy. We have those, and we've been operating under that scenario for the last three years.

And so when we think about where liquidity comes from, how much liquidity we have in the portfolio, the majority of those conversations are on the public side of the house that you're familiar with, which again, is over 60 percent of our portfolio right now.

COMMISSIONER TORBERT: Then one quick last one. Can you do market-to-markets on your private equity on a regular basis or any kind of basis?

MR. LEWIS: Well, one of the challenges with private equity is just within the name, right? Private and when they're valued. So we report on the valuations on a quarterly basis to our board, but even that information is in a quarter lag because of the valuation process. So in the traditional public market-to-market sense, the structure would not allow for that, but again, we do get valuation updates and monitor valuations on a regular basis.

COMMISSIONER TORBERT: Thank you.

COMMISSIONER BLOOM: One second, Mr. Chairman. I have one just quick follow-up.

It's more of a statement, I think, than a question, that, in response to what Commissioner Torbert said, that all of private equity, and frankly, real estate and other investments, too, are based on estimates. And I think what the industry term is unobservable data. So in a sense, they are, albeit very educated, there is -- for want of a better word, they're approximations or guesses on what the value of these are, when they are in the intermediate state.

CHAIRMAN TOBASH: Again, I thank you for your testimony. I've asked this for all testifiers, and it's particularly important for the two systems, just ask for your availability as we get down the stretch. I know you have an awful lot to do, but your understanding of your operation is really important as we get down the stretch here and complete this. So your ability to communicate with our consultant or commission is really important for us. Again, thank you for all the work you're doing on behalf of the Commonwealth of Pennsylvania's retirees and everybody. Thank you very much for your testimony.

MS. SANCHEZ: Again, thank you for the opportunity for Bryan and I to be here on behalf of the State Employees' Retirement Board.

CHAIRMAN TOBASH: Great. Okay. As they exit the stage, I'm going to introduce our next set of testifiers from the Public School Employees' Retirement System. We've got Mr. Glen Grell, who is a former colleague of mine, was with the general assembly from -- wow, Glen, I'm not even sure. He was first elected in 2004 and I'm not sure of the date that you left service --

MR. GRELL: 2015.

CHAIRMAN TOBASH: -- but we appreciate your continued service here to the Commonwealth of Pennsylvania.

Glen has worn many different hats here in the Commonwealth, including being a Shippensburg University Council of Trustee member since 1995. And he is joined by Jim Grossman, who is the chief investment officer for PSERS. And we see that you are bringing Tony along with you, as well. So you've got backup.

And, Jim, welcome, an Elizabethtown graduate. I didn't realize that. Myself, as well, so that's really great. We appreciate you being here today. And as I mentioned before, the commission is interested in hearing about, specifically, how your organization can help this commission produce its charge on a number of fronts, cost savings, certainly stress testing, transparency are all in the wheelhouse of what we're trying to accomplish here. And I thank you for being here and we are anxious to hear your testimony. Thank you.

MR. GRELL: Good morning. And thank you for the opportunity to be here. Chairman Tobash, good to see you, Treasurer Torsella, and members of the commission.

Good morning. My name is Glen Grell. I'm the executive director of PSERS, and with me today is Jim Grossman, our chief investment officer.

First, I want to thank those commission members who, I believe it was all of you, who attended our August board meeting and our committee meetings, which included our asset liability study and our asset allocation process. We hope your attendance at that meeting gave you a clearer understanding of how PSERS approaches those important processes.

Also, thanks to Commissioner Bloom, who joined us at our recent October board and committee meetings, as well as him having a one-on-one meeting with Jim Grossman recently.

Before we present our ongoing fee savings and efficiency recommendations, I want to take a few moments just to address what we believe is a false narrative that's been created and circulated, and unfortunately continues to be circulated, surrounding these hearings regarding PSERS. To date, PSERS has taken the high road and not engaged in any kind of negative public debate on these topics. We prefer to engage in these issues in a thoughtful, professional, factual, and principled manner.

Having said that, we believe the right time to address some of those outrageous allegations is at today's hearing when we finally have an opportunity to address the entire commission in person. PSERS has a duty and responsibility to address these allegations and what we believe are politically motivated hyperbole about hiding fees and wasting system assets. Wasting is a touch word, a very sensitive word with any fiduciary. And that particular narrative has to be addressed.

Two points to make regarding this public commentary. One, PSERS does not waste system assets. This is a fact and in our view, it's not up for debate. Saying PSERS wasted funds is irresponsible and insulting to every PSERS employee who works hard each day, each and every day, on behalf of our members with only the best interests of our members in mind. This false narrative also disparages our board members, who volunteer and devote a significant amount of their time and expertise to serve on the PSERS Board.

As those of you who have attended PSERS committee and board meetings know, these meeting are very long. The board packet contains thorough and extensive due diligence write-ups on investment opportunities, as well as detailed materials on the often overlooked benefits administration side of the agency. The ensuing discussion at board meetings can result in questions, dialogue, and vigorous debate on potential investments and other administrative agenda items.

The assertion, the specific assertion is that PSERS wasted 3.9 billion in fees to Wall Street managers. The fact is that PSERS engages and compensates money managers in areas where we can't internally manage the investment and only after due diligence of the manager. We carefully track the manager and the investment to make sure we are getting value for these fees, and we report asset class and manager performance to our board of trustees. While not every investment is productive and we frequently terminate underperforming managers, the value of these external managers fully justifies the fees paid.

Over the past 20 fiscal years, PSERS has outperformed the global 60/40 portfolio by 84 basis points. In dollars, PSERS generated 10 billion in performance above a global 60/40 passive portfolio at a cost of 6.9 billion. Net investment income during the past 20 years was approximately 62 billion, but it would have been only 52 billion had we followed a passive, no-cost global 60/40 index portfolio. Hardly a waste of system assets, in our view.

Point number two, PSERS does not hide fees. And maybe I'm preempting Commissioner Gallagher's question.

Another charge of this commission is that funds have hidden billions of dollars in fees. On the contrary, PSERS has long been a leader in fee transparency. While the Government Accounting Standards Board, known as GASB, only requires the reporting of, quote, readily separable fees, PSERS professionals have gone above and beyond the reporting requirements of the GASB, releasing both readily separable, as well as not readily separable fees. PSERS discloses them annually in our comprehensive annual financial report, our annual budget request to the general assembly, and in an annual presentation to the board of trustees. At PSERS, we've paid strict adherence to the reporting standards and we take great pride in having been recognized for 34 straight years for excellence in public financial reporting.

CHAIRMAN TOBASH: Mr. Grell, thank you for addressing these things. I just want to get back to a point. And if you want to submit some your comments for the record, I'm happy to do that. But this commission is specifically charged with a task, and I've asked both SERS and your organization to come forward. And in the letter dated October 10th and in previous conversations, we talked about your appearance and testimony before the commission as an opportunity for the commission members to receive the benefit of your perspective on workable actions.

I specifically asked, that we have been established in assisting you and we want to be partners in this. And I think we've got great expertise from throughout the country and sometimes throughout the world at lowering costs while meeting or exceeding your established discount rates.

I don't want to get into a debate here on what you have done in the past, but preferably, we'd like to hear from the systems on what changes you believe need to be implemented for you to operate better. And we live in a very public world. So I'm interested to hear that.

And if you want to offer commentary on your testimony, we will do our very best to include it in our submission. But at this point in time, I really believe that your time is better spent talking about what implementations might be recommended to help you perform at an even higher level than you are claiming you have performed so far.

MR. GRELL: In that case, I will simple refer to the discussion that Executive Director Sanchez had on the same subject, which you didn't cut off, and I'll continue discussing this topic with anybody that's interested in the hall after our testimony.

CHAIRMAN TOBASH: Thank you.

MR. GRELL: I will then move on.

COMMISSIONER GALLAGHER: Mr. Chair, you know, it seems to me that the subject that Mr. Grell was speaking to is germane to the charges of our commission in terms of fees and transparency. So I didn't hear anything outside the realm of our charges.

But you know, again, I recognize that you sent that letter, but that was just from one commission member, but not from the commission. And I would like to hear this.

CHAIRMAN TOBASH: So, Commissioner Gallagher, you have an opportunity to ask questions and if you want to ask them in this vein and you want to have PSERS respond in that regard, then we'll allow that at that point in time.

But if we could move on to the part of your testimony that talks about what we might do to improve your system from your perspective, I would much appreciate that.

MR. GRELL: Okay. The remainder of my comments on carried interest and whether or not PSERS hides fees is included in the written testimony and I'll be happy to further discuss it in the question and answer.

Before then, moving to the testimony specifically on our fee reduction plan, which has been submitted and approved by our board, I want to offer some research and analysis that we've compiled while waiting for our opportunity to appear before the commission.

You're correct, Chairman Tobash, you did make it clear not to dwell on our views of your prior witnesses, and we're not going to do that and you were not interested in explanations of how we operate. So for the record, we're simply going to submit a bundle of materials for the commission's consideration. We have what we've referred to as a compendium of research, which we believe we've itemized about 35 or so pieces of research. This is the information that we're going to leave with you. (Indicating.)

We believe it is relevant to the issues you're considering and it's also indicative of the kinds of information that we rely upon regularly to inform the approach that we take and we recommend to our board in terms of managing the portfolio. So I will just submit one copy of that information for the record.

Moving then to the subject of manager fees and efforts to reduce them. I want to take you back about three years ago, shortly after I became the executive director of PSERS. At that time, Governor Wolf, newly elected, had expressed an interest in the investment operations at both of the funds. We were asked to meet with Governor Wolf and to review our investment policies and our strategies. In an effort to be professional and thorough, PSERS prepared a slide deck of about 50 pages or so, which we have a copy and we'll present to the commission, as well.

The point here is that PSERS has been focused on monitoring, measuring, and controlling external manager fees every day since I've been the executive director. This is not a new priority at PSERS.

It was very clear in our discussion and presentation to the Governor that he had personally reviewed all the information we presented and had a complete grasp of the information provided. He asked some questions regarding why PSERS managed funds internally, when we managed externally, how we monitor managers, how we decide between active and passive managers. And he expressed an interest in keeping external manager fees as low as possible. But we quickly moved on to other subjects, having, we believe, satisfied his concerns about our approach.

In the ensuing year, we reduced our reliance on external managers and we requested additional complement positions to further support PSERS' internal investment operations. This move to expand internal management significantly lowered external manager fees while we awaited the additional complement. In fact, the Governor issued a press statement in March 2016 noting our accomplishment.

Unfortunately, the further reduction was stalled when it took us approximately 18 months to receive approval for seven of the fifteen additional investment office positions we had requested. And that goes to something that Director Sanchez mentioned in terms of autonomy and control over our complement. The seven positions, once they were approved, were filled and they have continued to add significant talent to our investment office, which now includes, among other qualifications, 13 chartered financial analysts and 16 MBAs.

Like other large public pension funds with best-in-class internal investment operations, we believe a part of the solution to large external manager fees is to build a strong internal investment platform with the skills and the tools necessary to engage in the kind of sophisticated pension asset management that other comparable public funds do. PSERS investment professionals currently manage 19 portfolios in-house with net asset value of over $23 billion in-house, saving approximately $39 million a year in external manager fees. The amount managed internally has increased from $6 billion just three years ago, from 30 percent to the fund's assets to 36 percent today.

At this point, I'd like to turn over the next portion of our testimony to CIO Jim Grossman to present PSERS' fee savings plan. This plan was created in response to Act 5 when we saw the provision that would target the $1.5 billion savings, and also in response to Treasurer Torsella's sponsored board resolution challenging PSERS investment professionals to work with our consultants to create a fee savings plan. The plan was presented and adopted by the board at the August 2018 meeting. However, the plan is a fluid and flexible plan of action, which will adapt and change as necessary going forward.

At this point, I'll let Mr. Grossman talk about the...

MR. GROSSMAN: Thanks, Glen.

Thank you, Commissioners.

Section 8538 of Act 5 established a goal for PSERS to develop a plan to save $1.5 billion in management fees over 30 years. PSERS Retirement Board Resolution 2017-41 passed December 8th, 2017, was developed by the Treasurer and our executive director. It directed PSERS investment professionals and the board's investment consultants to come up with a fee savings plan to present to the board. PSERS investment professionals presented such a plan at its August 2018 board meeting. The plan focused on investment manager cost efficiency, assumed no changes to the strategic asset allocation, included those portions of the asset allocation where we expected fees to increase in the future, and was to be implemented over three years. Annual savings were converted to cumulative compounded savings over a 30-year period.

PSERS investment professionals took a two-pronged approach to generate fee savings. The first was establish a fee plan to renegotiate management fee arrangements to create a better alignment of interests between PSERS and each investment manager. The goal was to decease the guaranteed fees or base fees in exchange for a profit sharing arrangement on returns above a negotiated benchmark. Estimated savings from these reduced guaranteed fees amounted to over $1.5 billion compounded over 30 years.

The second was to expand internal management and bring additional assets in-house at a lower cost than external management. Net of the cost of an additional nine investment professionals needed, we estimated a savings of over $900 million compounded over 30 years. Together the cumulative fee savings are $2.4 billion compounded over 30 years, which represent a 9.6 percent annual reduction in base management fees. The detailed presentation is posted on our website and has been provided to the commission, and a copy looks like this. (Indicating.)

The fee savings plan crafted is by no means an end to our efforts to reduce management fees and better align the interests of the investment managers with PSERS. Since the plan was prepared, we've identified over $350 million in additional cumulative base fee savings compounded over 30 years. The cumulative fee savings have now increased to $2.8 billion compounded over 30 years, a 10.4 percent annual reduction in base management fees.

In addition, we've aggressively negotiated management fee deals with new managers and mandates. In two cases recently, we entered into agreements with zero base management fees, and the investment manager only gets his share of the profits generated. Plus, we are currently negotiating two other similar deals.

In other cases, we have continued our longstanding practice of obtaining fee discounts for our large commitments and for being in the first closing of a fund. We also aggressively negotiate the less obvious management fee terms as well, including hurdle rates and catch-up provisions.

It is important to recognize that the long-term nature of our pension plan positions us to drive fees down even further because managers are generally willing to accept lower fees in exchange for stable, patient capital. Whenever possible, we attempt to make the most of this natural advantage.

One criticism of the fee savings we'd like to address relates to the profit sharing fees. We received questions about the possibility that the total management fees, base fees plus profit shares, may increase under this plan. To be clear, the plan has at least a 9.6 percent reduction in base management fees. Base management fees are guaranteed no matter the performance. So overall, base management fees are going down.

If we are so fortunate as to have very strong performance by the investment managers, then the profit sharing component of the total fees will go up. If profit share goes up, so does our investment income. For example, if a manager has a 20 percent profit share and earns $10 million above their benchmark, then PSERS is better off by $8 million, while the manager collects an additional 2 million. Our interests are aligned. Higher investment income means lower required contributions, and by extension, lower taxes for the Commonwealth and school employers.

In government, increased costs are generally frowned upon since increased taxes are required to fund them. In investment management, increased profit sharing fees are funded by increased performance, which has the opposite effect, decreased cost to the government, as well as less taxes needed to fund the pension benefit. It's a win-win-win. It's a win for PSERS members, the taxpayer, and the investment manager. And importantly, a profit share focuses the manager's efforts on performance rather than simply growing assets under management to collect more base fees, an activity that often reduces the likelihood of outperformance.

Another item to note that we have not included in our fee savings plan are any savings from not having to pay carried interest in our private equity co-investment program or reduced carried interest in our real estate co-investment program. The private equity co-investment program allows us to invest in private companies at no cost, no fee, no carry. The real estate co-investment program allows us to invest in private real estate at reduced fee and reduced carry. Based on the size and success of our private equity co-investment program alone, which has an internal rate of return of over 23 percent, the savings would be significant.

Also not included in our fee savings plan are other areas of consideration recommended by our investment consultants, including an increased pursuit of strategic partnerships, direct investing in private markets, secondary sales of noncore, fee paying, private market funds, sidecar co-investment vehicles, and nonmanagement fee reductions for new investments, such as 100 percent fee offsets. Additionally, our size, longevity, and reputation position us as the perfect partner for new managers who require an anchor investor. Such seed investors and new investment managers commonly negotiate a perpetual share of revenue generated by the new manager, effectively transforming management fees into a new profit center for PSERS. These are all areas that merit further exploration.

We are open to considering any fee savings recommendations that, one, enhance PSERS' net of fee return, and two, do not increase the risk of the investment program. The investment professionals at PSERS are always looking to negotiate the fairest fee deal possible. To that end, we have recently implemented a formal external manager fee policy to document our objectives and fee negotiations.

In addition, we have instituted a formal internal policy of reviewing all fee arrangements at least once every two and a half years to ensure that each fee arrangement is still appropriate. All fee negotiations are now formally documented and saved in our document management system in accordance with the recommendations from the Auditor General.

Now I'll turn it back over to Glen to cover our recommendations. Thank you.

MR. GRELL: Thank you.

The next portion of my testimony has to do with the funding of the plan, which I believe was sufficiently covered in the previous testimony by SERS. However, just -- and my testimony is in the written testimony. However, I wanted to draw your attention to the chart that I take whenever I make a presentation to the public, because really, proper funding is the key to the long-term sustainability of these plans.

I won't dwell on it, but the top chart shows the average payment toward the annual required --

actuarially required contribution of public pension funds over the period from fiscal 2002 to present. The blue line represents what peer funds we're receiving from their employer contributions ranging from the 80 to 90 to 100 percent range. The green line, unfortunately, is the PSERS line, which shows that period that we all acknowledge of significant underfunding of the plan, reaching the low level of 27 percent. We received 27 percent of the arc in 2010. Fortunately, the passage of Act 120 in 2010 took us on that steady climb from 27 percent to 100 percent actuarial funding on an annual basis. And that point cannot be overlooked.

The lower chart shows what can happen to a public pension fund based on poor policy decisions. Taking us from 123, almost 124 percent funded in 2001, to 56 percent now.

What happened during that period? Three things basically happened. One, Act 9 passed by the general assembly created benefit enhancements, which were not only unfunded benefit enhancements, but they were also made retroactive. Second, the investment markets fell sharply after September 11th and the so called dot-com bubble, clearly not a legislative act. But third, the response to that was to artificially suppress the employer contribution rate as shown on the top chart for the ensuing 12 years.

With that backdrop, the consequence of all of that is that we have a $44 billion unfunded liability, which eats up 75 cents of every employer contribution dollar that comes into PSERS. And none of this had anything to do with external manager fees or costs of the system.

With that backdrop, I offer these suggestions for what the general assembly should do and a couple of things we believe they should not do to support the system and its members. One, again, piggybacking on SERS' testimony, require 100 percent annual funding of the arc so that the last three years shown on this chart become the rule and not the exception. Second, we also echo the support for a constitutional amendment requiring full actuarial funding. Three, require prefunding of any benefit enhancement or COLA that may be offered in the future to avoid adding any more debt to the system.

These enhancements are not currently and have not in the past been prefunded. When an enhancement is granted, it immediately adds debt, millions or billions of dollars of debt, to the fund on top of the existing pension debt. Prefunding will make the true costs of any enhancements transparent to all constituencies and prevent any unfunded mandates.

Fourth, pass governance reforms which enable PSERS' Board to exercise greater autonomy and agility in its operations. PSERS has a short list of such governance reforms and many of them were mentioned earlier by Director Sanchez. But a prime and illustrative example is the ability of PSERS' board to set the agency complement and its organizational structure. Currently we have to go through the Office of Administration hiring process and we have to receive approval from the Budget Office to increase our staff complement.

PSERS manages $23 billion internally, making PSERS one of the largest money managers in Pennsylvania. Significant additional fee savings may be gained by bringing more assets internally to be managed. In fact, greater internal management is an essential element of our fee reduction plan, and frankly, any fee reduction plan. That, however, will require PSERS to get an approval to increase its complement. We currently have 10 positions pending with the Budget Office. We appreciate the assistance we have eventually received from the Governor and the Budget Office, but frankly, 18 months is too long to wait to make complement increases.

Fifth recommendation, and perhaps this is a missed opportunity, but as Act 5 was being developed, both PSERS and SERS felt and expressed that there was no reason to require each system to establish a defined contribution plan structure. When Act 5 was passed, two separate defined contribution plans needed to be created, which limited the ability to leverage the bargaining power of the Commonwealth in negotiating third-party service providers. Additionally, it required duplicative efforts by PSERS and SERS in the management and oversight of the DC plans.

PSERS recommends making one organization responsible for administration and oversight of the two DC plans. PSERS would support enabling legislation that would allow the two funds to consolidate the DC plans at an opportune time once they are established.

Sixth, we'd recommend considering the establishment of a rate stabilization fund or other form of reserve fund along the lines of a current proposal, which was sponsored by Representative Frank Ryan, similar, and perhaps in concert with a rainy day fund, but dedicated to PSERS as a future cushion for school districts against increases in the employer contribution rate. Of course, creating the fund alone is not sufficient unless it's eventually funded as part of future budgets.

