MEETING

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PUBLIC EMPLOYEES' RETIREMENT SYSTEM

BOARD OF ADMINISTRATION

INVESTMENT COMMITTEE

OPEN SESSION

CALPERS AUDITORIUM

LINCOLN PLAZA NORTH

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SACRAMENTO, CALIFORNIA

MONDAY, SEPTEMBER 19, 2022

8:51 A.M.

JAMES F. PETERS, CSR
CERTIFIED SHORTHAND REPORTER
LICENSE NUMBER 10063

## APPEARANCES

COMMITTEE MEMBERS:

David Miller, Chairperson

Rob Feckner, Vice Chairperson

Fiona Ma, represented by Frank Ruffino

Lisa Middleton

Eraina Ortega

Jose Luis Pacheco

Theresa Taylor

Mullissa Willette

Gail Willis, PhD

Betty Yee

STAFF:

Marcie Frost, Chief Executive Officer

Nicole Musicco, Chief Investment Officer

Matt Jacobs, General Counsel

Dan Bienvenue, Deputy Chief Investment Officer

Michael Cohen, Interim Chief Operating Investment Officer

Sarah Corr, Managing Investment Director, Real Assets

Amy Deming, Investment Director

Simiso Nzima, Managing Investment Director, Global Equity

Arnie Phillips, Managing Investment Director, Global Fixed Income

Lauren Rosborough Watt, Investment Director

APPEARANCES CONTINUED

STAFF:

Greg Ruiz, Managing Investment Director, Private Equity

ALSO PRESENT:

Tim Behrens, California State Retirees

Terry Brennand, Service Employees International Union California

Rose Dean, Wilshire Associates

Christy Fields, Meketa Investment Group

Jerry Fountain

Alyssa Giachino, Private Equity Stakeholder Project

Steve Hartt, Meketa Investment Group

Ali Kazemi, Wilshire Associates

Steve McCourt, Meketa Investment Group

Tom Toth, Wilshire Associates

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PROCEEDINGS

CHAIRPERSON MILLER: Good morning, everybody. I'd like to call the Investment Committee to order.

There we go. And the first order of business is our call to order and roll call, please.

COMMITTEE SECRETARY: David Miller?

CHAIRPERSON MILLER: Here.

COMMITTEE SECRETARY: Rob Feckner?

VICE CHAIRPERSON FECKNER: Good morning.

COMMITTEE SECRETARY: Frank Ruffino for Fiona Ma?

ACTING COMMITTEE MEMBER RUFFINO: Present.

COMMITTEE SECRETARY: Lisa Middleton?

COMMITTEE MEMBER MIDDLETON: Present.

COMMITTEE SECRETARY: Eraina Ortega?

COMMITTEE MEMBER ORTEGA: Here.

COMMITTEE SECRETARY: Jose Luis Pacheco?

COMMITTEE MEMBER PACHECO: Present.

COMMITTEE SECRETARY: Ramon Rubalcava?

CHAIRPERSON MILLER: Excused

COMMITTEE SECRETARY: Theresa Taylor?

COMMITTEE MEMBER TAYLOR: Here.

COMMITTEE SECRETARY: Mullissa Willette?

COMMITTEE MEMBER WILLETTE: Here.

COMMITTEE SECRETARY: Gail Willis?

COMMITTEE MEMBER WILLIS: Here.

COMMITTEE SECRETARY: Betty Yee?

CHAIRPERSON MILLER: Not sure yet.

Okay. Thank you. We'll move on to the Executive Report from our Chief Investment Officer.

Okay. Dan --

COMMITTEE MEMBER TAYLOR: Christina.

CHAIRPERSON MILLER: Oh. We'll note --

COMMITTEE MEMBER TAYLOR: Call your roll.

COMMITTEE SECRETARY: Betty Yee?

COMMITTEE MEMBER YEE: Here.

CHAIRPERSON MILLER: Okay. All accounted for.

So we'll go forward, Dan.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: Yeah, Mr. Chair. Nicole, I think is just hung for a minute.

CHAIRPERSON MILLER: Oh, okay.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: If we can wait until she -- she gets here to get kick us off.

CHAIRPERSON MILLER: Yeah. Yeah. No problem.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: Thank you, Mr. Chair.

Good to see everybody here, and some familiar faces. Everybody is enjoying this nice cool weather.

CHIEF INVESTMENT OFFICER MUSICCO: Good morning, everyone.