Seventh, authorize PSERS to engage its own custodian bank. It is rare today for a state treasurer to act as the statutory custodian for a public pension fund where the state's legislature has created an independent pension board, but in Pennsylvania, that's the case. The Treasurer, not PSERS' Board, has sole authority to select the custodian bank on behalf of PSERS' defined benefit plan. The custodian bank client is Treasury, not PSERS.

Treasury assesses PSERS' approximately $2.5 million annually in fees attributable to Treasury's custodian bank contract, yet PSERS lacks any authority to require the custodian bank to meet service level standards. This situation creates not only operational risks and conflicts of interest, but also real economic costs. PSERS has encountered and continues to encounter a profusion of errors and omissions by the custodian bank. For example, we regularly see the custodian bank not creating, or not crediting us with income that is received on our behalf in a complete and timely manner, and then charging us fees for account overdrafts actually caused by the bank's own actions.

PSERS has had to assign a number of investment professionals to overcome the custodian bank's lax quality control in order to safeguard the fund's assets. These investment professionals could have been and should have been deployed in more productive activities. Unfortunately, Treasury staff, under several previous treasurers, have been ineffectual in addressing our concerns or holding the custodian bank accountable. We recommend that PSERS Board be given statutory authority to directly hire and manage our own custodian bank relationship.

Finally, what not to do. Now, I ask you to remember the period prior to the mid-1990s. PSERS universe of investment options was limited by statute. In 1994, Pennsylvania policymakers wisely chose to move PSERS away from these legal lists by statutorily providing the PSERS Board of Trustees with prudent person investment authority broadening the board's powers to invest the fund's assets for the benefit of the system's members. As noted in this testimony, the results of empowering the board to invest in this manner have been overwhelmingly positive.

Limiting the board's authority again at this time would amount to a form of unnecessary and onerous regulation that would turn the clock back to the days of legal lists, limiting the investment returns potential of the fund. Imposing artificial caps on fee arrangements would also increase employer contributions and unnecessarily burden the taxpayers with the resulting bill.

In closing, I urge you to proceed with caution. Please avoid the knee-jerk approach to legislation. Avoid the "sounds good, looks good" kind of reaction. Avoid legislating trendy concepts that tend to fall from favor faster than a legislative body can normally react. Be deliberative in the approach to legislative proposals and please consult with the systems and our consultants on the merits and risks associated with such proposals.

PSERS, as you know, is a large system, large and complex system. And should any future recommendations from the commission impact investment returns, or risks, including changing the asset allocation or the actuarial assumptions, there could be a significant negative impact on taxpayers and the general fund if it pushes the employer contribution rate up. This is a rapidly changing investment industry with new products and strategies emerging regularly.

In fact, just this morning, as I was reading my clips, I came across news, the reports of the fiduciary investor symposium, which was held recently at Stanford. And it's an interesting article. They brought in many very well-known managers to talk about new strategies in fee negotiations, fee structures, better alignment of interests, emphasis on putting more fee on performance and less on base. Just the kinds of things that Jim's been talking about and that are included in our fee reduction proposal. Don't tie the hands of our trustees and the investment office to participate and lead in these kinds of initiatives through legislation.

Remember just as there, in the commercial sector, there are real costs associated with regulation, and with a public pension fund, those costs are reflected not in the prices to the consumer, but in this case, to the employer contribution rate.

Thank you for the opportunity to appear here today and we look forward to your questions.

CHAIRMAN TOBASH: Thank you so much, Executive Director Grell.

And I just want to point out that you know this, as well, possibly better than anyone. I mean, having served in the general assembly from a time when the systems were 100 percent funded to the arc to a time when they went down to 27 percent and then rose back up, you know the political aspect of this, oftentimes very frustrating for members of the general assembly also. Now you're in a position of helping manage this organization that is trying to get itself back on level ground. So I appreciate, again, your commitment.

And I also appreciate the fact that, you know, the system reacting to Act 5 and talking about the steps that you have taken to try and adopt new policies and being as effective as you can. And I hope that the work of this commission is helpful in regard to your continued effort to do that.

I guess I have two basic questions, and I asked one to Executive Director Sanchez. I'll be a little more blunt with it.

If you were able to choose a governance board that you would report to in a different method than the way it's set up right now with appointees, how might that be? Do you think there could be a change for the positive?

MR. GRELL: Well, since three of my board members are represented on the commission, don't expect me to speak ill of my board. Having said that --

CHAIRMAN TOBASH: I'd like you to be candid to the commission because we want to have positive change.

MR. GRELL: Well, having said that, I mean, a 15-person board is large. At times, it's cumbersome, but it's representative. And it, I believe -- has to represent the diverse interest.

It has a component that represents the employees who actually own the money that they're managing. So I think, you know, the lay members are very important on the board. The policymakers are represented through the Governor's appointees, the ex officios, the members of the legislature. So in that sense the taxpayer interest is represented. But also the employer is represented on our board. We have one elected school board member and we have the executive director of the School Boards Association as ex officio, so I think there's a balancing impact by having those various constituencies represented on the board. And I can think that diversity and that representative nature more than compensates for the sometimes cumbersome need to move a group of 15 folks.

CHAIRMAN TOBASH: Sure. So you think the board structure is fine as is because of its representative nature.

MR. GRELL: Well --

CHAIRMAN TOBASH: But a little bit difficult to navigate. Fifteen is a large board.

MR. GRELL: It is. Maybe instead of, you know, five members representing the employee group, that could be three. Maybe instead of four legislators, that could be two. Maybe instead of, you know, five ex officio, that could be three. I mean, you could reduce it, but I think you need to have that representation by both the people who own the fund, the employers who pay into the fund, and the policymakers who set the policy that governs the fund.

CHAIRMAN TOBASH: You also brought up a point which has sort of been absent. I know that Commissioner Torbert brought it up at some point in time at a previous hearing, of consolidation. We haven't heard a lot about it, but it's in the minds of many people, that we've got two large systems here. Not every state has got two systems, as a matter of fact, few do.

You talked about consolidation of the DC component, which is new. What is your thought on full consolidation?

MR. GRELL: Well, I mean, we've been talking about this and working on it since that June 2015 meeting with the Governor. After we stopped talking about manager fees, we started talking about what can the funds do collaboratively? And at that time, I think the conversation then expanded to several other funds, whether it was the Swift Fund or some funds that the Department of Labor and Industry controlled and the Insurance Department and Treasury and PMRS. And we were all at the table talking about what we could do to collaborate.

But at that time, the mission was, what can we do to collaborate without any legislation? Nobody wanted to do legislation. So the easiest way to do that was to piggyback on the statutory powers that the Treasurer has, and I believe those other miscellaneous funds have been rolled into a relationship with Treasury, managing or helping to manage those funds.

So we've tried to do what we consider low hanging fruit in terms of collaborating and conversing and working with our investment offices. But you know, we have two separate funds, we have two separate management structures, we have two separate missions. They are generally the same, but you know, one fund is a mature fund that has more retired members than active. The other is not. There are a bundle of legal issues that go into this.

In fact, I think it was in May of 2017 -- well, it was before that. It was in 2016, the Governor's Office of General Counsel presented a 30- or 40-page slide presentation to the Budget Office laying out what some of the legal impediments are, whether they're legal, statutory, state, federal, a whole mix of fiduciary constraints on what can be done structurally to combine the two funds.

Then, we were asked to go out, the Office of General Counsel authorized us to engage outside counsel. So we used, both SERS and PSERS collaborated with Duane Morris and came up with some analyses of a couple of different scenarios, whether it was a shared employee kind of setup that, you know -- maybe employees from the investment office at SERS could be become shared employees with PSERS.

So there's been a lot of thought and analysis put into the kinds of things that could be done, whether it's, you know, sharing facilities, sharing a headquarters, sharing HR services, IT services, a print shop, a call center, sharing consultants, sharing due diligence that we do. And we've had -- and it's anecdotal. We've had a couple of instances where PSERS and SERS were both looking at the same deal, so we collaborated. In one case, we were able to use our maybe bigger buying power to negotiate a lower fee, not for us, but for SERS, but we're all in the same family, so that was a good outcome. We'd like to do more of that. But there really are limits to what can be done without statutory change.

And so if that is something that the commission is interested in, we're happy to share to the extent that it's not attorney/client. But we're happy to share legal analysis and our thoughts and what's been done already over the past two or three years to look at how we might bring the systems closer together.

CHAIRMAN TOBASH: That's really important and productive. And we'll like to be in touch with you, again, as we get down the stretch.

Just one last question briefly. So there is a bill, and you mentioned, not knee-jerk legislative reaction. And you know that oftentimes it can be very slow moving. But there is a House bill, and we have Representative Miller that's with us today. It came in front of the general assembly, I think it passed the House unanimously, I believe. It's House bill 1460. It has to do with transparency. What is your system's position on that piece of legislation?

MR. GRELL: Well, we typically don't take formal positions on legislation. However, we are very familiar with the bill. We had significant concerns with the bill, whether we could even comply with some of the provisions of the bill, which I think required us to go back 20 years and recreate gross of fees return on investments that were long since over and done.

So we addressed those concerns when the bill moved over to the Senate. There were amendments that were done to the bill that we felt made the bill manageable, something that we could actually comply with. So we were technically neutral on the bill in the Senate after it was amended and leaned to favor it because it included some Act 5 fixes that we really need between now and July 1st.

In the closing days of the legislative session, my understanding is that there was an effort to revert the bill back to the form from which it came out of the House, which made it a complete nonstarter with us. We didn't actively engage, but we made it known that our neutrality on the bill would go away if it was reverted back. And the things that we couldn't comply with were put back in the bill.

CHAIRMAN TOBASH: Thank you very much. I appreciate your testimony, again.

Vice-Chairman Torsella.

VICE-CHAIRMAN TORSELLA: Thank you, Chairman.

Thank you, Glen and Jim, for being here, for your work. A question, first a request then an observation.

We've had some interesting conversations about governance. And we've talked about them in the context of representation and we also talk about, or you talk about them in your testimony on the context of autonomy.

Having spent some time in a previous life at the Constitution Center thinking about governance in a different way, I want to invite you to think about it and make suggestions to us in the context of accountability and checks and balances. And this may not go to form, it may go the spirit, but it seems to me, given the stakes, given the fiduciary obligations, given the, in some cases, unique risks of PSERS' portfolio, the governance question is, are we creating a climate in which understanding and challenging those risks is being done, being done well, being welcomed? Are we creating the necessary checks and balances on that, particularly, if there's a desire for more autonomy and more internal capacity? So I want to invite you to consider a submission to the commission on that as we go forward.

MR. GRELL: I would say, you have been helping to inform us and push us in that direction. And I think it's welcome.

Some things that we've talked about for years, for example, fiduciary counsel, is something that, first of all, we couldn't do fiduciary counsel until we had our own independent counsel from the Governor's Office. I mean, the kinds of ideas that you've been bringing to the board have been challenging in questioning us as a staff. And I think we're responding.

The recent transparency resolution that we did is moving us in a forward direction. And I mean, it's always, change is always difficult. But we do appreciate the challenge that you bring to the board. Challenge may be not the right word. Pushing us, questioning us, it has helped us. Just as when we went through the Auditor General's audit, we didn't like the process, but in the end, we think it made us stronger and we're looking at the issues that you have brought to the table in the same fashion.

VICE-CHAIRMAN TORSELLA: Thanks.

Well, then, in the spirit of you appreciating, let me ask a question. Appreciate may be a strong word.

But by the way, the other thing I feel compelled to say, I do think the importance of living up to the obligations we as a state make to the people who work on our behalf can't be said often enough, whether in chart or a narrative. So as we said in the case of SERS, and previously, the consequences of the arc have been dire and the importance of continuing to meet them is paramount.

MR. GRELL: I think I just learned recently that your mother is a member of PSERS?

VICE-CHAIRMAN TORSELLA: No, I'm sorry. She's a member of SERS.

MR. GRELL: Oh, SERS. Oh, okay.

VICE-CHAIRMAN TORSELLA: She's a former educator, but a member of SERS.

I do want to ask, though, in your testimony, you talk about -- Jim, I think this was in your section -- total management fees, base fees plus profit shares. In PSERS' CAFR, we list investment expenses and we have a dash for profit share for some categories, but not for others where we report them. And I know that derives from GASB and what's readily separable and what isn't. But whether we call it a fee, in your view, is carry a profit share, an expense, an investment expense? Put aside to whom it should be reported.

MR. GROSSMAN: It's funny that you bring that up because I had a lot of soul searching on that one. I mean, to give you a bit of my background, I came up through the public market side and not the private market side. So I spent a lot of time looking at how those fee structures are set up for private equity. So when you think about it, we are entering into a partnership where we are contractually obligated to get 80 percent of the profits. And the general partner, as part of the deal, is obligated, gets 20 percent, essentially, of the cash flows. So I'm not 100 percent certain it is a fee. I mean, I would have told you two or three --

VICE-CHAIRMAN TORSELLA: Not a fee, a cost, an expense.

MR. GROSSMAN: I would have thought two or three years ago, I would have probably agreed that I thought it was a fee. Today I'm not as certain of that, as I explore that a lot closer.

Do I believe it's a number that should be disclosed? Yes, I do believe that. I think that is something that is fair to say that we should be transparent with it, we should be disclosing it. Should it be included on the face of the CAFRs and investment expense? I'm not 100 percent positive I agree with that assessment. But I would agree that we should be disclosing it.

VICE-CHAIRMAN TORSELLA: In the fiduciary responsibility and disclosure department, I was glad that it was disclosed at a board meeting to the fiduciaries recently. Was that the first time that the PSERS Board saw -- and again, I'm not -- I get private equity is different than 10 years ago. Was that the first, to your knowledge, the first time the PSERS Board had been, saw that information?

MR. GROSSMAN: To the best of my knowledge, that's the first time they saw that.

MR. GRELL: On individual deals, it's discussed.

MR. GROSSMAN: Well, every --

VICE-CHAIRMAN TORSELLA: Sure. The terms would show up when the deal is --

MR. GROSSMAN: Every deal that's approved by the board, they see the terms. But from an actual disclosure of the dollar amounts, it's probably the first time that it's been disclosed.

VICE-CHAIRMAN TORSELLA: Great. Thanks.

CHAIRMAN TOBASH: Okay. And I could have very well mentioned, but, Glen, you brought it up that the Treasurer sits as a member of your board. And Commissioner Gallagher has got a question. He also sits and works very closely with both SERS and PSERS as a delegate to your board operations.

So, Commissioner Gallagher.

COMMISSIONER GALLAGHER: Thank you, Mr. Chair.

And again, you know, thank you and the staff and the enormous lift that the entire organization, as well as SERS organization, does every day. And thank you for providing context.

I think when we talk about pensions, over the last eight years I've worked on it, context has been missing. And understanding why the systems are suffering is mostly as a result of what were thought to be good policies at the time, but unfortunately, proved to be otherwise. And so this shows that when the employer contribution rate was artificially suppressed, it starved the system, which brings me to a question.

How does this funding insecurity lead to asset allocation, which leads to asset selection? And then when you're in that asset selection space, obviously, there are costs associated with each type of investment vehicle, so that's my core question.

But what I really want to leave you thinking about is, we appreciate all the fantastic business, best business practices that you're incorporating, you're engaging on, you're looking for better ways -- the dialogue just between Mr. Grell and the Treasurer is indicative of that constructive conflict that brings about constructive change. And so thank you for that.

And to that point, between the two systems, what we're talking about here impacts one in every six households. So you go down your street, statistically speaking, every sixth house is somebody impacted by one of these two systems. So thank you.

If you could, answer that question with

respect to funding insecurity.

MR. GROSSMAN: Sure.

When you look back, you know, through our history, coming into the Great Recession, we probably looked similar to a lot of other pension plans, very heavy in equities, say about 70 percent, 30 percent in fixed income. When we entered the crisis, assets fell significantly. You know, we probably top ticked assets around $70 billion and we fell down to about $40 billion. And that was just an indication of the risk profile that the fund was taking. We had 70 percent in equites, equities were cut in half. That's a type of loss you're going to have.

At the bottom, towards the bottom of the market, what we were facing was an uncertain funding future, right? We knew at the time we were being severely underfunded, the arc. Our cash flow went to about negative eight percent of assets. So the contributions that we were receiving at that time were short by eight percent of the assets of the fund. So if the fund grew zero in that next year, we would have eight percent less in assets. And if you went through a period, a long protracted period of sort of no returns, or God forbid, you had another drawdown after that, we ran into issues where solvency could become an issue.

So we stepped back and we said we really couldn't accept that 70/30 type risk profile anymore. It was way too risky. I mean, 70/30 risk profile, 95 percent of your risk is coming from equities, very little from others. You might as well be in all equities.

So we stepped back and we said, "Well, let's diversify, let's diversify along a lot of different spectrums," which we did to try to get a smoother return.

So what's the trade-off for the smoother return? We sort of cut the tails, what we call the tails of the distribution off. So we were hoping not to have any big large drawdowns, but we also knew we were giving up upside, we were going to have a big market rally. That was sort of the trade that was made. More stability in the asset allocation, and sort of see our way through the financial crisis and to continued health.

And since then, it's actually worked out very well. We're very pleased with how this balanced portfolio has worked. We run a portfolio that's probably in the bottom quartile of risk versus other pension plans. And the stability of returns has been very, very strong.

As the funding has improved, we've modestly taken on increased risk. We've done that through leverage. So we felt we had a very balanced portfolio that worked very well for us. So as funding has improved, we actually used leverage to leverage that portfolio up a little bit, so using modest leverage to get a balanced return.

Is that helpful?

COMMISSIONER GALLAGHER: Yes, it is. And just one follow-up, and I apologize.

CHAIRMAN TOBASH: Just let me jump in for a second.

Jim, can you just get a little bit closer to that. I'm concerned that mic isn't working.

Glen, there's another one. I don't know if it's helpful.

MR. GROSSMAN: Like that? Okay. Sorry about that. Thank you.

COMMISSIONER GALLAGHER: Along those lines, with respect to where we are, we're 60 percent funded. We have a well diversified asset allocation. We had some other CIOs present at the last commission hearing, all of which are thought leaders in that space, from Idaho, South Dakota, and from the Wisconsin system. And each were asked, you know, "Could you do what you do, in terms of that innovation, at 60 percent funded?" And all three said "no." Can you just comment on that, please?

MR. GROSSMAN: Well, each plan has its own specific, you know, benefit structures, legal structures, funding structures, how comfortable they are, whether they're going to see the full funding on a prospective basis or not. So funds that have seen full funding on a prospective basis are probably a little bit more comfortable because they've never missed a benefit payment.

Obviously, we were, we've gone through three years in a row, but to this point, you know -- and I guess I'm not going to be comfortable until I see it through a recession, whether the contribution rate will be maintained, right? So we're at the best of times from an economic standpoint, and we're meeting the arc.

I'm more interested in what's going to happen in the worst of times when the, you know, need for government spending will increase, the tax revenues will fall, and then you're going to have to figure out how to balance that budget. I'm not 100 percent convinced what that's going to look like.

Whether the next recession is in 2020, 2021, 2022, there'll be another recession. There will be a drawdown on government revenues, there will be a draw on government services. How is that -- what's the balancing act that's going to come from that? Will it be the pension systems? Are they going to be the balancing act? Will the general assembly need to raise taxes, which would be very uncomfortable, in a recession, to try and find other revenue sources or will they cut other spending?

Until we see that we can get through that or we see a constitutional amendment -- say that the arc is part of the requirement for a balanced budget, then, you know, I think, to some extent we'll still want to be fairly balanced, fairly conservative.

Now, having said that, we want to balanced a portfolio with an expected return of seven and a quarter and we believe the risk profile is very appropriate for what we're doing today.

So does that answer your question?

COMMISSIONER GALLAGHER: Yeah.

MR. GROSSMAN: Okay.

CHAIRMAN TOBASH: Thank you.

Commissioner Torbert.

COMMISSIONER TORBERT: Just a couple of comments.

And it's really gratifying to hear that you, PSERS and SERS, work together. And the more you all can do that, obviously, the better off we're all doing to be.

Kind of in line with what Chairman Tobash said, asking about one ward maybe over two of them. As you mentioned, there's probably a lot of ramifications, legal ramifications, to that. But in my history of being on boards, I've always found that a little bit smaller board is easier to work with than a larger board. And so, I don't know if that -- I'm not on your board, so you can ax these guys, that's fine.

But anyway, just two comments. The other questions I have, you pretty much answered them.

And by the way, my daughter is an elementary school teacher.

CHAIRMAN TOBASH: Thank you.

Commissioner Bloom.

COMMISSIONER BLOOM: Thank you very much, Mr. Chairman.

First, I wanted to thank both of you for, I guess, putting up with me. And Jim Grossman, on last Friday, spent three hours with me. And I must have been driving him crazy. He never rushed me. He was just terrific.