CHAIRPERSON MILLER: Okay. You have the floor.

CHIEF INVESTMENT OFFICER MUSICCO: So I've got the floor now. All right. Good stuff.

Good morning. Thank you all very much. I was looking forward to being here. I know my last go-around, I had COVID, so I'm super happy to be here, and healthy, and in person. So thank you.

I know we have a really thick agenda today, which the team has been preparing for for some time. And we're looking forward to really just having an open dialogue today. Really hoping to take a look back at history, take a look at where we've been, what we've done, maybe some decision we've made that we would like to reflect upon. Certainly try to give some perspective on where we're going.

And so you'll see today with the agenda, we've tried to -- we've added an additional piece, which is the performance review over the last 10 years, so we'll take some time to walk through that. Part of that look-back, we will come to you with some suggestions, some requests, and a first read of some policy changes. We're then going to do the typical program review that historically we would have done all in one package. That's part of 5C. And really again the intent here is to make sure that we all walk away giving you the understanding that we're here to be held accountable for performance. We're here to make sure that we are all in this -- working towards the same goal of paying pensions and benefits. And we're going to have a real humble dialogue today with you. So we're looking forward to doing that.

So I think first up, do we -- do I go right into the performance review at this point or do we have to go through -- I turn back to the Chair. Okay. I'll turn is back. Thank you.

CHAIRPERSON MILLER: Thank you.

Yeah. We have a very full agenda today and so we'll start with action consent items and we vote on these -- we'll vote on them together, I guess.

Does anybody --

VICE CHAIRPERSON FECKNER: Move approval.

COMMITTEE MEMBER PACHECO: Move approval.

CHAIRPERSON MILLER: Okay. Moved and seconded.

Any discussion the motion.

All in favor of approving that action consent items, say aye?

(Ayes.)

COMMITTEE SECRETARY: Mr. Chair, we have to do a roll call vote, since we have a remote.

CHAIRPERSON MILLER: Roll call vote. Oh, Okay.

COMMITTEE SECRETARY: Rob Feckner?

VICE CHAIRPERSON FECKNER: Aye.

COMMITTEE SECRETARY: Frank Ruffino for Fiona Ma?

ACTING COMMITTEE MEMBER RUFFINO: Aye.

COMMITTEE SECRETARY: Lisa Middleton?

COMMITTEE MEMBER MIDDLETON: Aye.

COMMITTEE SECRETARY: Eraina Ortega?

COMMITTEE MEMBER ORTEGA: Aye.

COMMITTEE SECRETARY: Oh, sorry.

Jose Luis Pacheco?

COMMITTEE MEMBER PACHECO: Aye.

COMMITTEE SECRETARY: Ramon Rubalcava?

CHAIRPERSON MILLER: Excused.

COMMITTEE SECRETARY: Theresa Taylor?

COMMITTEE MEMBER TAYLOR: Aye.

COMMITTEE SECRETARY: Mullissa Willette?

COMMITTEE MEMBER WILLETTE: Aye.

COMMITTEE SECRETARY: Dr. Gail Willis?

COMMITTEE MEMBER WILLIS: Aye.

COMMITTEE SECRETARY: And Betty Yee?

COMMITTEE MEMBER YEE: Aye.

CHAIRPERSON MILLER: Okay. The ayes have it. The motion passes.

Move on to Item number 4, which -- can we advance the -- there we go -- information consent items. I have no requests to pull anything, so we will move on to Item 5.

COMMITTEE MEMBER TAYLOR: Right at the top. There you go.

CHAIRPERSON MILLER: Okay. Mullissa. Okay. There you go.

COMMITTEE MEMBER WILLETTE: Is this the right -- Okay. Oh. Thank you so much. So on the draft agenda for the November Investment Committee meeting I know we have the responsible contractor program is listed as a information consent item. And it's -- I think it's a signature part of the CalPERS program that's establishing our ESG principles and values. And so I think we would like -- I would like to see this as a full information item. It's been historically. And I'd appreciate a full report as this information is really response -- important to our work.

CHAIRPERSON MILLER: Yeah.

CHIEF EXECUTIVE OFFICER FROST: Yes. Thank you, Ms. Willette, we are moving that from an information consent to an information item for November.

COMMITTEE MEMBER WILLETTE: Thank you.

CHAIRPERSON MILLER: Okay. So -- so consider that a proactive move by staff, otherwise it would be Committee direction.

Okay. No further discussion on that. These are information consent items. So we can move on to our information agenda items. And with that, we'll start with the investment performance. And so I'll turn it back over to Nicole and Dan.

(Thereupon a slide presentation.)

CHIEF INVESTMENT OFFICER MUSICCO: Great. Thanks very much. Unfortunately, I'm having some technical difficulty with my access to Diligent, so I'll have to be looking up and down at you, if you don't mind. I've got my talking points in front of me though. Technology never fails.

So thanks again. As we mentioned, I know typically that we do the performance presentation within the semiannual trust level review, but we felt just given where -- you know, we -- we're in such a unique year related to the markets and our performance, so we wanted to have this opportunity to do a proper deep dive and really looking at over the past 10 years.

We'll still -- thank you.

We'll still certainly have an opportunity to dig further into our performance one we get into the trust level review, but this is a unique item for us.

So if we turn to slide 2, the agenda, please.

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CHIEF INVESTMENT OFFICER MUSICCO: We'll look at our -- we're going to take a look at -- we're working through a new PERF performance and risk snapshot. We're really trying to develop tools. And along the way today, we'll be introducing you to some of those tools that we've been using as a team and we'll walk through them. And hopefully over time, it will become tools that we're sharing together.

We're going to review our ten-year performance. What we tried to do here is really use a group of peers, if you will, as a benchmark and really dig into what have we done versus them, what does that look like over the last 10 years, and where are -- where are some of the opportunities, really focused frankly on where we've fallen short. And we're going to get into that today and talk about it and then discuss where we can go forward based on all those lessons learned.

And then we'll leave some time at the end for questions.

Next slide, please.

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CHIEF INVESTMENT OFFICER MUSICCO: So this is what's beginning. We're really starting to work through a snapshot. This is our one-, three-, five-, and ten-year snapshot -- snapshot trying to -- really try to standardize how we take a look at performance and risk, make sure we have a great view into asset allocation.

This allocation -- this asset allocation as of June 30th, so it would reflect the prior asset allocation. But it just gives you a sense going forward on how we will be keeping a close eye on many of these metrics. As you know, our ending market value is down almost 30 billion for June versus June 30th, '21, and, you know, closer to down 60 billion towards the end of the year. And so that's, you know, a big piece of why we're so focused today on making sure we really dig into what we've been up to in the last decade or so.

I think it's important for us to reflect on our absolute returns this year, obviously down, being a negative 6.1 percent, which is the first negative fiscal year return since '09. Cumulatively, the longer-term PERF performance of 7.7 percent over the 10-year period. While we marginally exceeded the actuarial rate of return, we are examining our decisions on what we could have done better and -- over that period of time. And that's really the focus of today's discussion.

From a five-year -- I'll just bring your eyes to the realized five-year information ratio. We're not going to get to much into some of the more -- the nuances of Sharpe ratio or information ratio today, but as the CIO I would tell you when I look at that number, you know, it's frustrating or disappointing. It tells me that we're just not getting the return on risk that we should be getting. And so part of my conversation today with all of you is what we're going to be doing differently and how we're going to be spending our time and resources to make sure we can improve upon that.

If we can go to the next slide, please.

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CHIEF INVESTMENT OFFICER MUSICCO: So today we'll probably go through - I counted - it's about 12 points, 12 areas of focus. Maybe it's the top 10, maybe it's the top 12, but really it's the bullet points and we'll leave time at the end. But the first -- the first area we should look at is these cone charts are really helping us in a graph really see clearly that our returns have been just frankly lower than expectation.

You see the blue line. Really, you want to see that line between the orange and the upper part of that cone. And it -- and it just hasn't been. We would have been -- we would have expected from the period of July 1st, '14 to the end of '18 to have an annualized return of 7.6, which you see there in -- in the expected column, whereas we realized 5.6, so a difference of two percent.

Really, the portfolio priorities during that time, from what I could see, what I've been told was really more of a product of trying to create a portfolio with less drawdown risk. But with that decision, it means that we really missed out on the ten-year ear of growth. And so it's something for us to be reflecting on.

From the period of July 1st, '18 to most recent fiscal year-end of June 30th, 2020, we had an expected annual return of seven percent and realized -- we produce a return of 6.2 percent. Again, similar observations. We were constructing a portfolio to limit downside. And with that, we missed out on a big chunk of growth.