And, Glen, thank you for inviting me to your meeting. And I don't think -- I think the same thing that I said to the folks at SERS about hiding fees and why I think there was an interest in trying to figure out, you know, "what ifs," okay? And, you know, one of the great what ifs, of course, is, "If the arc was paid, where would we be?"

The only question I really have and -- because I got all my auditing -- if you have anything to say about the auditing questions I asked SERS, James, you can just add that in. And if you don't, that's fine, too. I think you were pretty comfortable that your valuations were good. In fact, you were pretty comfortable that the SERS valuations were good.

I just want to talk for a minute about liquidity.

In a majority downturn in the market, between private equity and venture capital and real estate, absolute return, the drawdowns that are involved, the private lending, do you have any liquidity concerns? My calculation, off a sheet that you have -- I'm sorry I don't have it here, I could read it off -- was about 65 percent of your assets at this point were possibly in illiquid vehicles. Do you have any uncomfortable level about where you are as far as that's concerned?

I'm sorry I didn't ask you that on Friday. I wouldn't have had to ask you today.

MR. GROSSMAN: That's a good question.

I'd look at our illiquid assets at around 45 or 50 percent, probably 45 is where I'd put them.

You know, when we do the asset allocation, you know, we have a stress test on the liquidity of the fund. Using fairly draconian expectations, very deep recession without any recovery for a number of years, can we withstand that from a liquidity standpoint? So we do look at that very closely.

Would I want to increase illiquidity of the fund 10, 15 percent from here? No, I think we're probably where we're comfortable with.

You know, private equity is illiquid, private real estate is illiquid, private credit, not as illiquid, but illiquid, tends to have a shorter life span. So the cash flows come back faster.

The absolute return or the hedge fund portfolio, a lot of that is fairly liquid. A lot of that I can turn around very quickly.

COMMISSIONER BLOOM: Yeah, I didn't mention hedge funds. I know they're --

MR. GROSSMAN: Yeah, the absolute return program, that would be the hedge funds, or where the hedge funds would reside. Most of that is fairly liquid, that we can get money back fairly quickly.

Risk priority is another one, where people think it's illiquid. I -- you know, we reduced one percent of the risk priority portfolio, it took me three days to do it, to get the cash back. So I can turn that cash very quickly. That's one of the things I really like about the risk priority portfolio, it's a very balanced portfolio, but it's a very liquid portfolio. So it gives me a balanced exposure to the markets, but it also provides a big source of liquidity, should I need it. And I can get that fairly quickly.

So, no, I'm not too concerned. Right now, we have jumped the cash balance of the fund up to about six percent. We did that at the beginning of October. We started -- we sort of sold -- part of the new asset allocation that was approved by the board was to reduce risk. As part of that, we did sell a significant amount of assets, as well as raise cash.

COMMISSIONER BLOOM: Well, thank you very much.

And again, I want to thank both of you for putting up with me and my questions.

And anything on valuations, Jim?

MR. GROSSMAN: We talked about that. Again, I think in the lines of, you know -- I think you were talking to me about two different things.

So the valuations themselves, I do believe tend to be conservative, from what we see on final sales, to say about 10 percent. I think you said that in your question.

Regarding the secondary sale that you were talking about with SERS, while they may get a discount trying to sell that in the secondary market, it doesn't necessarily mean those assets are impaired. It just means that the buyer of those assets has a higher return expectation than may be left on the books at SERS. So those assets may have an eight to ten percent return profile going forward as they're noncore positions, maybe late-in-life funds. A buyer may want a 20 percent return on those cash flows, so they're going to demand a discount to buy those. So they're not impaired from an accounting standpoint.

And from an accounting standpoint, an impairment would be my cash flows from that investment I expect to be less than the value on my books, in which case you'd like them down to essentially what you expect those cash flows to be.

I think in the case of most of those -- and I don't know the funds individually, but my guess would be, those valuations are right. They just may not have the earnings power going forward, which is why a lot of funds like to use secondary sales, so they can sort of clean out sort of noncore funds and recycle that into funds that they believe will have a higher return profile going forward.

But, you know, it's sort of a trade-off. You have to look at it like, is that too large of a discount or do you think that the secondary buyer is haircutting that asset too much? You may want to hold that because that return is better than you can get from recycling those assets.

Does that help?

COMMISSIONER BLOOM: Yes, it does.

And thank you again, both of you.

MR. GROSSMAN: You're welcome.

CHAIRMAN TOBASH: Okay. Thank you. Thank you very much. We hope that this commission is going to end up being a challenging, but inevitably productive endeavor.

As I mentioned earlier, we would much appreciate this open line of communication as we go down the stretch.

With that said, we're going to ask our next testifiers, Dr. Monk and Dr. Staub, to come forward and get set up.

And if we could, could we just take five minutes right now, while they are -- we're going to eat it up, we're all going to push ourselves away from the table a little bit quicker. We'll have less lunch, but we appreciate the fact that you could stick around and answer some additional questions. You're important -- your testimony is very important.

So a five-minute leg stretch, then, Dr. Monk, you are up next. Thank you.

(Recess.)

CHAIRMAN TOBASH: Okay. Seeing as the music has stopped, it's time for everyone to find a chair, if they're still available, so we can get on to the next part of our presentation.

We have got Dr. Ashby Monk who is with us, and is becoming not a stranger, in fact, a friend to our organization and Harrisburg, the Capitol.

So we appreciate you being here today, Dr. Monk, to help us as we start to wrap up testimony. And your continued work to make sure that our consulting document is as great as it could be.

And you are also joined by Marcel Staub. Marcel is a founding partner and CEO of Novarca, an independent consulting firm, focused on identifying opportunities for cost saving and transparency for institutional investors, which is extremely consistent with what this commission is charged with doing. So we appreciate you being here. Dr. Staub also studied law at the University of Neuchâtel in Switzerland, and holds a Swiss banking diploma and he sits on various companies and boards.

We appreciate you both being here today and we're anxious to hear your testimony. Thank you.

DR. MONK: Thank you, Mr. Chairman, Vice-Chairman, and to all of the Commissioners. Once again, it is a great pleasure and honor to be back here in front of you today.

I admit that I'm excited about today. I think this is the day where we begin to put forward recommendations and potential solutions to solve the problems of fees and costs and finding $3 billion for the state of Pennsylvania.

I think I'd first like to start by just recognizing the prior panelists. In listening to their remarks, I'm truly reminded that there is a single constant that seems to bind everybody in this industry, and especially this room, and that is that we want what's best for the pension plan beneficiaries in the state. You know, everybody may have different perspectives on how we get there, but I think that central constant gives me a lot of confidence that we're going to get to a solution that may be difficult, may be challenging. But that we will push forward and make the hard decisions to do what's in the collective best interest. Sometimes thinking creatively, sometimes doing the hard things in order to recapture that wealth that's being funneled through to Wall Street and the financial services intermediaries.

Joining me to testify is my good friend, Marcel Staub, CEO of Novarca. If his shoulder looks sore, it's because I twisted his arm heavily to get him to work on this commission with us. This isn't his normal type of project.

So, Marcel, it's awesome to have you here with us.

I'm going to lead off with probably a half-hour remarks talking through a number of issues. I'm going to turn it over to Marcel.

And then with your permission, Mr. Chairman, at that point, I think we will take questions. I'm open to taking questions at any point if anybody wants to challenge me, but I defer to you on the protocol.

In terms of the presentation, we want to find paths for each plan to recoup 1.5 billion. I'm going to start out in the first section talking about key drivers, what we might call in our work investment and organizational ingredients that can be integrated into the investment strategy, the operational makeup of a pension plan that we believe, after two decades of experience and research on the topic, will help PSERS and SERS cut their costs, improve their alignment of interest, and ideally, because that's what this is really about, generate higher returns.

I'm going to run through these cost-savings ingredients in detail. I'm going to describe them and their key considerations because each cost-saving ingredient comes with pros and cons, they come with challenges and considerations. And so I will highlight how those paths might be implemented. So it's not just, what are the paths available, it is what is the path and then what is the likelihood of them being implemented here?

In this respect, and it's come up a few times already, I will spend a few slides talking about investment governance, public pension plan governance, and the requirement to have strong and oftentimes expert boards in order to oversee complex and innovative investment strategies. I will also come back to a topic that was raised in the prior session just briefly, to talk through some of the risk-adjusted return numbers.

And then drawing on the cost-saving strategies, some of the findings from the risk-adjusted return numbers, we will make recommendations at the end of this presentation. We will offer a series of caveats and qualifiers, but we're going to make two recommendations to this commission on a path forward to save 1.5 billion per plan over 30 years.

So if we just jump right into it and we think about this in kind of generic terms, as an industry of public pension plans -- and we think that these plans that are here in the state of Pennsylvania are definitely not alone in dealing with financial intermediaries and trying to reduce the cost -- we see several ingredients that can help them cut costs and improve efficiency. And the first one is innovation.

So investment innovation is a way to change the supply and demand of capital by doing things that others are not. Now, I'm going to dig into this a little bit because innovation is hard and it often goes against the very nature of public pension plans in their design. But innovation is undoubtedly a pathway to cutting costs and improving outcomes, if done correctly.

The second key ingredient that I'll talk about is a strategy simplification. So complexity is increasingly pervasive in financial markets and the products being consumed by pension plans to generate return. This complexity comes with new costs and benefits. Oftentimes those benefits are uncertain, but the costs are certain, which means you can seek to remove complexity and remove fees and costs and potentially increase performance.

To be clear, when you reduce complexity and you simplify, it can imply a change in exposure and different risk levels for the fund, so that's a consideration that I will mention in my remarks.

The third ingredient that we're going to review is what we call cost arbitrage, where we look for similar risk factors in different markets at lower costs or we look for new cheaper ways to access the same risk factors, either in terms of products or assets.

And then lastly, and this is where Marcel will end up taking a much deeper dive in his remarks, monitoring and revisiting relationships with managers.

Taking what you have in the portfolio and simply looking to get a better deal.

So I'd like to just point out that this is just a framework, a simplification, to allow the commission to think through what the potential ingredients are to achieve your objectives. Certain things that I'm going to be talking about include all aspects of these ingredients. You know, you put a dash of this and a dash of that in your cost-savings meal, if you will. With that in mind, let's dive into the first ingredient.

Investment innovation refers to investors breaking out from the constraints that many operate under, okay? The truth is, in this space, pension plans are conservative and often purpose built to be efficient, which means innovation is often unheard of. Efficiency and innovation, we know in the literature, run in direct opposite directions. It's incredibly difficult to run an efficient process and then seek to innovate that process at the last minute. You're no longer running an efficient process. And so where your focus is efficiency, innovation can be challenging.

Prudent person rules, which often govern these funds, strict interpretations of fiduciary duties of these plans, also often push conservatism. They herd with each other. The fact that these plans also tend to have monopolies over their assets, as in they're going to have these assets and control them come what may, tends to create very odd incentives inside the organizations themselves. The pension plans are not going to go out of business. Stanford Management Company will always manage Stanford's endowment. But the people inside those organizations will change and shift over time, which again leads to incentives inside these organizations not to get fired, what we call managing career risk. Because the organization itself will just persist. And that monopoly over assets and that lack of death removes also one of the big drivers of innovation. If an organization has no threat to die, then you're losing that inspiration for innovation that exists in the private sector. This is pervasive.

So when we think about innovation, we think about organizations that are trying to overcome all of that, all of those challenges. And if they can do an innovative thing, they are deploying capital in places that are far less competitive. They are buying products or investing in managers that simply don't have the same demand for the supply.

Some examples of investment innovation could include seeding new managers, entering into new forms of collaboration with peers or with partners. We heard a little bit about that today in terms of the collaboration going on between SERS and PSERS. Although it's in an initial state, you heard about it. There's many other cases of pension funds coming together to launch platform companies to invest in energy or to build platforms to go out and seed private equity managers. These types of innovations are becoming more and more pervasive and they're being launched almost exclusively based on the notion of improving alignment of interests and reducing the fees and costs captured by Wall Street. You're seeing more and more pension funds using new corporate structures, so "platform companies" has become a buzz word. Instead of setting up with a limited partnership and a general partner, some people are just buying companies and using those companies as an extension of their internal team to go and do hydro assets around the world, airports, toll roads. Real estate operating companies have been in existence for 20, 30 years, have proven very successful. Again, a completely innovative way of getting your capital out into the physical assets in the ground, but where you can do it, you can achieve better alignment of interests.

And then there's also the rapid rise of new technologies, artificial intelligence, alternative data. The digitization of the built environment is providing investors that have data capabilities with all kinds of new ways of assessing and investing in products and assets.

Again, highly innovative, requires an innovation culture that often doesn't exist inside a pension plan.

As a quick example of how investment innovation can save money, looking at seeding. You can think of seeding managers as taking a kind of quasi-distressed manager approach. So as we know in the business, when managers are in distress, we can generally get a good deal. We look for managers that are struggling and we go back to them and we say, "Hey, that fee is little too high," or "that carry is a little too high, let's reset because you're struggling and you're losing capital." The interesting thing about seeding a new manager is you're dealing with probably a wonderful manager who is distressed only because he or she is setting up a new firm. And so that distress has more to do with the stress of setting up a firm, the crazy idea of breaking out away from the general partner that had been funding them and beginning to build a new general partner. And we've seen time and time again that seeding can drive significant cost savings.

Using the example at the bottom of the page here (indicating), which is probably illegible to just about everybody in the room, I show that a program of seeding which was a non-American pension plan, so a bit more of a commercial governance arrangement than you find here, managed to go out and seed over 10 new GPs and save incredible amounts of cost. Again, incredibly innovative approach, required teams on the ground, building relationships with private equity managers, and it required a board that had the wherewithal to delegate authorities, oversee the process, manage the risks. The board was also focused not only on managing the risks of the investment portfolio, but managing the risks of the new asset management businesses. So the board was overseeing a whole new set of risks through reporting that it hadn't been monitoring before in order to make that work. That's innovation.

The next ingredient is strategy simplification. I've already mentioned it. Complexity is increasingly common in pension plans today. Sometimes that complexity can offer unique risk reward dynamics. Sometimes that complexity can lead to a financial crisis like it did in 2007, 2008. When adopting complex strategies, it's critical that pension funds -- and by that I mean the boards and the staff -- need to really understand the products that are being purchased.

While the benefits are sometimes hard to judge -- as we found out, experience tells us that -- the costs are usually much more certain. So complexity can be costly and dangerous in a plan that is not properly resourced to monitor and assess the complexities being brought into the portfolio.

A simpler product tends to be cheaper than the more complex strategies. The most notable example of this, which I'm sure everybody has watched, is the shift in public equity from active management to passive management. It's been a massive shift over the last five years as huge asset managers have begun to gobble up five, six trillion dollars of passive inflows, which has also been largely based on the research showing active management is a bit of a fool's errand. And we can point you to a lot of the research that says that. If you're so interested, it will be in the report that we submit.

In terms of simplification -- I'm still on that slide, a little bit hard to see the slide -- look, we can talk about a few examples. Moving from active to passive in public equities, move from private assets with their large information asymmetry, illiquid risks, and a lack of transparency to public markets. We've heard the proponents and drawbacks of investing in private markets versus public markets in previous hearings, so I don't want to necessarily spend a lot of time talking about those in pros and cons. But what I will mention are some of the considerations that need to be thought of in the process of simplifying an asset strategy -- investment strategy.

How will these new strategies change your risk profile? The complex strategy was in theory or ostensively complex for a reason. You have to understand what you're giving up in the process of simplification. Are the simple strategies consistent with the characteristics of the fund, the funding ratio, liquidity requirements? Note that simple strategies can, in fact, be much more volatile than say an absolute return strategy.

And so, even in a simple strategy, the board needs to be on the next level. The board has to understand that the big corrections occur in markets, like the one we were experiencing over the past few days and seems to be abating today. But the last thing you want to do is have a lay board sell out of a simple strategy that is a passive replicator at the bottom of a stock market crash, just as the market is rebounding. So as you're building into a simple strategy, just be aware that there are considerations at the level of the board to ensure the board understands that, as a long-term investor, there will be huge drawdowns and returns, and that is what it means to be long-term.

In sum, simple strategies are simple to understand. They can ensure low-cost access to the needed risk factor, but they also sometimes require a very seasoned and thoughtful board that has a ton of experience in investing and can understand the long-term fluctuations that are just pervasive in markets. That's ingredient number two, simplification, removing complexity to remove cost.

Ingredient number three is what we call cost arbitrage. And there are two components to cost arbitrage. The first aspect is related to the risk factor or total fund approach to asset allocation. Asset class labels can often be misleading and investors have started, rightly in my view, to base their investment portfolio construction on risk in order to figure out how much return they are generating per unit of risk, rather than simply filling buckets and focusing on products and asset classes.

By taking this total portfolio approach, which is sort of a risk-based factor approach, investors avoid the pressure to buy or dispose of illiquid investments at nonpreferrable times. You're not just filling buckets of private equity or infrastructure or whatever. You're thinking about the underlying risks, and as a pension fund, wondering which risk you can acquire at the best cost to achieve your objectives.

Cost arbitrage can be achieved when looking at investment products on a risk basis. Certain risk exposures can now -- especially through the rise of certain technologies, financial technologies and true engineering-related technologies -- be achieved at lower costs. For example, the expensive active management strategies are now being redeveloped with technological advancements so that they can be offered in a lower cost product that achieves the similar risk-adjusted performance. We call these enhanced factor strategies and they can be accessed on a very cheap basis.

Okay, that's the first part of that ingredient. The next part is what we call reintermediation and internal management.

Look, we know from tons of research that financial intermediaries are incredibly expensive. I think the first 15 minutes of my last presentation went into the core of how much wealth is being kind of sucked out of our pension plans and into Wall Street and the financial services industry. This isn't lost on most pension funds around the world. It's definitely not lost on the people in this room, that the use of intermediaries can be costly.

I think I quoted Thomas Philippon up there (indicating) who wrote a wonderful paper in which he showed that the per unit cost of intermediation in financial markets -- I know that's a mouthful -- the per unit cost of intermediation in financial markets is the same today as it was a hundred years ago. So we've had a hundred years of innovation and finance, and yet, it costs the same to move money from here to there.

So cost arbitrage can also come in the form of reintermediation or disintermediation. Reintermediation refers to forming new partnerships with managers. Those partnerships are ideally more aligned. We might think of these where they are often invoked as evergreen funds or platform companies or, you name it. We're seeing this all over the place and it's all about achieving greater alignment of interests.

Disintermediation is a bit different. It's about internalizing investment management so as to source assets directly. You're owning the same underlying asset. You're just finding a different pathway to get it. As if you were choosing to buy an asset in an internal market rather than an external market. Cost arbitrage is ultimately about replacing these expensive external teams with an in-house team.

Now, insourcing can be more resource-intensive in private markets compared with public markets, but even there, the cost savings can be astounding. I'll give you a little example.

We provide an example here (indicating) of what the cost savings from internal management can be. This is a quote I took from a friend of mine who used to be the CEO of a major Canadian public pension plan. This is his example.

Using an infrastructure investment portfolio of 10 billion and comparing the external versus internal cost, he walked us through a very simple framework and showed incredible savings. So even with 40 people on staff at this Canadian pension plan, paying them $1 million per year, total of 40 million, his model showed that it still saved the plan 160 million a year. One hundred and sixty million a year over thirty years is a big number.

So there's a number of assumptions made here. And those high level numbers around internal management are why "insourcing" was probably the biggest buzz word of the last decade. Again, it's not lost on these pension plans that they're being overcharged by GPs and are looking for a new way.

The challenge is in insourcing and getting it correctly, because there are a number of considerations. So just as there were considerations about the simplification, there are also lots of considerations around cost arbitrage, especially with respect to internal management.

The first group of considerations refer to the nature and characteristics of the fund in question. So is internal management appropriate? Do you have the size? Do you have the time horizon of liabilities? Do you have a cash flow position? What are the characteristics? What are the comparative advantages that we can identify that allow you to make a case, a strong case, to manage assets internally? Can you recruit talent? All these things need to be considered.

Secondly -- and I will go into this in much more detail in a moment -- there is a significant governance requirement for doing internal management, significant. This requires a level of governance oversight that I will detail in depth after having done a research project in 2012. And I'll save that for when I get there.

Monitoring and renegotiating is our final ingredient. In some ways it is the most palatable, although it creates challenges for LPs, asset owners, pensions with their managers, because it puts them in a confrontational position at times. But the truth is, investment managers are incredibly good at negotiating you out of money that's yours.

I know many investment managers, for-profit managers, that pay the money to send all their investor relations people to the negotiating courses at Harvard. How many of your pension staff have taken the negotiating course at Harvard or at Wharton? These people are trained to negotiate in incredibly smart ways. They are coming in with a set of skills that is not often replicated at the pension funds I work with.

Generally speaking, public market negotiations offer more immediate rewards than private markets. It's true that a private market negotiation can have massive impacts. It's just that once you sign those LPAs, it's done. It's very hard to go back and renegotiate a limited partnership agreement.

I'd also mention that getting access to data is incredibly important in private equity to carry out a proper monitoring function. Investors should be accessing things like cash flow data of portfolio companies so that valuations and true performance, as in the value add, can be obtained.

Making sure you get that cash flow data is important, and you actually have to ask for it. Most don't just provide it. But if you can get in there and you can understand it, then you can use that information in a follow-on negotiation. The value that you're adding isn't what you say it is, and I'll prove it with my cash flow data.

There's a bunch more sophisticated methods today that are arriving that can help you in private markets. I'm going to leave the public market discussion to Marcel.

One thing I will flag before leaving this topic is, in the monitoring and renegotiation kind of ingredient, there is consolidation. Now, I admit that consolidation could be seen as innovation, it could be seen as cost arbitrage. But ultimately, what you're doing by consolidating plans is giving yourself a stronger negotiating position.

And so, while I don't think Marcel is going to talk about that, our belief is there could be incredible amounts of scale savings from mandates with external managers just by simply combining portfolios. It doesn't need to be entire funds, although I might encourage at least an exploration of that idea. But it definitely could include combining, say, a private equity allocation or an absolute return allocation, just to move the state of Pennsylvania past certain break points in fee negotiation contracts.

Okay, those are the core ingredients. I recognize it's a simple set of ingredients. It's four ingredients, but it gives you a set of tools that we are operating on, as your consultant, to think through how we help you achieve your objectives.

Not every fund should utilize every ingredient, okay? And so, I'm going to talk about governance for the next 10 minutes, because I think without a conversation around governance -- it's come up twice already, clearly the commission is asking about it. Without understanding the context of the plans here and the makeup of the board and the way in which the governance structure is established, I think we can't give a strong recommendation as to which path to take.

I think governance is crucial. I think it's probably the most important lever pension funds have to achieve their objectives. And in the U.S. public pension context, I'd say, in general, it is suboptimal for the time. When it was established, it may have been optimal. For the time, with the level of complexity we have in financial markets and the level of complexity we are asking staff to take in order to meet the expectations we saw on this chart over here (indicating), I don't think the governance is today fit for the job that we are asking pension plans to do.

There's a tension between political and democratic interests and expertise. And as investment management has become a lot more complex, I would argue you have to have the right skills and expertise on the board to oversee the investment decisions of a fund.

I understand and see this as an incredibly challenging dynamic. And the reason nobody solved it is because there are no easy solutions, which is partly why I am thrilled with this commission, because I think you have an opportunity here to raise this to the front pages of newspapers.

Sponsors have a legitimate desire and right to oversee their plans. But that representative instinct has to be balanced with the expertise needed to oversee increasing complexity. I'm going to go into this in more detail in a moment.

But as you begin to adopt some of these innovative strategies that I've described -- internal management, seeding, reintermediation -- you need an appropriate governance budget. What we call governance budget does not refer just to the dollar amount you pay a board of directors to run. I want you to think of a governance budget as the potential resources available to an organization to manage that organization.

Governance budgets are akin to risk budgets. The risk budget guides your ability to generate returns. We know, there is no return without risk. A governance budget guides your ability to oversee the risk being taken. They are all connected.

In my work, we use governance budgets specifically to mean resources available to a board and staff in terms of knowledge, capabilities, commitment, the process, the protocols of decision-making in order to achieve your objectives. If you want to simplify it, it's resources.

The reason a governance budget is important, to understand stems from the fact it is critical to understand the governance when considering adding new risks or new complexities to fund new cost-savings initiatives. So if we are going to go down the path of ingredients that include internalization or innovation or more complexity, or even less complexity, then we need to have a governance budget that is appropriately aligned with those risks.

Our research has shown that one of the most important factors driving success or failure of an institutional investor over a long run are the procedures used to nominate board members. The nomination procedures should prioritize. This is today, this isn't 40 years ago. Today they should prioritize commercial, financial, and entrepreneurial expertise over political or stakeholder affiliations.

The origins of these funds, I am aware, are political. But their theater of operations is quite clearly commercial. And so it is important to find board members that can align with the operating environment and not just represent the plan's origin. If we want to achieve our objectives, we need to find a way to balance those two.

In 2012, Professor Gordon Clark and I did a project on insourcing -- that's governance consideration (indicating), that's our research (indicating), governance budget -- we did a project on insourcing. The purpose of doing this project was to look at how certain plans that we were working with and studying could move assets from external managers to internal managers.

We had the honor and pleasure to work with the Australian superfund, which is today the largest superfund in the country of Australia, starting in 2012, to understand and advise them on their internalization project. They moved assets from almost 100 percent external to almost 80 percent internal over that time period. They did so to get better alignment of interests, better access, to overcome capacity constraints with managers, to lower fees, you name it.

We did 20 case studies from around the world. It took us almost two years. We sought to understand how the best funds on earth were bringing assets in-house. And the output was long and detailed and way too academic, but I'm going to give you a pyramid. And that pyramid hopefully is simple enough for just about anybody to read without falling asleep.

The pyramid is the ingredients required to internalize assets successfully. I will acknowledge, it is an ideal state. The number of plans that have this pyramid in this form globally are probably 10. But this is the ambition and this is where, if I was a board of directors overseeing a pension plan with a fiduciary duty, every single moment of every day I would be pushing my staff to achieve this pyramid.

The pyramid starts with governance. You have to have good governance in order to understand the business, understand how to resource the business, understand how to recruit talent, what it means to take risks, what a derivative is, what all these things are. They don't necessarily have to be finance talent, but they should have experience either building businesses or running commercial enterprises. Some component of the board needs it. Not all the board.

If you look at the Australian context, they usually have an administrative board and an investment committee that does all the investment decisions. And there's a subset of the board members on the investment committee with a set of experts on the investment committee. You get good governance.

And now that you have good governance in place and you have a board of directors that has the power to resource the organization, they have the expertise to understand what's required, they can recruit talent. With that talent, you want to incentivize these people to take risks because ultimately, you're going to be asking them to take risks later on as they internalize assets. You build a compensation program that has a performance component. You think about recruitment and retention. You think about culture. You think about all those things.

With high-quality people and good governance, you can begin to build out your organizational capabilities, data, systems, legal, compliance, audit. These are the foundations of good institutional investors. You have a single source of truth database that is yours, that you can trust to understand where your portfolio is today.

On top of your organizational capabilities, you can begin to power risk systems. You have a governance board, you have people, you have data, you can begin to understand risk, your portfolio, and your enterprise. Now you're starting to get true sensors around this organization to be able to monitor it and watch it move.

With the risk system in place, we can now go to the team and say, "Take risk. We need you to have a culture of risk-taking. I know for a long time, you have had the luxury of never ever being fired. Well, now we're asking you to take some risks because this is an investment business and the only way you generate return is through risk-taking." So let's build that culture, in a context of risk systems being powered by good data with great people, and very smart oversight.

Now that you have a risk-taking culture, you have to think very smartly about which assets you actually internalize. Do we bring in-house fixed income or do we bring in infrastructure? Do we do real estate directly or do we do indexes? Every single choice is context specific.

The Alaska Permanent Fund runs fixed income internally and does it very well. AustralianSuper runs infrastructure. New Zealand Super runs global tactical asset allocation. They run different things because they have different comparative advantages that they've identified. That's the smart asset allocation.

It's only at this point should the board be delegating internal authority to anybody. With all this in place, this foundation of excellence, the board can begin to say to staff, "Here are your delegations, here are your marching orders." If you start with a delegation early on, and say, "We rely on staff to do these things," you're going to risk having a major failure. And we've seen those failures. We've seen people try to internalize assets and have major failures.

So with all this in place, the board can be confident that they are monitoring the mandates that are being implemented through the risk systems, powered by the data, with the good compliance, with the legal oversight, all this stuff humming. Then you delegate.

With the delegation, you then move into -- I skipped mandate definition because we don't need to talk about how we define the mandates just yet.

Communications, now we're paying people real money internally. We are building direct programs. Some of those deals are going to absolutely go to zero. It's inevitable. Your pension plan is going to do an investment that goes to zero. Is the plan sponsor ready for that? Is the board ready for an article that says, "This investment we did went to zero, we missed something." We're taking risks in this business. So some of those risks work out and some don't.

And so you have to be proactive with your communication externally to the world to help these organizations understand what you're doing and why you're doing it and why you're compensating in the way you do. That communication should include incredible detail on carried interest from private equity. Why? Because you're making a case for internal resourcing. How else do you make the case without incredible detail on carried interest from private equity?

Last, but not least, you build networks. You go out and you develop relationships. And the best institutional investors in the world today -- Canada, New Zealand, elsewhere -- are building proactive teams to foster these relationships, relationship teams. It's the last thing. The overseas offices that you hear about, it is literally the last layer on the pyramid.

I wanted to share with you that research output because it was the product of an enormous amount of work. It's being utilized today by a number of pension plans in their insourcing planning. And it is partly how I would assess any pension plan that came to me to say, "Hey, we have an idea and we want to internalize asset management." I would say, "How's your governance? How's your people? Tell me about your systems, your administration, your compliance."

So with that in mind, we did a quick review of some of the governance of the plans here today. It's already been discussed, so I don't need to go into too much detail.

Let me preface this slide and the next few slides by saying, this wasn't necessarily part of our scope and we weren't given an opportunity -- we didn't have an opportunity to sit down with the board members from these plans, which we would normally want to do if we were going to do a true skill or gap analysis of the boards. But there's enough public information to be able to make some assessment of these boards and their governance.

If you look at PSERS, you have 15 members. It's a wonderful administrative board. I would not describe it as an investment board. It is representative. There is some expertise on there, but I don't know if that is sheer luck that that expertise arrived there or if it's part of the nomination procedures to ensure it's always there. There's a difference.

PSERS is running quite a complex and innovative investment strategy with lots of illiquids, use of derivatives, internal management, seeding new managers, even looking to open foreign offices in places like China. It appears to me that PSERS may need a new governance structure to oversee the current complex strategies. The current governance structure does not seem fit to oversee the current complexity of the portfolio.

There's an overreliance by the board on consultants. The investment staff seem to drive everything forward. And while I have huge respect for everybody that's working there, delegation to staff has to be accompanied by adequate oversight, has to. That pyramid needs its pieces in place to ensure you're not exposing the system to unknown risks.

If I move on briefly to SERS, again, this is publicly identified information. It's only an 11-member representative board, which I'd acknowledge as better. But it doesn't seem to be functioning as an investment board, per se. Again, it feels more like an administrative board.

There are governance of people going on, and some of this governance work seems to be on the right track, which I congratulate them for. If you read the SERS statement of investment policy, we just happened to notice the following statement: "In order to administer the system and carry out its investment obligation, the board relies heavily on both staff and external contractors."

I think it's okay to rely on those. To rely heavily implies to me that there has been a shift in the principal/agent relationship. The principal in this equation is the board. The agent is the staff. Capitalism functions by principals holding agents accountable. Without that you end up with principal-agent costs and all sorts of distortions that are hard to predict. The board must hold accountable the staff.

There was also a note that they end up relying greatly on consultants. Just in our prior experience here, we had Tim Jenkinson from Oxford, who has written two papers that show the selection of investment managers by consultants has shown that the value out of investment consultants is questionable. So the academic research would suggest that consultants are not a replacement for a great board, an expert board.

The board is great. The board is representing its interests. It just may not be expert, and we need an expert board. I just want to clarify that.

Okay, so a brief comment on administrative boards versus investment boards. I think it's interesting to note that the U.S. public sector pension plans that have been able to carry out the innovative strategies like internal management successfully have a separate investment board compared with their administrative representative board. These include some of the funds that were here last time. So good job in picking the right funds to show up here. South Dakota, state of Wisconsin, and Florida state all have separate entities.

And if you'll permit me a moment, I'd just like to read from each of those states' foundational laws and regulations around the plan. In South Dakota law, "The members of the State Investment Council shall be qualified by training and experience in the field of investment or finance." And the state of Wisconsin board, five members, at least 10 years' experience in making investments, 10 years. Florida has a separate Investment Advisory Council appointed by the trustees consisting of nine members, so dual board structure. The trustees of the board appoint an Investment Advisory Council made up of experts.

In contrast, if we look at SERS, "Each member of the board will be required to obtain eight hours of mandatory training in investment strategies, actuarial cost analysis, and retirement portfolio management on an annual basis." To me that sounds like the definition of an administrative board. Eight hours, as much as I applaud the education efforts and always encourage pension plans to do education with their board members, eight hours is not the same as a ten-year career in finance.

On PSERS, the board consisting of 15 members, is "an independent administrative board of the Commonwealth." That's in, that's a direct quote. "The members of the board of trustees of the fund have exclusive control and management of the fund and full power to invest." So it's an administrative board with full power to invest.

Investment boards ultimately facilitate the environment in which investment decisions are being made. This needs to be a commercial environment. They need to monitor and hold accountable the CIO. They need to maintain a nonpolitical environment. They need to get on with the business of generating investment returns.

In summary on my governance comments, it appears the capacity, resourcing, and expertise of the respective boards of the two Pennsylvania plans is not well aligned with the complexity of the plans' portfolios. The governance budget does not seem to match the risk budget, which means the complexities and risks in the portfolio are likely -- although I won't say definitely -- not fully appreciated by the board. This is problematic.

I understand there is a lot of reporting that goes on. One thousand two hundred pages may be delivered to this lay board. I don't see that as best practice. You should refine those 1200 pages into something that is digestible, that the board can understand and have strategic conversations about.

A lower governance budget would be suited to lower levels of complexity and sophistication. And I think the reason we've done all this is because we think this should be taken into account when identifying cost savings.

Mr. Chairman, I just wanted to ask a question. I have three slides on risk-adjusted returns, which we've included. Would you like me to go and do those? I realize we're already running behind. Or would you like me to move to the recommendations?

CHAIRMAN TOBASH: I think in the spirit of time and trying to keep on track, why don't we submit that complex information into the record and move right on to recommendations?

DR. MONK: We will definitely be putting it all in the report, and that report will be sent to all the commissioners.

And I'll simply note that when we were here last time, we were uncomfortable presenting numbers that we had not fully vetted. We've done the hard work. We hired an extra adviser to come in, his name is David Goerz. He is the chief investment officer of Strategic Frontier Management, and he is a board member of a risk analytics firm, Axioma, and he has vetted all of the data with us and our team to make sure that we're presenting information that is factual.

CHAIRMAN TOBASH: So we appreciate your deep dive and your backing up your information with outside sources. And it's going to be an important part of the final product. And I think we move on to recommendations for today. Thanks.

COMMISSIONER GALLAGHER: Sorry, I realize that time is of the essence, and I'm sorry, Mr. Chair.

And I appreciate you submitting that. And I was kind of hoping that we'd see, actually, the Nobel laureates' work. I think we were promised that. But that's okay, now I'm just giving you grief.

But I think the talk about risk-adjusted returns is more within the scope of the statutory duties of this commission than is governance. So us suppressing the conversation about risk-adjusted returns at the expense of governance seems a little bit like a stretch. So I just want to say --

DR. MONK: I'd be happy to do that.

COMMISSIONER GALLAGHER: -- for the record that I think governance is important, but not in the statute.

CHAIRMAN TOBASH: Since a commissioner has brought up the topic and would like to dive a little bit deeper into it, then I'd appreciate it if you could comment on it.

DR. MONK: Yeah, let's do it. I'm more trying to respect the time of the commission than my own time.

CHAIRMAN TOBASH: Understood, but if it's an importance topic to all of us --

DR. MONK: Let's do it.

CHAIRMAN TOBASH: -- and we'll develop it here, let's do it.

DR. MONK: So in our previous presentation, we showed that on an absolute basis with all the different peers we pulled together, the funds were performing below the median, not only in the peer group, but in the PPD universe. That was on an absolute basis, and we were cognizant and acknowledged the challenges of doing an absolute basis performance analysis.

Here (indicating) we have attempted to highlight risk-adjusted performance measures for the two plans. Risk-adjusted performance provides an effective comparison of total active management for different strategies and allocations. The two measures we calculated for the plans are the Sharpe ratio measures risk-adjusted performance against the risk-free rate, and the information ratio measures risk-adjusted performance against the benchmark.

We calculated Sharpe ratios and information ratios for PSERS and SERS from publicly available data beginning in 1988. We constructed multiasset benchmark portfolios using total return indices for comparison to the pension plan returns and to measure the information ratios. The benchmarks compounded monthly data to provide annual returns compatible with annual plan norms. No management fee is included on the benchmark indices, but we could assume that this might be a 10- to 15-basis point management fee, so the benchmark returns could be, in our final paper, discounted by this amount for comparison.

It must be noted that the data for doing risk-adjusted performance analyses can be challenging to obtain because of the insufficient frequency or shorter time period of, especially of the private market investments and the marks that they provide. They are infrequent and the market-to-market pricing is limited. The limited frequency of fair value pricing of private market funds also creates a lower risk allusion for the fund. The greater the exposure to private market funds, the more likely that observed total fund return risk is understated.

So all that being said, this is the data on PSERS. (Indicating.) The three benchmarks that we used to measure the performance of the two funds against include a U.S. based portfolio of 60 percent equity, 30 percent fixed income, 5 percent real estate, 5 percent cash. We have a global balanced 60/40 mix of equity and bonds optimized for mean variance to the efficient frontier. The PSERS global is a mixture of public indices that match the most recent asset allocation policy of the plan. We also have an LDI portfolio, as PSERS uses leveraged LDI portfolio, that has longer duration assets on fixed income and higher allocation to commodities in real estate.

From the table, we can see that the 30-year Sharpe ratio for PSERS is slightly lower than all the alternative balanced benchmarks. But the 10-year Sharpe ratio is two-thirds of the global balanced portfolio, reflecting more than a two-to-one ratio of risk to return and excess of the risk-free rate, despite a higher than average exposure to bonds.

The near zero information ratios over the 30-year period and negative values over the 10-year period versus the 60/35/5 and the global balanced portfolios reflects that PSERS has underperformed various simple multiasset index portfolios. This confirms the performance measures from our previous presentation, the absolute numbers.

From the charts, we observe the Sharpe ratio over the first half of the period was much higher than the second half of the period, as total fund risk has nearly doubled. The blue line is the fund's Sharpe ratio and risk levels for the entire period up to that point; whereas, the red line is a rolling 10-year value at any given point. It is interesting to see that the fund risk of PSERS has stated high levels over the last 10 years despite their allocation to equities decreasing over the financial crisis.

On SERS, the 30-year Sharpe ratio is slightly lower than the alternative balanced benchmarks constructed, but the 10-year Sharpe ratio is two-thirds of the global balanced portfolio, reflecting a two-to-one ratio of risk to return in excess of the risk-free rate. The negative 10-year information ratio versus both the 60/35/5 and global balanced benchmark portfolios reflects that SERS underperformed other alternative policy mixes on a risk-adjusted basis by more than the fees of using simple liquid indices. We used a 15-basis-point discount to returns.

Similarly to PSERS, the fund risk has generally increased over the period and Sharpe ratios have declined. However, we do see fund risk declining and Sharpe ratio increasing at the end.

The context -- in summary, the analysis here has shown that both plans, historically, have not performed as well on a risk-adjusted basis against a simple balanced public indices as indicated by their negative information ratios over the 10- and 30-year period. The overall risk of both funds has increased over the time period looked at despite general market volatility increasing. The Sharpe ratios of both plans over the 10-year and 30-year period are very low. However, the values over the last five years have, in fact, been better.

For PSERS, it would appear that the larger allocations to illiquid asset classes away from public equities and the use of leveraged and fixed income were problematic. SERS allocation to private equity does not seem to have benefited them very well, although we note that their allocation to global public equity has meant that their performance has been better than PSERS.

So with the context of the ingredients, the governance, and the performance, it seems to me there is a case to be made that we should do something. We do believe there are certain cost-saving strategies that are not appropriate for the PA plans because they do not appear to have the governance required to adequately monitor them. We do not think that increasing internal management or innovation is advisable until such a time that the governance of the plans can be brought into line with the complexity of the portfolios that are currently being managed.

You saw the power of internalizing earlier in my ingredients slides, and the ability to dramatically cut costs by doing things like seeding managers or launching platform companies. I only hope those figures are enough to give you the courage as a commission to take on the governance challenge and move your funds into alignment with your peers in South Dakota, Wisconsin, and Florida, to establish an expert investment advisory council either within or under the supervision of the existing boards.

In terms of cost-saving recommendations --

COMMISSIONER BLOOM: You know, I just have a quick question on governance, and it is quick.

To get the kind of professionals that you're talking about to serve on an investment board, okay, it's obvious to me, you're talking about a paid board.

DR. MONK: It doesn't need to be. In the state of Wisconsin, they're volunteer. They are volunteered professionals that just want to give back.

COMMISSIONER BLOOM: That'd be terrific if we could find that. I just, I have some concerns about that.

DR. MONK: You have concerns about a volunteer board?

COMMISSIONER BLOOM: No, no, I just have concerns that we could get the right people to volunteer to do this. I guess out of 12,500,000 people we could probably find a few.