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CHIEF INVESTMENT OFFICER MUSICCO: So here we try to summarize, really get into the heart of where our performance has differed. Again, this analysis, this peer group if you will, is a compilation of larger plans, over 10 billion. It's kind of a hypothetical portfolio that we pull together. But the messaging with this hypothetical portfolio is pretty consistent as far as, you know, where -- where we're steered wrong or what we could have potentially done different. Really, the punch line is you'll see the vast majority of our underperformance. So if you look at the far right of the ten-year us coming in at the 7.6 percent versus a peer group of 8.9, big driving factor of that would have been around our private markets program, or lack thereof. And we'll get into the weeds on that going forward.

And really I think if you -- if you think about where our allocations have been and the importance of allocating to growth, it really comes out loud and clear here between the Public Equity Program and the Private Equity Program, where a vast majority of growth assets would reside. That's where we are really underallocated.

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CHIEF INVESTMENT OFFICER MUSICCO: So in addition to having lower overall growth exposure, if we take a sharper look at our private equity program, really this era between 2009 and 2018 was a period of time when we really stopped committing our pacing, our commitment to the program overall. It was really put on -- on hold. And you'll see that clearly through this chart here, where you've got a very inconsistent deployment of capital during that period of time. And again, these are estimates, but it's just really to drive the message home the impact of us not deploying capital during that period of time. It's estimated anywhere from 11 to 18 billion dollars and that's just because of inconsistent capital deployment.

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CHIEF INVESTMENT OFFICER MUSICCO: The next area we take a look at is our Real Estate Program, and, you know, we're have we -- where have we been and where are we going as far as that.

If you think about how our program is broken down in real estate, we have core program, we have opportunistic program, a value-add program. The core programs are typically investments that are characterized by low leverage with stable and predictable income. For value-add, those are really investments where you -- where returns are expected to come from the execution of renovations, for example, renovation projects. And opportunist -- opportunistic is really the riskiest area that we can invest within the real estate spectrum. And it also offers the -- a chance for the highest returns.

So our observations here is really given the allocation to the higher risk investments that we had, we really did expect to be compensated more than we were. And so that certainly hurt us.

For our core outperformance as certainly due to the strong performance of our multi-family and our industrial and data center programs. And we are also underweight to office. But overall, we were -- we were definitely hurt by the fact that we were not paid for the risk we are taking in our Opportunistic Program.

In recent years, the good news is, is that our program has transitioned back to core. And it's currently more than 90 percent of our Real Estate Program. And our -- there's been a lack of recent commitments to the value-add and opportunistic programs, which has also led to underperformance in those strategies as the returns are dominated by legacy investments in emerging markets. And so we've had a lot of work to be done in our opportunistic program taking a look at some of the underperforming commingled program -- commingled fund programs for example. So we're taking a look at that, taking a look at the programs or the partnerships that we would have had in emerging markets.

And so these are certainly areas where, you know, we've had to step back and say how can we reposition the program, which is what's been done in recent careers. The program has been more repositioned to core, and so we'll continue to look -- to take a -- a stronger look at what's going on there.

Next slide, please.

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CHIEF INVESTMENT OFFICER MUSICCO: The next area that we've got some lesson learn -- lessons learned on is our decision to go global for diversification and growth, really dating back to 2008. So rather than having a home country bias, like many of our peers would have had, we did not have that bias. We did not go back to that until very recently. And so therefore that decision just frankly just didn't work -- work out as we had hoped. We really should have had more of a home country bias in hindsight. And hindsight, of course, we say is 20/20, but that's really been where we've had a detraction from returns, because of that lack of home country bias versus our peers.

So again, just one of the many building blocks. And that was one of the messages I wanted to hopefully tease out today is there was no one magic negative bullet. There's -- it's really a combination of a number 24 of just different decisions, different market dynamics. So hopefully, through the series of, you know, 10 to 12 bits that I'm uncovering or discussing today, the message should really be it's a combination of a number of things, the punch line being it's been mostly in the private markets area. But certainly not having a home country bias is another example of where, you know, we need to reflect upon that going forward.

Slide nine or next slide, please.

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CHIEF INVESTMENT OFFICER MUSICCO: So again, In a similar vein, it's certainly not the reason. It's one of many reasons, but we have the factor-weighted segment, which was added to the strategic asset allocation in 2018 and reducing beta exposure upon within public equities, but it also meant and means that we -- we do miss out on the upside while we're dampening the volatility on the downside.