DR. MONK: I think you'd be shocked at how motivated people are to work and help this system. I think everybody in this room would probably put their hand up.

Final recommendations, and then I'll turn it over to Marcel. In summary, based on this analysis that we've carried out, which I acknowledge has been a little bit abbreviated and without the full information that we might have liked to have had for a typical assessment of this kind, here are the recommendations that I would put forward to the commission for their assessment.

Recommendation number one is renegotiating and monitoring of current mandates. Good news is, it sounds like the funds are already taking this seriously and moving in a strong direction.

Without changing the asset allocation and risk levels of the current portfolio, renegotiations should take place along best practice guidelines.

I'm not going to steal Marcel's thunder on this. He will help you understand how you can get there and even get beyond the 1.5 billion in savings per fund.

To me, that may be the most palatable pathway to achieve the objectives of the commission. I'm not a politician, so I don't understand the politics, but that is something that I think everybody could probably get behind.

Second recommendation, which I will begin by saying -- again, I would ask the commission to consider recommending a governance overhaul. To do internal management or add innovation or complexity to the plans would require adding a governance budget to meet and align with the risk budget. This might require legislation to change the composition of the respective boards or install underneath them an advisory board or an advisory committee to compliment the existing board with the necessary expertise. This is a path I would encourage, though I recognize it is difficult to enact at this time.

So that leads me to the second formal recommendation. Given the governance budget of the two plans does not appear to be sufficient to take on more complexity or innovation right now, we recommend investigating simplifying the investment strategies of the two funds. A move to simpler strategies, such as active to passive or illiquid to public could be considered. This could not only reduce costs, but also help bring the governance budget of the plans in line with the level of complexity already contained within it. Consideration would have to be given to the active risks associated with these changes, as well as the extra short-term volatility that might come with moving to passive indices, for example.

There's a reason why absolute return tends to have a role in a portfolio and it's to mitigate volatility. If you remove all of that, be ready for more volatility.

This concludes my portion of the presentation. I thank the commission for their attention. I'll be taking questions, obviously, after Marcel.

And, Marcel, I'll get you set up.

DR. STAUB: Thank you all for having me. Thank you for the microphone.

This is an unusual format for me, so I'm not used to this kind of hearing. So apologies if I disrespect a protocol in any way, I don't mean to.

As Ashby has previously mentioned, this is not the typical work we would do. We see ourselves as mediators, essentially, between financial service providers and asset owners, such as pension funds, sovereign wealth funds. And we're typically called in by asset owners, such as you, who need advice on how to maybe restructure and renegotiate the agreements that they have in place.

And every investment, if you want to look at it that way, has a return, it has a risk, and it has a cost that is associated to it. And the only thing we would do is we would look at that cost component and essentially see whether we believe that, from best practice perspectives or from arbitrage perspectives, looking at the global market, we think that there is opportunities to renegotiate those fees with the existing managers. So we would never advise someone to go from active to passive simply to save costs. That is not in our line of business. We would look at the existing contracts and try to help the asset owners to improve those terms for the ultimate benefit of the beneficiaries.

So everything we're going to be saying today, please, should be heard and read as a constructive input to help the plans and this commission to maybe position themselves where we think they stand with their terms and agreements, and where we see opportunities for the plans to improve those terms. And we are more than happy to have a conversation with either of the plans to give them more detail and more in depth maybe feedback so that they can take this to the conversations with their managers.

So -- do you mind flipping those slides?

DR. MONK: Okay.

DR. STAUB: I can see that this is very small, so I also tried to be a bit quick in the consideration of time. But essentially -- Ash, if you don't mind, move to the executive summary slide.

So we were asked whether, from our experience of negotiating many contracts the world over -- and we have a little over 60 clients and they in total represent more than $2 trillion in assets. And we're essentially something like a procurement office for them and they use us for the mediation of their terms. So we have a bit of experience.

And all of our staff, we did go to these Harvard classes of negotiation, so we would understand what the counterparts, you know, potentially try to bring to the table and anticipate that. And of course, we prepared for those discussions.

And we were asked whether, from our experience, looking at the information we were given, that there is an opportunity for the two plans to save one and a half billion each. And the good news is we think there is an opportunity for both plan by renegotiating terms to actually achieve those savings. And I will comment in greater detail later to where we think those lie.

As I have previously said, our analysis is really focused on, I would call that best practice procurement. So we're not giving any kind of idea or advice whether you should be with other managers or whether you should have a different allocation. That's not what we do. The only thing we do is we look at your allocation, your existing managers, those terms, and we try to compare them to terms we see elsewhere and best practice we see elsewhere to identify whether there is opportunity to create some savings.

We also believe that the target, being equal for SERS and PSERS, although both plans are different in size, is by definition a bit harder to achieve for SERS than it is for PSERS. We also recognize that SERS already has a high passive allocation, which of course, bears less room for renegotiation than an active allocation.

One more thing just for the record, we have not been granted full access or we have not received all the data we would have needed to do a full deep dive analysis. So we are very comfortable with the results represented today, but they are also very limited to public equity because we would have needed a lot more information to dive clearer into the other asset classes. I will come back to that later.

So maybe as an executive summary, on SERS, we see there are a few mandates. We've anonymized them, but I'm more than happy to share, of course, the details on those managers with the two plans.

So we've identified essentially four mandates that we believe should be and could be renegotiated. We will later on also say to what levels we think they could be renegotiated and based on what reason we think that should be achievable. But there's essentially four mandates we think that should be renegotiated.

We've also heard from SERS in the questionnaire that we have shared with them, some sort of a self-assessment.

We've heard that there are most favored nation clauses in place. And we just wanted to make the point that most favored nation clauses, from our experience, don't guarantee best terms. And we see them, quite frankly, circumvented, you know, all the time. So there's lots of opportunities for managers and asset owners to actually find ways around most favored nation clauses, even if they're in place. And we realize that they've probably initially been a good idea from an asset owner's perspective, but over the time, they've actually turned out to help the asset managers more than they helped the asset owners because asset managers could now -- no matter what the market does -- they could keep their fees artificially high, hiding behind most favored nation clauses. And we see that happening all the time. So it's just a word of caution here. Most favored nation clauses don't mean that you actually have the best terms.

And for PSERS, we think that all the mandates in international equities small cap should be up for renegotiation and we've identified three more mandates that we also think bear the potential to be renegotiated. One of them, funnily enough, is a mandate that SERS has, too, and despite that SERS has a smaller investment with the very same manager and the very same mandate, SERS pays lower fees than PSERS. So we also think there is more opportunity for what has already been done by the plans to communicate with each other and bundle forces whenever that is opportunistic.

Another thing we have learned from the self-assessment, and I've highlighted this here (indicating) just briefly, is the fact that more expensive mandates do not guarantee better returns. It is the same the other way around. I mean, it's not because a mandate is cheap that it will be a good mandate, right? So it's kind of like the wrong measure to say a mandate is cheap or expensive, and therefore, it is bad or it is good. But I think it's really important to make sure that whatever mandate you choose to be in or whatever asset class you choose to be in, you try to pick the best terms that you can find with that manager or in that asset class and you renegotiate hard as a plan to find commercial terms that make sense for both parties. And I think it's important not to forget that all of these arrangements are ultimately commercial arrangements between two parties and they should be seen as such.

So moving on to the next slide, Ash, if you don't mind.

I mentioned that (indicating), no need to go into that further.

We have not had all the data we would have wished to have. We could have maybe made a few more statements, but in broad, it wouldn't have changed much, the view that we have.

Maybe -- to mention on SERS, we did not receive unredacted contracts, meaning that we did not really see the terms that are signed. The terms that we have taken for our analysis are from a consultant report of SERS, but they represent average fees paid and not necessarily the actual terms signed, so it's difficult for us to say whether those terms would include performance fees or carried interest or whatsoever simply because we don't have the access to that.

So I would like to share maybe a few slides that are not notable to share.

On the self-assessment that we have asked the plans to reply to us -- and this is just an excerpt, and I'm kind of like pointing to a few deals that I think the plans have an opportunity to improve. And of course, there have been many questions that we have asked that have been answered favorably, and therefore, you know, there is nothing that we would want to highlight because the plans are already doing it according to what we would be perceived to be best practice. So if I'm highlighting here maybe the more negative examples, that doesn't mean that the total self-assessment has that much of a negative picture. It's really the ones that we think are noticeable to discuss and to bring the attention to the commission.

So we asked both plans on a scale from one to 10 whether -- one being the least competitive and ten being the most competitive -- where they would put themselves. And both plans have said, "Well, we would give ourselves a ten," meaning that they are the most competitive in the market or that they have the most competitive terms in the market. And both plans have said that this self-ranking is based on the fact that they have most favored nation clauses in place. And I mentioned that previously, that those most favored nation clauses actually are not a sign that you do have the best terms that are available in the market.

And I'm just maybe opening up that bracket quickly again. I've mentioned before that they help asset managers more than they help asset owners. And in fact, we actually think that most favored nation clauses are more a bit a sign of weakness than they are a sign of strength, all right? Because plans the size of SERS and PSERS, quite frankly, should be fee makers and not fee takers. And therefore, they should enter the market, we believe, with a sign of strength, where really, what others pay is not relevant. It's relevant what you're willing to pay for the assets that you are giving to managers.

So the next point is we have asked both plans about the average age of the fee schedules in the portfolios, and both plans have said that they don't track that. So we would highly recommend to track that, because it is our strong belief that if a fee arrangement is older than three years, it needs to be revisited, which is also part of the reason why we would recommend those managers for renegotiation that we said earlier, or we will point again to later. Because some of those contracts are eight or nine years old and the market has, of course, moved a lot since and they should definitely be revisited.

So we would also recommend to the plans to start tracking the age of those fee schedules and very diligently, whenever those are two or three years old, take it out of the drawer and bring it to negotiation.

Next slide.

So we have asked both plans what percentage of their asset managers have confirmed in writing that they don't receive commissions, rebates, retrocessions, or any other incentives associated with their investments. And PSERS has said that they do not maintain this information. SERS has said that it's part of their regular due diligence process. We would just like to highlight that this is an area of potential conflict of interest. So we believe it is very important to know whether the manager that you have employed has any other compensations than the one that you're actually paying to them. So we believe it is very important to track that and to be aware of any potential conflicts of interest that could be there because they might have an incentive to earn money elsewhere.

We have also asked the worst question, that managers would confirm if they are paying anyone commissions or introduction fees and so on. And PSERS has again has said they do not maintain this information. SERS has said that it is again part of their due diligence process. Again, we encourage both plans to really stay on top of this because we believe it is very crucial to have full transparency on whether out of the fees that you as a plan are paying to the manager or the incentive fees that they may be earning on top, whether any portion of that is going to a third party that you may not be aware of. We believe it's very important to have that information and we therefore encourage the plans to regularly ask all of their investment managers to confirm both of those points to them in writing.

We have again asked the plans if their brokers are allowed to use bundled brokerages. And to those not knowing what it is, it is essentially an embedded research compensation that brokers would get through the transaction of an asset. So whenever they are charging a brokerage fee, there might be an element which is essentially for research. And the broker would charge that based on transactions, and then allocate that research budget to your asset manager. So this is essentially an additional source of income -- although it's called soft dollars because it doesn't typically flow as in hard dollars -- an additional source of income for asset managers, and therefore, again, a conflict of interest because you believe as an asset owner that the full compensation your asset manager receives from you is from the management fees you pay to them, but that is often not the case. They may have other sources of income, such as research budgets that they do receive from bundled brokerages.

And just as a side note, we realize that in the U.S. and also in other markets, this is still very common. In Europe, this has been completely abandoned. In fact, since 2018, it has become illegal because there is a big conflict of interest in that your manager might have an incentive to churn your assets more than necessary in order to create research budget for them, which pays for their Bloomberg desks and what have you. And that, of course, is a conflict of interest. Also because, as an asset owner, you can never be sure whether the research budget that has been generated from your assets is actually also used for research for your assets or whether it's just used for research for the firm, but maybe for different lines.

So it's a conflict of interest and -- although, we realize it's not banned or illegal in the United States, we would highly encourage to discuss that point with the asset managers and also find ways to go away from model brokerages. And if the asset managers would complain about the research budget that they would no longer receive through that, then we think it is a lot healthier to agree to such a budget and pay it directly to the asset manager, other than to have it embedded in a transaction where you just don't expect it to be.

So on the same note, we have asked whether the plans are doing a transaction cost analysis and PSERS has said "no." They have said that they would do it in the past, but felt it was of not much use. We can understand that.

These numbers are sometimes a bit cumbersome, complex, sometimes not much you can derive from it. However, there is, of course, also some indications that you could see from these reports, such as, as an example, closet indexing.

For those not being fully aware of the term, that is when an asset manager has essentially more or less replicated the index, but is charging you active fees for a somewhat passive product. And you would see that kind of behavior from a transaction cost analysis. So we would again encourage both plans to do a transaction cost analysis. And SERS has confirmed to do this on a quarterly basis.

Next slide, Ash.

So we asked both plans on what they believe is the single biggest hurdle, why the terms could not be further improved. And both plans have mentioned capacity issues with their managers is a concern. PSERS has additionally mentioned that the overhead with their managers is a concern.

I would maybe quickly go on to the capacity side. We understand that some strategies are indeed capacity constrained, but we would also like to warn that capacity constraints is the single most used argument from asset managers not to enter into fee negotiations. We would also like to say that whenever we represent clients with smaller assets, we typically hear, "The asset managers tell us, 'Well, if you bring more assets, we can give you better terms.'" And whenever we are speaking to larger plans, such as SERS and PSERS, then typically asset managers would tell them, "Well, we were at capacity constraint." So the answer is often a capacity problem, either it's not enough or it's too much. But it's really the single most argument and we would just recommend the plans not to take their word for it without questioning it.

And what PSERS has additionally said -- PSERS has said that -- and I'm going to read this as a quote, not to do any unfair judgment here, but -- "In traditional asset classes, the two greatest impediments are the need for the active asset manager to have a minimum amount of fees to cover overhead of the business, especially during years where performance may be more challenged."

And we would like to highlight that both of these plans are very large. And both of the plans give intendance, large allocations to asset managers. So we don't think that overhead should be an issue for the managers because they are making large fees. And even if it was, we don't think it's the pension plan's problem, all right? So if a manager says, "I need to make more money in order to run my operation," then I would highly question that.

Next slide -- I'm sorry. There was one more.

We have asked both plans if they have procurement guidelines in place, and I believe I've heard in previous statements today that those are actually being built up. We believe those are very important and they would allow for a structure and replicable process whenever a mandate is agreed upon, but it would also help, from our experience, the staff at both SERS and PSERS to actually negotiate harder with the asset managers because whenever an asset manager is pitching for a new mandate and is looking for a new business relationship, that is the moment in time where there is the most flexibility to discuss terms. And if your procurement guidelines, essentially, don't allow you full freedom on what you're going to be paying them, then that will generally help the plan to negotiate at that moment in time better terms.

Next slide.

So being aware of time, Mr. Chairman, I ask you if we want to go manager by manager and give our recommendations and why, or whether we should just, you know, hand this over to the plans and be available for any input we can give them?

CHAIRMAN TOBASH: So thank you for your consideration of our time.

Here's what I'd like to do, and I take full responsibility for allowing us to go over. I know you have come a great distance. If we could condense your testimony to what you believe is most important -- and certainly this information will be disseminated and distributed in the consultant's report -- if we can just try to wrap this up in 15 minutes. So whatever order you think is most important for this commission to hear from you, I think we could expedite by moving forward with your recommendation.

DR. STAUB: Okay. Thank you. We can do that.

So I will be quick through those managers there (indicating) anyway. You will see here (indicating) in gold -- it's hard to read, it's a bit small -- but essentially, the first manager, it's a nine year old contract. We think the fee is almost double as high as it should be. We think there's quite a lot of room here to renegotiate that.

And then we have a passive mandate, we believe it's priced fairly.

And in general, I have to say the SERS mandates that are passive, the prices are quite attractive, so well done on those negotiations.

We have another active mandate that we believe should be renegotiated. Almost half of the gross alpha has been, you know, paid through the manager. And we've had that discussion before, how much of the alpha could go to a manager or partner, and how much of that would be justified. And there's a general understanding that 20 percent is acceptable. However, in this case, it's been almost 50 percent, so we think that should be definitely renegotiated.

There's two more passive mandates, both of them priced fairly. Another passive mandate priced fairly. Another active mandate which we believe is too high.

Again, on SERS, as a little side note, we haven't had unredacted contracts, so we don't know exactly what the terms are. We've only actually seen a number and that number appears to be high. We would need to see the real terms to be able to give more of a statement.

The next mandate is the same. We believe that the rate being paid is too high. There's an opportunity to renegotiate that mandate.

And again, for the record, for both plans, I think they would have my contact details from the presentation, I'm available at all times to give them more background as to why we think and how we think they could renegotiate those terms.

So I'm not --

COMMISSIONER BLOOM: Could you mention the mandate numbers as you go through them? Because I'm lost now.

DR. STAUB: Oh, sorry.

Do you mind going back one page?

So we have a lot of passive mandates on this page. (Indicating.) Those would be mandate five and six and seven -- sorry, five and seven. And those are priced fairly, whereas mandate six, as an example, we have no contract details. So on this mandate six, called SERS mandate six, 99 million -- which we believe might actually be in wind down, so it may not be that relevant. But we haven't seen any contractual details to that manager, so just simply cannot comment on the terms.

So I'm going to PSERS mandates. And I'm not going to go into the details of this, but I would like to mention something. We've previously heard that there is a plan to reduce the base fees and introduce higher performance fees or -- there's been a discussion about whether it's carried interest or performance fees or whatever, and we've looked at some of the arrangements that seem to be, recently have been adjusted. And we believe that those will actually turn out to be more expensive in the future. So we would just like to raise a word of caution. We'll come to that later.

Whenever performance fees are being introduced, those need to be, from our perspective and experience, they need to be negotiated very carefully because they do carry a potential to actually increase the total cost of such a mandate. And in one specific example, if we look at data from the past, and clearly there's an indication, it would have been more expensive in the past to be in that new fee schedule. So if the assumption is the manager is going to do equally well going forward, then that adjustment of the fee schedule was not to the favor of the plan, it was to the favor of the manager.

So in the interest of time, I will want to go quick through this. On PSERS, we think that with various mandates --

And, Commissioner Bloom, here (indicating), these are the PSERS active mandate two, active mandate three, and active mandate four.

We think that in all of those, there is potential to renegotiate those. We have given approximately where we think those tiers should be.

Active mandate three, as an example -- and this is now the benefit of having contracts that are not blacked out. So here we had, for PSERS, we actually had the real contract. Thank you to PSERS for providing those.

We could see as an example with the active mandate three, despite its over a billion dollars in size, the top tier ends at 200 million. So the last fee reduction, in a sense, that larger allocation would bring, ends at 200 million. And this is probably some sort of a legacy thing, right? When the contracts were negotiated, the assets were probably not that big. It's an assumption I'm making. And the terms were appropriate at the time and now we think that having a last break point that's -- 200 million for a 1 billion investment is just not appropriate. So we think there is room to renegotiate that, as there is with mandate four.

So I've mentioned before that we believe all the international equity small cap mandates bear room for negotiation. And I've also mentioned at the beginning of the presentation that a more expensive mandate doesn't guarantee better returns. And in this asset class here (indicating), we actually have that, the living proof of that.

So the cheapest out of the five mandates has actually been the best performing. So there's clearly room with the others to negotiate the fees, also because their performance has maybe been a bit disappointing, especially also compared to this active mandate five, which is here listed at the top. (Indicating.)

So I've said before that we believe contracts should be renegotiated every two to three years. And in PSERS, I think there is an opportunity here to renegotiate the fees also because some of those mandates -- and in total it's almost 30 percent -- are older than five years. So there is definitely room here to renegotiate them.

There's another interesting component, and I'd just like to highlight it for the benefit of PSERS to really look into this. We think that the high yield allocation is definitely different than we would typically see it. We would typically not see allocation to this asset class through a private market instrument like it has been structured here.

So essentially, this originally liquid asset class has been structured in an illiquid way. And from what we can tell, it hasn't really worked out. A, of course, you are locking yourself in. Of course, those terms -- it would be shorter than it would be on private equity, but you're still locking yourself in. So we believe there is also a problem from an asset allocation perspective. So you're also, by going private and by locking yourselves in, you're, of course, also taking away flexibility to reallocate your assets between different asset classes because certain of those are locked in. And there's a certain amount that you can't move.

And secondly, we think that the terms that have been agreed here for this investment are just very much in favor of the asset manager. We would definitely recommend to PSERS that whenever this comes to expire, to renegotiate those terms. And maybe just to give a few words here, it really hasn't performed as well as I believe it was maybe anticipated, and therefore, has really not justified the fees.

And if we take into consideration -- on the next slide, Ashby -- the carried interest on top of what has been paid, then on the 10-year period ending -- when is that ending? Give me a second -- so the 10-year period, I believe, ending July this year or June this year, including carried interest, 93 percent of the gross alpha has been captured by the manager. So essentially almost all the value add that has come from this asset class or this investment has remained with that manager in total.

And if we look at the previous 10-year period, and it's actually been over 100 percent, which means that the managers made their money, but you didn't. So we definitely think this asset class has a lot of potential to restructure, renegotiate, whenever it comes to expiring. And because the performance numbers haven't proven to be what probably was anticipated, there's also a lot of room here to save money, really.

Next. Yeah, go to the private equity.

So we've also been asked to give our view on private equity and we didn't have contracts for private equity, so we really can't give a very detailed view. But we can, from our experience, of course, say that this is an asset class that has high fees. And as fees are high, there is a lot of room to save money. It is, in private equity, as has been previously said, difficult to save money once you're invested because you're locked in. So you need to essentially wait for the moment until those come to reinvestment, whether that is with the same firm or with a different firm. And at this point in time, you need to renegotiate your terms very carefully.

And we believe that in that asset class alone, there is a potential to save a lot of money for both plans by renegotiating hard at the time of reinvesting those assets. And if we look at the total cost of private equity and -- we did have more precise numbers for one plan, where it was -- including carried interest, which for me, clearly is a part of the cost, it was almost 701 basis points. We also realize, however, that out of that number there is only a certain number that can actually be renegotiated.

And from our experience in private equity -- that portion that is up for renegotiation is about 300 basis points of total cost that has room for renegotiation. And we believe that if both plans were to renegotiate in those 300 basis points -- which don't represent the full cost of the asset class, but the portion of the cost which actually has room for renegotiation. Then if both plans renegotiate 10 percent of savings in those 300 basis points -- and that is definitely achievable -- and that will do a lot towards your savings target. I will show two slides later how much exactly.

We have also listed here a few ideas just as some recommendations for the two plans of how they could achieve those savings. I'm not going to go into detail here in the interest of time, but there -- we could probably give you 30 pages of guidelines of what to do and not to do when you invest into private equity. But we've given you maybe 10 or 12 bullet points as an indication of where you could start to actually get better terms. And again, we'd be more than happy to support both plans in that process if they wanted more input from us, and maybe share some of our experience that we have had renegotiating those terms.

So if we come to the summary of savings potential -- this is just to give you an idea of how the 1.5 -- 1 billion that we believe SERS can achieve, how that comes about. We later on have the same slide for PSERS. Again, this is what, from our experience, from having renegotiated a lot of assets in the past, over the past 12 years, and from looking at the portfolio of both SERS and PSERS, what do we think can be achieved through renegotiation.

And these are the numbers. And essentially for SERS, we do believe that the 1.5 billion over 30 years, that could be achieved. I noticed before that, probably the target should have started back in 2017. We didn't -- we weren't aware of that, so we were actually considering that it would start 30 years from now. So there's one year missing, essentially.

Next slide.

For PSERS, we actually think that the savings potential is quite a bit higher. And this is primarily due to the fact that we believe the high yield allocation that we have mentioned before, where, you know, the managers have kept 93 percent of the gross alpha over the last 10-year period. And we also believe that the asset class is simply overpriced. You can achieve this asset class significantly cheaper. And therefore, when these mandates come to expire, we believe there is a lot of room to renegotiate that. We, in fact, think there's almost 42 million of renegotiation potential on an annual basis in that asset class alone. And taking those various assumptions together, we believe that PSERS has the potential of saving up to 4.96 billion over the 30-year time horizon.

We had the discussion before, and I was following it carefully on the amalgamating plans or investments of the plans. And it is our view that there is additional savings potentials if the two plans were to work closer together on their investments. We also think because both plans are already big, those additional benefits are marginal, all right?

We have also, in our entire review, not looked at the organizational costs of the two plans. We've really just looked at the cost of their external managers. So if there is a potential savings on the organizations, we refrain from making any statements because we don't have any information on that, we can't say. But if we look at the external managers, because both plans are already big, we think, yes, there is some savings potential, but we also think it is not that big.

I mean, sorry, to correct that. Those additional savings are still very meaningful, don't get me wrong, but if the renegotiations are done properly, then those are more meaningful than what would come from consultation of the investments.

Thank you. That's it.

So I will turn it over back to the commission for questions.

CHAIRMAN TOBASH: And we appreciate you coming a long way. And you have developed large numbers here and large numbers oftentimes become sound bites and we appreciate your expertise in backing up that information.

I will forego any questions at this point in time. And I will only ask my fellow commissioners, if they do have a question, to keep it very brief, number one, and number two, to not insert comments, really focus on questions that are important to develop back from the testifiers.

So Mr. Vice-Chairman.

VICE-CHAIRMAN TORSELLA: I'll also forego.

CHAIRMAN TOBASH: Thank you.

Commissioner Gallagher.

COMMISSIONER GALLAGHER: Thank you, Mr. Chair.

Thank you, Dr. Monk and Dr. Staub, for being here. I recognize the journeys that you both took to be here today.

You know, again, I also thank you for the recipe. Getting into the Thanksgiving season, it's good to have a good cost-saving recipe to go into a family reunion with.

So to that point, though, what I'm hearing -- and maybe I'm oversimplifying it -- is that if we just renegotiate the contracts we have, our partnership agreements with our private equity and hedge firms, we'll achieve these savings over X amount of time. Now, how easy is it to renegotiate?

And second, I know you started out talking about how, you know, there's Harvard Business School grads who are experts in negotiation. What jobs do you have, what qualifications do you have that can match that? And then second, how many managers, explicitly the ones that PSERS and SERS has currently, have you renegotiated terms with directly?

DR. STAUB: So the first question, it is, I would think in private equity, achieving 10 percent savings on those 300 basis points that are up for negotiation, up on time of reinvesting by just being more aware maybe of the terms that you could achieve. I think that is achievable.

Achieving the savings with the public equity managers, there's a certain level of uncertainty, right? It's not a guaranteed fee outcome that you will have. And we have negotiated with some of the managers that both plans have, and we actually also, from experience, we have had a case where we had the same manager, the same allocation, but different clients. And they wouldn't grant us the same terms. Although we had the contract in hand and we could show them, "You've granted these terms to someone else," they wouldn't grant it to that other client. So there's no guarantee for that outcome, right?

We are, however, highly convinced that these achievements can be made, and therefore, these savings are also, they're possible. Negotiating them, it's more of an odd kind of science.

CHAIRMAN TOBASH: Okay, thank you.

So with that, we're going to end the testimony for the first half of the day, if that's fine.

But I will ask, number one, I want to

announce that there's lunch available for the commissioners and testifiers. We want everyone to keep their strength up. And if it's okay, we're just going to take one half hour for lunch and try and catch up on some of our lost time here.

But also, if possible, and there's one or two more questions, would you be available for questions after we return?

DR. MONK: (Nods.)

DR. STAUB: Sure.

CHAIRMAN TOBASH: Excellent, so we will reconvene at five minutes after two. Thank you.

(Recess.)

CHAIRMAN TOBASH: Okay. The hour of just after two having arrived, we want to get back to business.

Before we broke for lunch, we asked if Marcel and Ashby could stick around for potentially one or two questions from the commissioners that they didn't have a chance to develop and maybe thought about it a little bit over break.

So Mr. Vice-Chairman.

VICE-CHAIRMAN TORSELLA: Thank you.

Dr. Monk --

DR. MONK: Yes.

VICE-CHAIRMAN TORSELLA: -- a quick question which shouldn't stump you because I've asked it twice today.

DR. MONK: Oh, yeah.

VICE-CHAIRMAN TORSELLA: Is carried interest an expense?

DR. MONK: Yeah. That's a -- so I have strong views. To give a balanced perspective, I'd say there's a lot of confusion around this topic. This is confusion in part because we see the gap not really giving us clarity, but I think when it comes to the plans not reporting carried interest as a fee or expense and calling it a profit share, I wouldn't say that's conspiracy, I'd say that's confusion.

I think on this topic, I'd have kind of two points to make. One, carried interest in the public realm is thought of as private equity and hedge funds. And we think of the hedge funds of having a loophole, of using the private equity carried interest, but when it's reported in the media, the media talks about carried interest as hedge funds and private equity.

In the PSERS reporting, they report the hedge fund carry, the absolute return carry, but they don't report the private equity carry. So I think that creates a lot of confusion as to why you would be reporting one form of carried interest, the hedge fund carried interest, which uses the same tax rule as the private equity carried interest, and not the other. So in like the court of public opinion, that's confusing.

The second thing is, we heard about this being profit sharing and alignment of interests. Look, the example was given, we made four dollars, the GP gets one dollar. It's not a complete context-rich scenario. Four dollars gets earned by the plan, one dollar gets earned by the GP, and there are base fees. That's on the upside. On the downside, if you lose the four dollars, the GP loses zero dollars and makes the base fee.

So this is not about alignment, this is not a joint venture in the traditional sense of the word, where there is commensurate gains and losses on both sides of the trade. And frankly, most of the consultants in private equity would tell you that this should be counted among the performance fees that you're calculating. The idea that it's a profit share to me is based purely on confusion, and we just need to resolve that confusion. It should be reported as a performance fee.

CHAIRMAN TOBASH: Commissioner Bloom.

COMMISSIONER BLOOM: I have no questions.

CHAIRMAN TOBASH: Commissioner Torbert.

COMMISSIONER TORBERT: I have none.

CHAIRMAN TOBASH: Commissioner Gallagher.

COMMISSIONER GALLAGHER: Just a continuation of that conversation. And I'm sorry, I felt my eyebrows kind of pivoting inwards there because I was a little confused about the mathematics there, because that four dollars never got earned. So if you lose money on it, there isn't a gain to lose, right? So if the underlying asset doesn't produce --

DR. MONK: In a partnership, a true partnership, there is a loss share, as well as a profit share.

COMMISSIONER GALLAGHER: Is there?

DR. MONK: Yeah.

COMMISSIONER GALLAGHER: Okay. That's news to me because -- actually, I do understand that. I understand the liquidation process. But what I don't understand is when we talk about the profit share not being a fee or just kind of waffling about that, and that it's indicative of how it's reported, private equity does get reported in our CAFR. It's just all included into a line item. It's just not broken out the way --

DR. MONK: Absolute return is.

COMMISSIONER GALLAGHER: -- the way that analysts like yourself would like to see it. We're getting there. We're developing that, right, over time, but there is no standard for that right now. As soon as there are standards in every state and every system starts complying with that, then you'll have that apples to apples comparisons between systems. Is that not correct?

DR. MONK: I think I'd love apples to apples. In the absence of apples to apples, I would refer to how the, you know, IRS treats carried interest and they treat private equity carried interest the same as hedge fund carried interest.

COMMISSIONER BLOOM: I'm still confused, why hasn't GASB recognized what you recognize?

DR. MONK: I'm not on GASB. I don't know.

Marcel, do you have a view on whether or not carried interest is a fee?

DR. STAUB: So yes, I do have a view.

I mean, carried interest, in everything I've experienced, is a form of a performance fee, and therefore, it's a fee. So I'm of the clear opinion that carried interest is a fee.

CHAIRMAN TOBASH: Okay, great. Thank you, again. Thank you so much for traveling a great distance and your expertise and your continued assistance if we develop more questions coming down the stretch.

DR. MONK: It's been an honor. Thank you.

CHAIRMAN TOBASH: Okay, our next testifier, Steve Nesbitt. Thank you so much and thank you for accommodating us getting behind schedule a little bit.

Mr. Nesbitt is the chief executive officer at

Cliffwater, LLC, an overseas all investment research -- I apologize. He oversees all investment research as the firm's chief investment officer. As well, Cliffwater assists globally in the allocations of alternative investments. He has been with Cliffwater and actually started the firm in 2004. He was a senior managing director at Wilshire Associates, started his career at Wells Fargo Investment Advisers, and he was an early pioneer in index funds. His articles have been published in *Financial Analyst Journal*, the *Journal of Portfolio Management*, and the *Journal of Applied Corporate Finance*.

We appreciate you being here today, Mr. Nesbitt.

MR. NESBITT: Thank you, Mr. Chairman, Mr. Vice-Chairman, Commissioners. Thank you for having me today. I really appreciate it.

I was asked to come to share my thoughts on issues of performance, transparency, and fees in the context of a state pension system.

I am here as an experienced institutional investment adviser, having worked with literally hundreds of public pension systems over the last 40 years. I have advised some of the largest U.S. state and federal pensions through my career. I've advised -- given advice to, as a consultant, to CalPERS, CalSTRS, Connecticut Retirement

System, DC Retirement System, Federal Retirement Thrift, Iowa PERS, MainePERS, Massachusetts PRIM, Nebraska defined benefit plan, New Mexico, Ohio PERS and STRS, Ohio Police and Fire, Oregon PERS, Pension Benefit Guarantee Corporation, Pennsylvania SERS, and Pennsylvania PSERS, New Jersey, Rhode Island, Texas County District Retirement System, the state of Virginia, and Wisconsin SWIB.

You can see that my credentials come really from the school of hard knocks.

As an investment consultant, I have introduced and helped guide the use of both low-cost index funds and higher cost private equity, seeing an important role for both. I've been intimately involved in virtually all aspects of pension investing, as an adviser to both pension boards and staffs.

My objective in the next 15 to 20 minutes is to share what insight I have into these issues with the commission, okay, providing perhaps a different perspective from several of the outsiders you have already heard from.

Let me start with slide one, which I call the inconvenient truth in state pensions. You have already heard this narrative in prior meetings, okay? Actuarial rates have been too high for too long compared to the returns pensions earned. The high actuarial rates cause contributions to be too low, eroding pension funding rates from near unity, 100 percent in 2000 to roughly 70 percent today. Justifiably, all stakeholders in public pensions understand that this is a problem and want to fix it.

I understand that one important commission task is reviewing the state's investment strategies. No investment strategy is more important than asset allocation, adopted as policy by individual pension boards. Studies show that the choice in waiting to get individual asset classes have the greatest impact on long-term pension return and risk.

So the first question is whether the problem is with the investment strategy or the actuarial rate or both, okay? Are pension boards making asset allocation decisions that offer the best chance of achieving pension security or not?

You have already heard testimony on long-term asset allocation trends, which I won't repeat here. Instead, I want to impress on you that public pension systems cluster in almost all their investment decisions, and no more so than in asset allocation covered in slide two.

Foremost is the role of the prudent person in fiduciary law. Investment decisions by board members are heavily influenced by what other pensions are doing, a proxy for prudent person. And in the small community of public pensions, everybody knows what everybody else is doing. This is reinforced by the handful of investment consultants that guide asset allocation decision-making using mostly the same models and inputs. Importantly, this all leads to similar asset allocation policies groomed by the collective wisdom of boards and investment professionals, and producing more returns than the financial markets will allow them to earn, not what actuaries assume they will achieve.

As fiduciaries, boards are continually balancing the pull of high actuarial rates against the push of higher risk that achieving these high rates would entail. Most pensions end up roughly in the same place, as slide three shows, where return and risk for state pensions cluster tightly between a commonly used low-risk bond index and a higher risk stock index. State pensions fail in asset allocation when they give up too soon on their existing asset mix, for example. Moving from lower to higher risk strategies near the top of the market, or moving from higher to lower risk strategies after a market downturn, and particularly, that latter case. Sticking with the existing asset allocation strategy has proven as important to long-term performance as which strategy you choose.

Let me also add that statistically, state pension asset allocation has been independent of funding ratio. This means that state pensions generally ignore or act as if they ignore funding ratios in setting asset allocation. Anecdotally, that has also been my experience and is not necessarily a bad thing.

Boards have generally viewed pension funding as an actuarial issue, not an investment issue, seeing themselves as setting prudent investment policies with expected returns that actuaries should then use to set funding amounts. An unfortunate post-Global Financial Crisis perversion has been to pressure boards to change investment policies to be consistent with high actuarial rates and their low funding schedules rather than fiduciary standards. In summary, my opinion is that the health of state pension systems has not been compromised by current or past asset allocation policies.

Staying on the topic of investment strategy is the question of active versus passive management. Let me first say that public pension systems were some of the earliest and largest investors in index funds. Because of their low fees, good performance, and ability to get moneys invested and divested quickly. None of that has changed. Index funds now represent close to 70 percent of U.S. equity allocations and 20 percent of total state pension allocations.

The attraction of index funds, though, is not all consuming, okay? First, there are asset classes where indexing is not possible, like private equity and private real estate. Second, there is a concern with trade execution and price dislocation for index funds that track securities that are not traded on exchanges, such as high yield bonds and leveraged loans. Third, there are some asset classes that are viewed as price inefficient where investors believe active management can add value, net of higher fees. These include small cap stocks, high yield bonds, and non-U.S. stocks. Most state funds use a combination of active and passive management for these asset classes with very few 100 percent active or 100 percent passive.

Slides four and five illustrate some of the thinking behind active and passive investing. Both slides report 10-year performance for state pensions by asset class. Slide five provides asset class returns for individual state pension systems, while slide six consolidates asset class performance into a single asset class average. Also shown are the most common asset class benchmarks, which can be viewed as proxies for passive management.

U.S. equity allocations generally trail index funds -- excuse me, U.S. equity returns generally trail index funds, represented by the Russell 3000 Index, suggesting that perhaps more or all of that asset class should be indexed. However, for fixed income and non-U.S. equity, state pension returns have generally outperformed index funds. State pension boards regularly weigh past performance and fees in deciding how much of every asset class to allocate to index funds.

Key to the well functioning of a market system is the reallocation of capital from bad performing companies to good performing companies. This function was largely broken in the 1970s, as companies grew to become large underperforming conglomerates without outside forces that could change market behavior to the corporate governance issues mentioned earlier. Terms like entrenched management, enriched management, conglomerate discount came to unhappily describe corporate America. At the same time, corporate pensions dominated the institutional landscape and their proxy policies were strictly to vote with management and not to rock the boat.

This capital dysfunction was corrected when large state pensions began using private equity, proxy voting, and high yield bonds to dislodge bad management and capital from poor performing companies. Private equity and high yield bonds not only directly benefited state pensions through higher returns, but also indirectly benefited index funds through merger and acquisition premiums, a form of economic externality that bequeaths a part of the wealth creation of private equity to index investors.

Slide six reports net of fee performance for private equity for individual state pensions and the composite return for 16 years ending fiscal 2017. Without exception, state pension, private equity returns, net of fee, all fees, exceeded an equivalent public equity return with the average private equity return exceeding 10.7 percent compared to 6.6 percent for the public equity markets. The difference of 3.1 percent per year, if repeated over the next 10 years, would produce a cumulative 87 percent in additional return compared to the index fund alternative. Considering past performance, it is surprising that the average state pension allocation to private equity is less than 10 percent of total assets.

Previous testimony has suggested that private equity has lost its performance edge versus public equity. And it is true that post-Global Financial Crisis, state pension private equity returns have exceeded public equities by a smaller one percent compared to the three percent long-term average. However, drawing forward-looking conclusions from this data is premature. Historical return patterns show that most of the outperformance in private equity occurs when public markets turned bearish because private equity valuations get a chance to catch up to public valuations, and two, the value-driven strategies of most private equity is most effective during stock market downturns.

If I may briefly go back to the subject of asset allocation and speak to the issue of private equity and liquidity management, which has generally been overlooked in asset allocation. Trustees learn from the Global Financial Crisis that asset allocation targets to private equity and private assets more generally need to take account of cash flow needs of the pension system and the potential for large variances in actual versus target allocations during downturns. Prior to the Global Financial Crisis, many endowments, including large endowments like Princeton and Stanford, had outsized allocations and unfunded commitments to private assets well exceeding 50 percent of their total assets. The crisis forced these and other endowments into potential distress sales of their illiquid assets and unfunded commitments to meet then current spending needs.

Fortunately, distressed sales were largely averted as capital markets rebounded and private asset managers delayed calling on committed capital. But the experience was a lesson learned, and today, state pensions routinely incorporate liquidity management when stress testing their asset allocation policies.

My own experience working with pensions and endowments is that allocations to private assets above 40 percent of total assets requires a detailed liquidity plan as part of overall asset allocation. Currently, the average allocation to private assets among state pensions equals 25 percent, well below that 40 percent threshold.

Let's turn now to manager fees, because despite strong historical returns produced by private equity, it is also where state pensions spend the most in fees. One of the challenges in understanding private equity fees is that they can't be expressed as a fixed percent of the assets. In addition, there are several fee components and each component can vary depending upon performance and time. Fee components and levels are spelled out in a private equity partnership agreement. These are negotiated between managers and investors before the partnership is activated.

So again, there is an active negotiation of fees, it happens when the partnership is originated. Large state pensions have historically played an active role in negotiating private equity partnership fees and terms and are not simply price-takers.