And so in these recent years, again this segment would have detracted from the total returns, but it did reduce the impact of downturns -- of drawdowns in the first six months of calendar 2022. So it was working, but when -- but this exercise was to take a look at, you know, why our overall returns are -- are lower than our peers. And so while this segment of the strategy was so-called working for what it was intended to do, it did detract from returns in the recent -- and during the recent times of growth.

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CHIEF INVESTMENT OFFICER MUSICCO: In that theme of detracted -- detraction, we've got our long detract -- long duration pro -- our -- of our Fixed Income Program. Certainly also detracted more recently. Long duration, however, has -- has certainly helped us over the long haul. It's really just been clearly in the 2018 to '20 time rate -- time range when rates declined during COVID that we were -- that we've really been impacted by that longer duration approach that we've been using. So it's certainly an area that we are looking into now, given where we are with rates and inflation.

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CHIEF INVESTMENT OFFICER MUSICCO: So deployment into active strategies. This is -- this is one that's really interesting in the chart that -- you know, sometimes these charts really jump out at you. Clearly, for -- for an extended period of time, we had a number of active programs that just were not working out, so the decision was made in 2019 to take a really deep dive review of those programs. And it was decided to reduce active risk within -- within the programs. And so you can see that clearly. So as a result we really did move capital back to more of a benchmark exposure.

And so back to one of those earlier slides, you'll see over the course of a number of a few years now we've really not been using our active risk budget. That's a topic that I really want to get into more deeply in our next Board meeting. I'd like to take some time to really talk about my strategy or my hopes for what we're going to do with active risk in general, how we change our active risk culture, how we think about what programs we should be layering in.

But the message again today in this 10-year lookback is that this is certainly one of the pieces to the puzzle is the fact that we've pulled out of some of these active strategies, most of which were not performing, but in general, we've just not been using our active risk budget to the extent that we -- that we could be.

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CHIEF INVESTMENT OFFICER MUSICCO: This is just to give you, you know, more just a better understanding or the justification why at the time we would have pulled out of active management. Our programs were just not consistently adding value. Again, similar to those earlier cone charts, you'd like to see that blue line above the orange -- the orange hypothetical excess return line. That would have been our expected return on those active programs. And as you can see, we were -- we've been experiencing much less than that. And so putting a real focus on those active programs is certainly an area for value -- value creation potential that we'll be spending a bunch of time on going forward.

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CHIEF INVESTMENT OFFICER MUSICCO: So part of our -- you know, the top 10, 12 -- to 12 reasons, you know, I just wanted to highlight just this whole idea of consistency in strategy, just remembering that we're long-term patient investors. It doesn't serve us to be coming in and out of programs. We have the luxury as long-term patient pool of capital with -- that has ample liquidity to be patient and not to be taking, you know, drastic decisions to completely pull out of asset classes, for example. And again, I just say that with the benefit of having a lens and looking historically. But as I mentioned in the outset, pulling out of that -- the private market program is probably what's hurt us the most. And this chart was just simply to demonstrate we've had a number of start and stops. And so we really need to be thought.

A lot of this really, in my mind, boils down to taking us -- a much closer look at the decision -- decision-making and our -- our model for decision-making our governance model for decision-making. And so you would have heard me say in those first couple meetings we had together that after my walking tour was completed, I really focused mostly on our governance structure. And I'll get into the weeds a little bit on how we hope that we've improved upon or we can avoid having these start and stop decisions without making sure we're thoroughly vetting the unintended consequences as well as consequences of doing so.

And so this was -- this chart is just simply again to demonstrate one of the pieces to this puzzle is that we had frequent changes in strategies, and that certainly detracted from our -- our return profile.

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CHIEF INVESTMENT OFFICER MUSICCO: So in summary, these are the areas that we are going to be super focused on going forward. We'll -- we'll touch on a number of these -- these areas when we go through each of the program reviews. I'll spend a bunch of time with you talking through what I'm going to do about or do differently in each of these areas. But again to summarize what's gone on over the last 10 years, we see that our returns have been lower than expected. We've underperformed peers. We've had inconsistent pacing with our private market programs.

In real estate, we had some missteps within our value-add and opportunistic programs, but we've now repositioned that program to core and we'll explore further what we can do about the higher expected returning buckets of value-add and opportunistic. Our not --

non-U.S. home bias approach historically did not serve us well. The factor-weighted segment de -- certainly detracted from value, but I don't want it to be lost that it -- it did do what we hoped it would do, i.e. dampen the downside during this most recent volatility. But as far as detracting from overall returns, that's -- that is a fact, it did.