Slide seven provides total fee estimates for a typical private equity partnership for different levels of gross of fee partnership return. Note on the right-hand side of slide seven, the fee components and fee rates for a typical partnership. Collectively, these fee components and rates produce different fees as a percent of invested assets, the common measure of expressing fee rates for different levels of gross partnership return. There's simply not one number. This uncertainty in combined private equity fee rates is frustrating when trying to answer the simple question, "What am I paying for private equity?" But as slide seven shows, paying more in combined fees is probably a good thing because your net of fee performance is better.

Our fee analysis, using simulation to capture different possible return outcomes, yields a combined private equity fee equal to 3.73 percent of invested assets, which represents approximately 25 percent of gross profits. How might investment professionals pass judgment on these fees? Well, the 25 percent of the profits would likely seem very reasonable to investors in private assets. On the other hand, the 3.73 percent combined fee as a percent of invested assets might strike some investors accustomed to more traditional fee structures as extraordinary.

Fee fairness is difficult to assess. But in the allocations to private equity, these fees are aggressively negotiated by state pensions against the backdrop of performance expectations and competitive pressures to access top performing funds.

My intent is to impress upon the commission that by no means is there an attitude of acceptance by state pensions when it comes to fees. In addition to pressing for best practices when it comes to partnership fees, state pensions are aggressively moving in two additional directions to lower fees.

The first is co-investments, which allow state pensions to potentially invest directly in the same deals as the manager puts in their fund, but at a much lower or no fee. The second is called strategic partnerships. These are bespoke agreements between state pensions and a highly valued manager, where state pension commits significant long-term capital to the manager across multiple years and strategies in return for lower management fees and the netting of performance fees. These are important tools that state pensions can use to significantly reduce overall private equity, and also, these are tools that they originated.

In my final remarks, I would like to first compliment all the presenters that preceded me. Their analyses, opinions, recommendations deserve serious attention, but I do take exception to a narrative that a couple of presenters put forward, and that is the claim that state pension staff are hiding fees from the public for fear of losing their jobs. I can tell you from personal experience over many years that nothing is further from the truth. I have found staff across pension systems to be well qualified, hard working, ethical, and thinking first of the beneficiaries that the assets support. In fact, today, one of the most serious issues facing state pensions is keeping staff, particularly in the nation's state capitals where professional opportunities in public policy far outweigh the opportunities in investment policy.

Most likely, outsider distrust of pension staff comes from the lack of understanding that transparency itself is negotiated as part of the legal agreements underlying private equity and other private investments. Part of the agreed upon terms of these investments is confidentiality on the part of the investor subject to legal redress. Pension staffs are not turning over data to outside parties because they are biding by these agreements, not because they are afraid of their jobs.

Yes, state pensions could change these agreements and require transparency by their private equity managers as a condition of investment. Perhaps public policy overrides investment policy in this instance. But make no mistake, such action will likely result in lower returns of some unknown magnitude from adverse selection, particularly in today's favorable fundraising environment.

With that, I conclude my testimony.

Thank you, Mr. Chairman, for the opportunity to share my thoughts, and I would welcome any questions you might have.

Thank you.

CHAIRMAN TOBASH: Mr. Nesbitt, thank you so much for traveling here. Thank you for your work and testimony and expertise. And I just have one or two brief questions.

You mentioned at the beginning of your testimony your long résumé. You've worked with so many different pension organizations, but you've also done some work with SERS and PSERS. Can you tell us what work you've done with the systems in Pennsylvania?

MR. NESBITT: It's dated now. So one of my first clients was Pennsylvania State Employees' Retirement System. And I think I was 28 at the time. But this was during the 80s and we did really some great things.

We introduced performance fees. So the first performance fee for a long-only strategy, a traditional long-only strategy, was done by Pennsylvania State Employees' Retirement System. We also introduced index funds for the first time to that state system, and actually created a Pennsylvania index fund. At the time, if you remember the Governor, Thornburgh, was very interested in in-state investing and so we created a Pennsylvania index fund, which did pretty well.

So it was cost savings, fee reduction was a headline event back in the 1980s and I thought we did good work there.

A previous speaker talked about brokerage, which basically, here in the U.S., we know it as soft dollars. And so soft dollars were very high and basically we insisted on eliminating soft dollars and monitoring brokerage costs and transaction costs at that time.

It was during the 1990s I worked with Pennsylvania School Employees' Retirement System. I built an office. They wanted local representatives, so I built an office in Pittsburgh at my prior firm. I took the puddle hopper from Pittsburgh here. But it was there that we introduced private equity, which became, you know, a very performing, good performing asset class for them, and did other good work for them, introduced index funds, et cetera.

So I'm sorry for that long-winded answer.

CHAIRMAN TOBASH: No, no, great. No.

MR. NESBITT: It's kind of memory lane.

CHAIRMAN TOBASH: Yeah. So it's important for us to know your past work and commitment, continued commitment to the Commonwealth of Pennsylvania. So I really thank you.

So some of the people that you worked with in the organizations you worked with -- I'll get back to the transparency question. In this balancing act between confidentiality and transparency, there's -- right -- they don't work congruently. So some of the other systems you worked with have been leaders in transparency. And I think you mentioned Rhode Island. I think they've come back and said something that's maybe contrary to your testimony, saying that they haven't seen that being more transparent has caused them to erode their ability to enter into investment contracts. Can you comment on that a little bit and particularly how you see Pennsylvania with the opportunity to become more transparent or where do you think we're at right now?

MR. NESBITT: Well, if -- I don't know who was here from Rhode Island, but if they said that, I agree with it.

But I do know specific cases where GPs have said, you know, "We really don't want you -- given your policies of transparency, we don't want you as an investor." And different states make different judgments on that. The Treasurer, very abled Treasurer, in Rhode Island has decided to be very, very transparent. And the board went along with him, and that's their decision.

CHAIRMAN TOBASH: So ILPA is kind of setting the standard now trying to get on a national level, trying to get more people on board with a blueprint for transparency. Do you have any comments about their model and how that might assist other states in the endeavor that we're also working on?

MR. NESBITT: We're a big supporter of ILPA. So, you know, our hope is that, basically all public pension systems adopt ILPA and that all managers get on board in that type of disclosure. And so I think that's a very positive thing that's happening in the industry.

CHAIRMAN TOBASH: Great. Thank you again.

Do you have any questions, Mr. Vice-Chairman?

VICE-CHAIRMAN TORSELLA: Thank you, Chairman.

Thank you for being here. Thank you for your past work for Pennsylvania.

You said that large state pensions have historically played an active role in negotiating prices and haven't just been price-takers, which is encouraging to hear. So is it your belief that systems as large as ours can negotiate good prices?

MR. NESBITT: Yes, but as a collective. So basically, it's the large systems that negotiate price with the GP. And so it's not individual negotiations. It's basically, the GP and the large LPs know who's going into the fund, and basically they call each other and say, "Hey, what do you think of this? Do you agree with that?" And basically they put pressure collectively on the GP to change terms or to change fees. So it's basically --

VICE-CHAIRMAN TORSELLA: So larger and more is better than smaller and less, in most things?

MR. NESBITT: Yeah. At the margin, big is beautiful, but I will say there are some more medium-sized, really well-respected state pensions that carry as big a stick as the larger ones.

VICE-CHAIRMAN TORSELLA: And a question on the liquidity, which I thought was an important point you were making. You said that in the great financial crisis, some funds found themselves with illiquid investments, including their allocations and unfunded commitments of greater than 50 percent. You said, I thought, that you thought 40 percent was where yellow lights flash.

Is that in your practice, your view, that the appropriate yardstick is when allocations and unfunded commitments are more than 40 percent, there needs to be a very careful analysis?

MR. NESBITT: It all depends on individual circumstance. Generally, boards are willing to tolerate plus or minus 10 percent at the outside vis-à-vis their target allocations. If you have more than 40 percent in private equity and you stress test that allocation amount in 2008, 2009, that 40 percent becomes basically something closer to 60 percent, between 55 and 60 percent. And that causes a variation from policy that's really outside the typical bounds.

VICE-CHAIRMAN TORSELLA: And would that be, the better funded the plan, the easier it is to tolerate, correct, with liquidity?

MR. NESBITT: No. That protocol, if you will, to stay within your asset allocation range is really -- in the first order, it's independent of your liability. In the second order, you know, if you have a large unfunded liability, generally you have more negative cash flow. You have more benefits going out than you have contributions come in. And that situation would suggest something more conservative.

VICE-CHAIRMAN TORSELLA: Okay. Thank you.

CHAIRMAN TOBASH: Commissioner Gallagher.

COMMISSIONER GALLAGHER: Thank you, Mr. Chair.

And I think the Treasurer just touched on my question. It's just, you know, how does a fund that's 60 percent funded navigate as compared to a 90 percent funded plan? In terms of the liquidity needs and cash flow negative, we've got a very mature -- both of our plans are very mature. One more is more than the other. The State Employees' System is much more mature.

Given those contexts of demographics and presently the asset allocations that both systems deploy, which are different, and that brings about contrast that kind of elucidates a way to think about things differently. But can you layer in about, just relatively speaking, within the framework of the logic of your piece here, how is it a fund at 60 percent must navigate on a moving forward basis relative to a 90 percent funded plan?

MR. NESBITT: That's a very challenging question without one answer. So let me explain myself here.

This is really the view -- in my experience, I've had pension funds that were exceedingly low funded, that took the long-term view and stayed aggressive. And I've had those that were really underfunded and basically were worried about running out of money and they became very conservative. So what's the difference in the vision of those two boards? It really has to do with how they view the sponsor of the pension system, in other words, the state.

One of my early clients was the state of Massachusetts. And this was 1985 when they first set up PRIM, when they took all the local pension systems and put them together and had one board, one policy. Their funded ratio was 25 percent. If you think about the 80s in Massachusetts, it's like, gee, the logic would suggest, "Gee, let's stay conservative because we may run out of money in the next five years," okay? With a five percent spend rate, that was a possibility. Basically, they came to the opposite conclusion. The Governor, the legislature, all the stakeholders said, "We're going to have a commitment to funding. We're going to have a 30-year funding schedule, where we expect to pay for this unfunded liability and we're all bought in on that."

So the pension board at that time, which had a diversity of stakeholders, said, "Okay, given that we have assurance in that obligation to provide state contributions, given that we have that assurance, we can go for the long-term and we can invest aggressively with the idea that we're going to lower the long-term costs of the pension system." At the same time, I've had pension systems that are currently at 40, 50 percent funded, that -- "Gee, I'm not so sure about my sponsor, my state," whether -- their commitment, either the legislature or the Governor or whatever, "I've got to worry about running out of money. So I'm going -- I see my duty as maximizing whatever money is left for those shorter term benefits." So they adopt a more conservative policy.

So I apologize, but there is no one answer.

COMMISSIONER GALLAGHER: That's helpful.

CHAIRMAN TOBASH: Commissioner Bloom.

COMMISSIONER BLOOM: Yeah. I just am reading this one piece of your testimony that I just wanted to clarify and I'm sure you'll understand.

You said that a couple of the presenters put forward there's a claim that state pension staff are hiding fees from the public for the fear of losing their jobs. I don't remember anybody actually using those kinds of words.

There has been a debate, there's been a pretty healthy debate for the past six months, as long as the commission has been here, as to private equity and carried interest. And I don't think anybody has said that people are hiding numbers or hiding -- it's a matter of how they report the fees. I think everybody has tried to be accurate and I think our staff are, as you put it, qualified, hard working, ethical, and thinking first of the pensioners, at least the ones that I've spoken to.

I just wanted to clarify because it looks a little bad when, if we were listening to folks who were telling us that people might lose their jobs for hiding fees. I don't believe that's a, you know, any of that's true. I just wanted to let you know.

MR. NESBITT: Thank you. Maybe those words are strong. But I heard it twice in testimony listening to the audio and video. So I just wanted to make it clear to anybody else who was listening.

CHAIRMAN TOBASH: Okay. Great. We thank you. We thank you once again for being here.

MR. NESBITT: Thank you.

CHAIRMAN TOBASH: We thank you for your past assistance to the state and your current assistance to the Commonwealth, and we would look forward to being in contact with you as we work to close out this document.

MR. NESBITT: Thank you very much, Mr. Chairman.

CHAIRMAN TOBASH: Thank you.

So we have passed the seventh inning stretch and we're here, I think, with our final testimony of these hearings. And we've got a distinguished gentleman with us, Dr. Charles D. Ellis, extensive résumé, graduate of Exeter and Yale College with an MBA from Harvard Business School, Ph.D. from New York University, has served on the Board of Trustees of Yale Investment Committee, Stern School of Business at New York University, the Brown Foundation, and CalPERS. As I mentioned, his résumé is extensive. We appreciate him being here.

Here's what I think I know, he likes to be called Charley. So with this résumé, humility is one of his best characteristics, I think. And I think you hail from Boston, is that -- Charley, are you a Boston native, a Boston native?

DR. ELLIS: Roxbury, part of Boston as Boston would define it. Fiercely independent, as people living in Roxbury.

CHAIRMAN TOBASH: Okay, good. But that means that you appreciate the fact that the left fielder, Benintendi, last night made a terrific catch at the track and that he hung in there in the fifth inning. My daughter is living in Boston right now. That's her favorite player, and I know that that made you happy, that the Red Sox won, so we're happy that you're here and we're happy that you're happy because of that.

DR. ELLIS: I think that's a very nice thing to say.

CHAIRMAN TOBASH: We look forward to your testimony. Thank you.

DR. ELLIS: I think we all ought to recognize that it's late in the day and I'm sure I won't be as articulate as I could have been earlier. And I'm sorry about imposing on you for more time.

CHAIRMAN TOBASH: We're happy you're here and you are the cleanup batter, so...

DR. ELLIS: I was given complete freedom, which I'm going to take, because for the first time in my life I'm not accepting a fee for doing any work for anybody in the investment management world. And the reason I'm here is that a man I have a high regard for has a very, very high regard for your Treasurer. And we had a delightful conversation and I realized, if he's going to be working on the kinds of questions I think are really important, I would like to help with him.

My deepest concern personally is that retirement security is, in this country, increasingly at risk, perhaps even a myth. And it shows up in a variety of different ways, but it does show up in the public pension sector, it shows up for sure in the private sector. And we as a nation can see that a nightmare is headed our way unless we start doing something about it. But since it's not an immediate crisis, most people are putting it off. "I'll worry about that later."

At my age, I can't put things off for very long. So my focus and interest on that had me deeply attracted to coming and spending a little time. And I would love it if I could be truly helpful to you.

I am going to rehearse, or go over a decision you've already made and just encourage you to keep on going until you've got it completed. And that is the movement to indexing and away from active management.

If you go back to 1965, when I was first getting interested in investment management, active investing was the only way to go. But every factor that made that the only way to go then has been reversed 180 degrees and it no longer applies. Let me just give you some of the characteristics, and they are, when you get down to it, truly profound.

Back in 1965, trading on the New York Stock Exchange by professionals -- and that's a guarded term -- was a little bit under 10 percent. Let's call it nine percent. The rest was done by individuals who averaged one trade every year or two. Half of their trades were in AT&T because it was the most widely known stock. They had no access to any research or information on companies at all except the Standard & Poor's so-called tear sheet. It was a five-by-seven-inch double-sided, and it looked only at the past, it had nothing in the way of forecasting or what you could expect. They had no reason to know what was going on. And they might have read *Business Week* or *Forbes* or one of the other business magazines, but they really relied on a retail stockbroker. They were not hard competition.

The nine percent that were quote, unquote, professional were dominated by regional bank trust departments. You may remember, back then, banks were limited to state lines or less. And so there were, in my hometown now of New Haven, there were four trust companies. And they bought laddered maturity bonds and they bought blue chip stocks and they met once a month at investment committee and had an approved list. And it was not a tough group of competitors.

Today, 99 percent of the trading, not 9, but 99 percent of trading every day is done by machines driven by artificial intelligence and by professionals, half of the trading by professionals done by the 50 largest, toughest traders. That is a very dangerous, aggressive, competitive environment. And all of us need to recognize that that is a really different world.

Let's talk about some of the other things. Back in '65, Goldman Sachs had no analysts that served a public purpose. They had 12 analysts that served the partnership looking for small cap stocks. Today, Goldman Sachs and every other major firm in offices all around the world have about 600 industry analysts, company analysts, GNP analysts, commodity analysts, and all kinds of other people trying to find bits and pieces that could be helpful to investors, the same terrifically aggressive professional group of investors, to earn some commission business for their activities. That is an unbelievable flood of information and it's because of the internet. Everyone has 24-hour access to all of that information anytime they want it.

The federal government has added to that regulation FD through the SEC. It is required that any public company that gives any investor any useful information for investment purposes must make a diligent effort to get that same information simultaneously to all investors. So the secret sauce of acting investing, which is to do more homework than the other people, get to know the company better than other people, get more data, do more careful analysis, that has been obliterated or commoditized and everybody's got it.

Mike Bloomberg was still in school. There are now 240,000 Bloomberg Terminals all over the world. And if you look at how many people you have to have to justify one of those terminals, it would confirm my best estimate, that the number of people who are involved in active investing has gone from less than 5,000, most of whom would have been located on the Eastern Seaboard or in the United Kingdom, to comfortably over 1 million people, all of whom have had the same objective, find a pricing error, find an imperfection and take advantage of it. And as a consequence, the markets have become more and more and more and more impossible to beat on anything like a systematic basis.

There are two ways you can approach a concept. One is to start with the theory, and the other, start with the data. Einstein is famous for theory. So the theory of efficient markets has been around for quite a time. Darwin's get the data, the kinds of data I've just been sharing with you, and there's half a dozen more specific elements -- that I'd be glad to share, if you wished it -- lead to the same conclusion. Bottom up, top down. It's not going to be a good place to take on the cost of operation.

An active manager costs about 100 basis points a year in expenses that he incurs and trading imperfections. Add to that fees of maybe 50 basis points, you've got to pick up 150 basis points in a market where the people that I think of as being the most knowledgeable estimate total returns of six or seven percent in equities. We're talking about 20, 25, or 30 percent better than the competition who have exactly the same information you have, exactly the same time you have, with just the same computing power you have. They're just on different floors in the elevator bank. And it doesn't make any sense for someone to say, "I am going to pay the fees that are being charged and I'm going to put up all the capital for a very unlikely rate of return."

If you think mutual funds are a reasonable proxy, people are trying hard. Now we have data that in the last 10 years, 84 percent of mutual funds have failed to keep up with the benchmark they chose to beat, the benchmark they had the freedom to choose how to organize to do it, this benchmark they are specializing in. That's a dreadful consequence. Has it been addressed and exposed and talked about a great deal? Certainly not, but it is a reality.

You say, "Well, what if you had made it longer, 15 years?" It goes up from 84 percent to 86. Then say, "Well, how about other markets?" In the United Kingdom it's 87 percent.

So the whole concept of active investing was right, but the world changed and changed and changed and changed, and just as the kind of clothing that we would wear on the weekend during the last couple of months is not the kind of clothing we wear on a weekend in the next couple of months, the world has changed and everybody should be recognizing it. The fact that you have recognized it, I think, is terrific. And I would urge you to go right on ahead and complete the task. So that's the main part of what I really wanted to say to you.

There are several specific things that, if you would tolerate, I'd like to make gratuitous suggestions for consideration in the future.

What has happened in active equity management is candidly just the tip of the iceberg. The same thing has been reproduced in fixed income investment management for high grade or medium grade securities. It's going to be picked up and carried through to all the other types of investment because there's a huge money flow that's looking for higher rates of return. Some of it is sophisticated; candidly, some of it is not sufficiently sophisticated or sufficiently aware of the difficulties to recognize how hard it's going to be to compete with all that other money that's coming in to compete for access to the very best investment managers.

You probably know that in venture capital, if you're not in the top 10 by number, not 10 percent, top 10 managers, you are going to underperform the public market if you go into venture capital, because the top 10 gets all the superior rates of return. It's not unlike that in private equity. The very best firms that do the best work already have a superb clientele that they are serving on a regular basis. And they are not competing for or looking for new money.

By the time you get to the second quartile, that would be open for business and interested in adding more money, you're running the risk of drifting down towards normal public market rates of return. By the time you get below the median, you're really in serious difficulty. And I think all of us ought to recognize how difficult it is now, and it's going to get more and more and more difficult because the amount of money is piling in at a terrific rate.

If I can make a suggestion, this commission would be wise to stay focused on the passive or indexing versus active, complete that task, illustrate how wise you have been, and go back with a recommendation for further study by other groups or yourselves of a blue chip, blue ribbon commission to study other questions of real moment. But I would urge you, don't try to factor them in with the kind of a report that you have been mandated to achieve, as I understand it, and which you're very close to having terrific documentation for and a very strong case to be made.

Let me pick up on some of the things that might be of caution.

Could we get a really great blue ribbon commission? I think the answer is yes.

I'm from Connecticut. I do not know Pennsylvania well. But if you took Pennsylvania and just said the 10 largest endowments, could you find really talented people? I think so. If you took the 20 largest investment managers, could you find substantial numbers of people? I know so.