Long duration fixed Income in these very recent years again detracted, but has served us well over history. So it's not something we would suggest just completely changing on, but we will use every tool in our toolkit certainly and be exploring those. And, you know, deployment of capital into active strategies did not consistently add value. So that's more of a question of not only what programs are we doing, but how do we make decisions around our active risk programs. How do we -- how and when do we decide? How do we decide where to allocate our risk budget? How do we decide what we're going to expect out of those active programs, et cetera.

And so we'll be spending a bunch of time together in the coming weeks and months walking through that. I'll be walking through with you my ideas on some of -- on each of these elements for sure.

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CHIEF INVESTMENT OFFICER MUSICCO: So lessons learned. I walked you through the 10 lessons that were certainly pointed out through this 10-year exercise. What -- what's our path forward? We certainly learned that we're not in a -- we don't have the luxury of just setting an SAA and setting and press go. We certainly need to be reevaluating more dynamically, more frequently. We really need to make sure that we have a culture that allows for, and supports, and hold folks accountable for active risk taking. We really need to develop and prioritize a framework for innovation and to make sure we're constantly revisiting are we resilient? Are -- have we set ourselves up appropriately, given what's going on in the market as opposed to, as we said earlier, kind of set -- set the SAA and go.

And to do so, we really need to be developing a robust governance framework to make sure that our decision-making is benefiting from timely agile decision-making but also making sure that we have the tools in place to act when the market suggests that we should be acting as opposed to just waiting it out.

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CHIEF INVESTMENT OFFICER MUSICCO: And so for me, you know, my goal really is to build a culture where we are held accountable and are making sure that we're very focused on building this innovation and resiliency into the program every day, making sure we have the right people in place, making sure we have the right technology in place, making sure that we're monitoring in a consistent way our performance, and making sure questions are being asked in a timely way, that we're agile, so that we can react to opportunities in the market, so that we're deemed to be agile to our investment partners.

And so between the risk management capabilities, which I'll touch on again more so in our November meetings, but we're certainly working on from our focus on our sustainable investing. We're in the market right now for some very key positions in that area. Tech and innovation is one of our nine core business objectives this year. We think that's super important. Talent and culture is the thread that runs through all of this. Our assets go up and down elevators or stairs every day. And so it's a huge area of focus for us. And that really boils down to us having more of a total fund management approach.

Historically, we've taken, as you've seen in the 10 to 12 areas that we focused on today, at times we've been quite siloed. And, you know, that's -- that's on us. That's on us to make sure that we're not siloed. It's on us to make sure that we really think through a total fund lens. And what that means is decision-making, risk allocation, risk budgeting all being done through more of a total fund lens as opposed to, you know, one-off or a more siloed approach.

I think the good news that we should remember, if you want to skip to the next page please, I the bright light here is that the strategic asset allocation process that you all underwent and approved last November and we set in place for July, I feel really does set us up for success. I think we've got the right tools to work with. I think that we're now -- because we've done this deep dive, we've acknowledged that there's different ways for us to be executing on that -- the strategic asset allocation. There are more tools available to us and probably more importantly we have to make sure this culture of innovation resiliency is really woven through our governance framework.

And so our -- our hope, our desire is that we make it abundantly clear that we know we need to be held accountable for our performance going forward. We've humbly taken a look at steps that have been made in the past and we are -- we -- we have learned from them and we will learn, you know -- and going forward, we'll execute on those lessons learned.

So maybe with that, I -- I can pause and take questions. It was a high level review. And as I said, we'll -- we have a lot more time during the actual program reviews, but we thought it was important to separate and have a separate agenda item today just to highlight kind of those top 10 to 12 areas where we have underperformed our peers over the last decade.

CHAIRPERSON MILLER: Yeah. Thank you. That was very helpful. And I think it was a very encouraging and forthright presentation. And I have a number of Board members who would like to speak and discuss this further.

So I'll start with Theresa Taylor.

COMMITTEE MEMBER TAYLOR: Thank you, Chair Miller. Thank you, Nicole, for the presentation. I do appreciate the look-back. There's a couple of things I remember asking about and being kind of brushed off. One was how come we are overweight in international and public equities, and was told that, you know, there was a reason why and this was some years ago. And we apparently stayed that way, even though we returned poorly through -- throughout the years after I asked that question.