I spent -- for 10 years, I was the director of Vanguard. They are filled with extraordinarily talented, public servant-oriented, caring, boy scout types of people. You've got at least 100 corporations that's got, for their pension staff, very capable people. And then you have all the people that retired in the last five to ten years who are still very knowledgable about what the issues are, very well connected, and have a substantial amount of experience. It would be easy, in my view, for this extraordinary Commonwealth to put together a first rate group of people to do serious study of other questions that I would urge you as a particular commission not to get involved.

The returns in public equity are going down because the volume of money that is chasing after public equity will be taken in by firms, and will therefore be competitive in the market for opportunities to buy things that could be taken private. The competition will raise the prices, and when the price level going in has been raised, the rate of return at the end -- I'm sorry, the price level at the end does not get changed, but the rate of return in the space in between does get changed and the rate of return is clearly going down. It will go down for the top firms, but it will go down more for the next tier firms and go down even more for the next tier of firms. So it would be a very, very difficult period.

If I can be just blunt spoken, when somebody says "fee and carried interest are different," I agree with that mechanically, legally, and so on. But everybody I know in Wall Street and everybody I know in investment outside of Wall Street is absolutely clear, they are part of the same thing. That's what we get paid. And the cost and risk gets absorbed by the clients. This is worth paying close attention to. You put up 100 percent of the money, you take 100 percent of the risk, you have 100 percent of the liquidity, and then the managers claim a 20 percent carried interest. If that isn't part of their compensation or the reason they're in business, it would be news to me, and candidly, it would be news to them.

You heard twice today or three times today that steady contributions into the system would be very, very valuable. Yes, full stop.

It would be really worthwhile having careful study done of the actuarial assumptions as to rates of return. They do appear to me to be seriously high. And I recognize that if you look back over the last 30 years, there have been some truly wonderful times in rates of return.

Almost no one who is active today was around when Paul Volcker drove interest rates on 10-year treasuries to 13 percent in order to break the back of inflation, wonderful public service. Footnote, during that entire period, with all the abuse he was taking in public and from politicians, he was, every weekend, going back to New York to take care of his infirm wife and cook her meals for Saturday and Sunday, and leave in the refrigerator, Monday, Tuesday, Wednesday, Thursday, Friday meals. Wonderful human being, devoted to the American interest and did this nation a world of good.

But the market went down in that period by more than it went down in 1929, if you include inflation. We really got hurt. And that drove the market to such a low level that anything coming back should have recognized where it came from. Sure, the returns were high, but they were nominal returns. If you recalibrated and took 1968 as your base, you wouldn't have seen those returns as being all that great. Be careful how people take old data and apply it to a new situation.

I have difficulty understanding why you have two difficult plans from the point of view of investing and what I would call the back office operations. I can understand why you have two different plans in terms of representation of the teachers and representation of all other employees, but why they ought to be operationally separated doesn't sound like anything that would be chosen by a rational observer.

The best managers are capacity constrained in private equity. If you have, your organization has managers who are not private capacity constrained, they are not the best managers because the best managers attract the best clients and they seek out the best clients and they have already cleared the table before the rest of us get there. So if you accept that there's capacity constraint, it's only with those who are earning the right to be capacity constrained through the excellence of their work. And I would be very, very careful of the way the terminology gets moved around.

I would urge you to consider the possibility of developing a consortium of the major state funds to deal together on resetting the terms. Doing it one at a time can't work because you'll be played off against each other. But if you had a consortium, you might very well be able to make a real change, and there's plenty of room for real change.

I'd like to just stop with an invitation for any questions, particularly tough questions, and a thank you.

I've had a wonderful experience being able to come and to sit in on the testimony that you heard before. I've learned a lot. I haven't been pleased by some of the things that I've learned. But I've had the privilege of getting to know some of the members on this commission and I've been deeply impressed by the caliber of their commitment and the quality of their intention to serve the Commonwealth. And it makes it, from my point of view, worth the trip and I can't tell you how much I appreciate it.

Thanks.

CHAIRMAN TOBASH: Mr. Ellis, we're -- Dr. Ellis, we're honored that you're here.

DR. ELLIS: Charley will do.

CHAIRMAN TOBASH: Again, we appreciate it.

So you heard some conversation today about governance and you've dealt with many different pension systems and you're taking a look at the system right here that has got two boards that are not the same, but in some essence they are. They are political appointees, appointees from different stakeholder groups. What's your perspective on how an organization, a pension organization, can be most effectively directed by a board that is capable and lacks influence to the extent that they can make the difficult decisions to win a loser's game?

DR. ELLIS: For the representation of the beneficiaries and the representation of the Commonwealth, I think you've got a fine board, because they are representative and hopefully they're well chosen.

For investment management, a highly specialized, rapidly changing, increasingly competitive, and increasingly difficult field, to ask people who are not deeply immersed virtually full-time in that work is unfair to them and unfair to the people who will be dependent upon the results of their work. You should be developing an independent board, a separate group, who are directly responsible for the investment management.

Yale University has got a wonderful group of trustees. They serve with distinction for years. They have wonderful characteristics, but we very deliberately choose a small group of people to do the investment management, all of whom are investment experts, otherwise it can't be done.

CHAIRMAN TOBASH: Thank you.

Mr. Vice-Chairman, questions?

VICE-CHAIRMAN TORSELLA: Thank you.

And thank you so much for being here and for doing a great public service to a state that's not your own. But I'm not sure -- this isn't in my charter as Treasurer, but I think I hereby declare you an honorary Pennsylvanian.

DR. ELLIS: I'd be honored to accept if it's your jurisdiction.

VICE-CHAIRMAN TORSELLA: Can I get away with that? I'm asking the legislator.

DR. ELLIS: You know, if you go outside and come in again, this truly beautiful building, it's got all kinds of very nice decorations. One of them is a citation from William Penn, who's talking about what he really had in mind for Pennsylvania, that it would set an example for others. And candidly, that's why I'm here and that's why I'm so pleased that I'm here because you are setting an example for all those others who haven't done what you've done, which is identify the need for some specific service on indexing versus active. Nice home run. And then I hope that you will find a way to get the legislature, the Governor, or both, to recognize there's a real opportunity to do many other component parts of the total complexity of the system of investment management.

VICE-CHAIRMAN TORSELLA: If we succeed in that, it will be in part due to your doing us the courtesy and the service of coming, so thank you.

On indexing, you know, we do hear from time to time two things. One, you hear the assertion that, well, that makes sense for large cap stocks, large cap U.S. stocks, but for other places where there are, you know, less efficient markets, it doesn't make so much sense. Even though my reading, at least, of the SPIVA data is that the same numbers obtain -- and I wanted to ask you for your views on that or why you think that there's still this persistent view that in things other than large cap U.S., active management makes sense.

The second thing we sometimes hear is, going to your top down, bottom up, people will say, "Well, the theory of it is plausible, but my managers have outperformed. You know, we've had five years of outperformance, so shouldn't we keep sticking with that?"

If you can comment on those two things, that'd be great.

DR. ELLIS: Sure.

I've probably had more opportunity to study investment managers than anyone else in the world. I spent 30 years as a managing partner of Greenwich Associates and our principal line of work that I was involved with was investment managers. And we had clients in every major market around the world. And we worked with the investment managers in every one of those markets, usually the top three or four people in the firm and usually the top four or five managers in each market -- sorry, usually the top ten or a dozen managers in each market and the top four or five people within each of those managers.

And one of the things that is a dreadful reality is that they come and they go. And I first recognized that after we had been doing this kind of work for 10 years. Isn't it astonishing, some of the people who were at the top are no longer included in the top 10, no longer included in the top 20. Then I started paying attention to that. And as the years went by, it got worse and worse and worse, because it's a hugely competitive business and the data that people are making decisions on is statistically interesting, but it is not statistically valid because it's a way too complex process of investment management and comparative. It makes it a doubly way too complex process and small differences do show up and cause people to make major moves, clients to make major moves, which is, over time, notoriously a mistake.

Best estimate that I have is that the error rate on changing managers for major corporate and public funds runs somewhere between 100 and 150 basis points per year on average. That's a serious penalty.

Do people recognize it? No. Because the decision-makers change and change and change. We don't examine the study data of what's happened to us in the past. It's only when SPIVA came in with the data on the mutual funds that anybody had any recognition. "My Lord, look at what an enormous failure rate is taking place." And these are wonderfully talented, hugely carefully chosen people who are given mandates that are really responsible, not just to the clients, but to the managers of the firm. And still you've got over 80 percent failing in such a short period of time. And that confirms the experience that I had.

And that was not in any other country where it really changed. It's a dreadful irony that all the firms will recognize that they've gotten better. This is a major point that I'd like to have made earlier.

Every firm that I talk to knows that they're better. They've got better computers, they've got more capably, more carefully trained staff, they've got much better models on their computers. They learned a lot and they are raring to go because they know they're better than they were 10 years ago. What they don't recognize, but only an outsider might be able to recognize, is that they're actually getting closer and closer and closer and closer to being equal in their capabilities because they all have Bloomberg, they all have the internet, they all have SEC regulation fair disclosure, they all have 600 analysts at every major security firm pumping stuff into them all the time. They all have everything you could dream of having. And they're, therefore, more and more and more equal. Then when they get more and more equal, it's harder for them to beat the other guys enough to cover the costs or the fees and get back to even again, so they fall short. It's real short. And it's not going to change.

People ask me, "Oh, Charley, indexing has been doing so well, I'm sure it can't continue to do that well. There's going to come a time when it's time to go back into active investing." Candidly, I look at all the different ways people have come up with and they all sound like prune juice to me, but there's one that I think is sure. If we could get the million people who are actively involved in active investing right now to drop down to 50,000, 25,000 -- gee, wouldn't it be great if it went down to 10,000? And we're talking about almost everybody saying, "The hell with it, I'm giving up on investment management. I know it's the highest paying line of work in the world. I know it's the most fun line of work in the world. I know it's the most traveling and other activities that are just terrific. I don't want to do that anymore.

I want to go be a middle manager at some middle-sized industrial company. And I'm going to have to learn a lot in order to be able to do that, but I'm going to get rid of all this." That's not going to happen. We graduate enough people every year from business schools all over the country and around the world to fill up any empty spaces that are created.

Until you can get a large number of people to say, "It's been a" -- and I say, "The hell with it," or something equivalent to that and quit the business, you're going to have too many people with too much talent with too much information to be able to say, "I can go out there and beat them." It ain't going to happen.

CHAIRMAN TOBASH: Thank you.

Commissioner Gallagher.

COMMISSIONER GALLAGHER: Dr. Ellis, I --

DR. ELLIS: Charley will do fine.

COMMISSIONER GALLAGHER: I hear that, but you are of an exalted status, so I appreciate you being here and sharing your insight so that we can make informed decisions that will be generational in nature.

My question, I'm going to pose to you that I posed to a former CIO of a very large Canadian system, who is now working at a very large private equity firm in the U.S. Same question, I said to him, "What's the difference between your organization and a high school student with a computer in California?" And he recognized, you know, the uniformity of information that's available now to a lot of people, to your point about, you know, how information is getting flat. And his response was that, "Fair question, I'll give you one example." His was that his organization has a fleet of drones and they are able to fly over and encase areas and measure car movements whether or not to invest in real estate, right, or like retail real estate. And I thought it was an interesting question to give them an information advantage.

That's going to evolve over time, right? I understand that. But it seems like that is an information advantage that could be taken advantage of. What are your thoughts about that?

DR. ELLIS: I'm going to give you a reciprocal story and then I'd be glad to try to answer, if that's not sufficient.

I am working with a small investment

management firm in New York that has, I think, designed a very interesting system. They have seven analysts who are in their mid-30s to mid-40s, who have made enough money so that they put their money in the pot that they all are managing. They're led by a man who made a very substantial success and his money, entirely, in the pot. And they are taking a small number of clients.

One of their lines of work is retail. They are the only organization I know that calls a different group of 30 different retail outlets every month to get seven questions answered with regard to inventories in those outlets. They know more about that company's inventory realities, that retail, than the management of the company knows because they've tested it out. That's the degree at which skill levels are going.

We've all heard about drones and satellites checking to see how many automobiles are in various parking lots. That's sort of standard stuff now. The degree of specificity of over-the-top information gathering is simply astonishing. And that extraordinarily gifted firm also has made the sensible view, they're not going to do anything with the thousand largest companies, which of course, as we all know is where almost all of us have almost all of our money invested, whether we like it or not. So they stay away from all the big ones. They're looking for small companies that nobody else is following. If they knew there were two analysts from Wall Street following them, they'd stop. It's one of their checks.

And for all the work that they put into it -- and boy, are they price sensitive and marvelous people and gifted -- they're just barely lagging behind the market average. I think that's tremendously compelling information.

I think it's compelling information when Warren Buffet says, "For my wife, I would like her to index." He's the best investor any of us know of or will ever meet.

I have the privilege of having a friendship with Warren that goes back a long, long way. And when I was teaching a course on business ethics, I thought, "What a terrific thrill this would be." I had the head of insider trading litigation at Davis Polk come for one class. I had the *Consumer Reports* head for a class on credit card manipulation and things like that. "Now, if I could get Warren to come, that would just be over-the-top wonderful."

So I invited him to come to Yale and sit in with the students. He said, "Charley, I can't do that, but I'll tell you what I will do. If you bring the students out to Omaha, I'll spend two hours with them." Done deal? Not yet, got to find out how we're going to cover the cost because a lot of these students at Yale, as you probably know, about half of them are on scholarship. So I checked in with the family that sponsors this particular course, and they said, "We'd be thrilled. We'll pay for all the students to go. We'll pay for the rooms and we'll pay for the meals." So we went out free of charge. Two hours with Warren Buffet. What a thrilling experience.

I asked the students, "Do me a favor, let's have a competition for who's got the best question to ask the smartest person in any room we're going to go to the rest of our lives." Because that is how good Warren is at this sort of stuff.

So we had a really interesting -- and it was, you have to write out the question and you have to have two follow-up questions, and then we as a class of 27 will decide which of the questions in which order. We only got to the fourth question because Warren gave such complete answers to every question that was put up, pros, cons, complexities, what to think about the past, how to think about the future. When he says, "I'd like my wife to invest in index funds," I don't need to know a hell of a lot more.

My friend, David Swensen, who is the chief investment officer of Yale's -- probably has the best record that anybody in institutional investing has ever had -- said, "Indexing is the only sensible way for almost everyone."

And then if you want to ask a rude and blunt question, "What are you doing with your own money?" My family and I are indexers, with one exception. Back in the early 1970s, I lucked into Berkshire Hathaway, and that's close enough to an index fund. And I don't want to meet Warren some day and have him say, "Charley, I hear you sold out on my investing." No, I'm not going to do that. So I've left it for old time's sake. Other than that, index.

COMMISSIONER GALLAGHER: Thank you.

CHAIRMAN TOBASH: Commissioner Torbert. Thank you.

COMMISSIONER TORBERT: My turn, Charley.

DR. ELLIS: Great.

COMMISSIONER TORBERT: One of the things that you mentioned was about the back office operations of the two systems. So if I understood that correctly, your thinking would be, maybe consolidate back office, but yet have your two investment teams.

DR. ELLIS: Yep.

COMMISSIONER TORBERT: Am I thinking that way?

DR. ELLIS: I'm comfortable if you said, "We would be uncomfortable having to integrate the two investment decision-making units," but I'll bet a lot of other parts can be integrated and a reasonable cost saving, but an upgrade in terms of the capability set that you would have to work with.

Personally, I would integrate the investing, but that's a personal thing. And I don't know anywhere near enough to think my opinion has any valid, any throw-weight here.

COMMISSIONER TORBERT: Another question is, in the business of investments, you see a lot of volatility. A great example is the past week -- by the way, the market seems to be doing really good today. And part of the reason for the dramatic change up and down is because of all the indexing. I mean, they go in in mass numbers and they pull out in mass numbers.

DR. ELLIS: Okay, we're going to disagree on this subject. I'll just prewarn you.

COMMISSIONER TORBERT: Well, your quick thoughts on that.

DR. ELLIS: I happened to have gotten interested in indexing back in the early 1970s. And in the mid-1970s, I did my Ph.D. dissertation on why corporate pension funds -- because that's where I had data access. Clearly, given the criteria, they said, "We want reasonable fees, we want regular returns, we want reliability." They would, serious, be wonderful opportunity for them to use indexing, so that's surely the way they're going to go. And item by item by item, I proved it wasn't true. They didn't care about the fees, they didn't care about volatility. No, they didn't care about diversification and they certainly didn't care about indexing.

So as time has gone by, it's been really quite pleasing for me to see, well, I may have been wrong when I turned in my dissertation and had to defend it before the faculty. But it's coming right and coming right and coming right. And then the data that's being collected today, there would be a wide acceptance that indexing is a very sensible and realistic way to go. It's a little bit of -- well, it's working out so far.

One of the questions people have about indexing is, "Isn't it true that index funds are banal, and just have to do whatever the index does and isn't there enough money following a banal process that's going to slosh into the market and be highly predictable? Besides, we know exactly what it's going to do and if I know what my competitor is going to do, that makes it easier for me to do something that is different." And none of those things appear, by looking at the data hard, appear to hold up.

One dimension that I particularly put focus on is, there's got to be an impact on trading. Yes, but if you were an index fund manager, you would look at that as a problem that you need to deal with. And sure enough, the major index fund managers have figured out ways that they can lead and lag on indexing, changes in the index. And they're able to use derivatives a lot for that purpose so that they're basically invisible and also no waves being created.

And they say to you, you know, "We hear this and we hear this and we hear this, but we can't find it in our own operations. We don't see any difficulty." And then they start laughing, "But you should see what the active managers are struggling with, it must be driving them crazy." But we've got problems that we've identified and we've figured out ways to manage those problems so they're, honestly, just no problem. And I'm -- you know, we're just talking candidly together, just as you and I are, Mike.

COMMISSIONER TORBERT: Oh, I'm not saying I disagree with you. I'm just asking the question.

DR. ELLIS: Yeah. Thank you.

COMMISSIONER TORBERT: Two quick comments.

Back in '84 when I was a broker trying to buy Pennsylvania municipal bonds for my clients and hearing that I couldn't get any because Vanguard was buying them all. They almost take down the whole, you know, debt group. And then years later, when I was a portfolio manager with PNC, that owned 80 percent of Blackrock at the time, I was in New

York City on the bond trading floor at Blackrock. And it was big as the cafeteria with people in Bloombergs and yelling to each other, buying bonds all over the world, and I thought, "No wonder, you know, that's probably the way to go in the future." Obviously, it was.

I'm not against indexing at all. As a matter of fact, I manage my own portfolio, which is index funds and some good dividend producing stocks. But I see that as a value added for sure when it comes to passive versus active, but I think there's room for both. And especially when it comes to private equity because you can't really do indexing on a private equity.

DR. ELLIS: Agreed, on private equity.

COMMISSIONER TORBERT: But you have got to, you know, really be careful with private equity and really do a lot of study and research on that.

Thank you very much for your...

DR. ELLIS: Thanks for the hospitality last evening, too. That was very nice.

CHAIRMAN TOBASH: Okay, that --

COMMISSIONER BLOOM: I'm sorry, Dr. Ellis is looking at me waiting for a question.

CHAIRMAN TOBASH: That's all right. I'm sorry.

COMMISSIONER BLOOM: Did you go to Roxbury

Latin?

DR. ELLIS: I did not. I went to Elbridge Gerry School and then I went to the junior high school of Marblehead, Massachusetts, and then I went to Phillips Exeter Academy.

COMMISSIONER BLOOM: I'm just checking.

DR. ELLIS: I have to tell you, if I could have gone, if I had known about Roxbury Latin, or better, if my parents had known about Roxbury Latin, I suspect that's where I would have been sent, if I could get in.

COMMISSIONER BLOOM: I got you.

Thank you very much, Doctor.

CHAIRMAN TOBASH: Okay, Dr. Ellis, thank you very much. We appreciate you very much being here today.

And I just want to thank -- that concludes our testimony. I just want to thank the entire staff, the Joint State Government, the House staff, the Treasurer's staff, everyone that's been involved in the process so far.

I want to thank the commissioners. We certainly have got a lot of information to consolidate and get into a report that we will deliver to the administration and the general assembly.

I just want to applaud all of the testifiers. As I have mentioned on a number of occasions, we have a lot of work to do and I think that we can do outstanding work.

And the Commonwealth of Pennsylvania has an opportunity to, only an opportunity, to implement some of the recommendations that we have heard from the testifiers and from the document that we will put together.

So with that said, our next official meeting will be December 12th, at a location to be determined here in the Capitol. At that point in time, we expect to have a final product that we will vote upon.

As I mentioned at the beginning of the meeting, any additional comments or amendments, addendums, additions, or changes to the document that we handed out today should go through Joint State Government and that will bring our hearing today to a close.

Thank you.

(The hearing concluded at 3:34 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.

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Summer A. Miller, Court Reporter
Notary Public