I am a little disappointed in our -- and I get it. I know there's lots of things that go into the bucket of why our performance has been poor, and especially when you look at it towards our peers. I'm just hoping and --

that looking forward that you're -- you know, and as we go into closed session know, I know I can't ask for specifics right now. And, of course, I will be later, but I'm -- one of the things you mentioned -- let me just go into one of the things that I wanted to know about.

The first one was the value-add and opportunistic real estate. So that didn't pay us. So can you explain that a little bit better, because we -- we did take some risks there and it didn't -- have we got anybody.

CHIEF INVESTMENT OFFICER MUSICCO: We're just -- we're going to -- yeah, we're going to gather --

COMMITTEE MEMBER TAYLOR: Yeah. There she is.

CHIEF INVESTMENT OFFICER MUSICCO: I'll certainly answer to the things that I'm familiar with, but I've got a team here that's got a couple dozen years of experience here.

COMMITTEE MEMBER TAYLOR: Absolutely. I appreciate it.

CHIEF INVESTMENT OFFICER MUSICCO: So I'd love for you guys to get as direct and transparent of an answer as possible. I'd like to call up Sarah just as we're discussing real estate.

MANAGING INVESTMENT DIRECTOR CORR: Sarah Corr, Investment Office.

The underperformance in value-add and

opportunistic actually goes back probably pre-GFC, when the portfolio was 40 percent core and 60 percent value-add and opportunistic, and we did a bunch of development that didn't work out. Since that time, we've moved it from about 40 percent core to almost 90 percent core. So we really haven't done much in the value-add and opportunistic space, which means what we have there is very old and not -- not performing.

Now that we have 90 percent expected core, we'll probably add some more value-add and opportunistic back in and that should perform better than the legacy has.

COMMITTEE MEMBER TAYLOR: Okay. And those legacy assets were prior to the Great Recession is what you're saying.

MANAGING INVESTMENT DIRECTOR CORR: Correct.

COMMITTEE MEMBER TAYLOR: Oh, okay. Okay. Yeah. We probably should do that. I appreciate that.

My next question -- and I appreciate that Sarah. I don't -- wait a minute. Hold on. Yeah. So my next question is on -- not factor-weighted, but the active management in public markets. We didn't do too good in that. Should we do more? Should we do less? What are we looking at? In a general fashion. I don't want us to --

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. I'd say, Theresa, in a general fashion what my hope is is that we are going to get a lot more focused on making sure we're being held accountable for making a return on any active risk we take period. From my perspective looking back, I think that we could have done a better job at looking through our active risk programs more holistically, more through a total fund lens. I think that we should have been a lot more prudent on measuring the risk we are taking and whether we are getting paid for that risk. I think that we should have been more thoughtful about where that active risk was being deployed.

I mean deciding to take active risk is as much about the market -- market opportunity itself, but also on our in-house capability of assessing where that active risk should be taken. And so a big chunk of the time we'll be spending in this next chapter of my first year is going to be exactly on that, is really making sure that we have the right tools in place, the right culture in place for risk taking, the right measurement, really thinking about our active risk program more holistically.

And that is a -- it's a cultural shift frankly. We have to make sure we create an environment where people don't fear taking risk, because if you're punished every time you take active risk because folks assume that when you take active risk, it always pays, then people are not going to be motivated or incentivized.

And similarly, if we just take active risk without measuring and being held accountable for getting the appropriate level of return on that risk, we're not going to like the outcomes.

And so there's a chunk of work to be done there, Theresa, to be frank. And I think that we will really benefit from having that practical shift, the cultural shift, and just tied into systems, and people, and culture. All that intangible stuff that we often talk about is a real thing when you're trying to create a culture of active risk taking that gets paid for the risks that we're taking. And so that's going to be my focus.

COMMITTEE MEMBER TAYLOR: That's excellent. I appreciate that.

Along with that, I was curious about the public equity factor-weighted segment, where it marginally detracted. So that sort of paid us in the downturn, right, which was what we were supposed to be doing. So this is where I get a little frustrated. So when we had a good return year, we were still under our peers, right? And that was told to us that that was going to be because we're, you know, using risk -- you know, we're -- we're risk averse. We're going to, you know, make sure that we're -- we have the -- in a down year, we have better returns, because we're doing that risk mitigation, right?

So that's not what happened though it seems like. I mean, a little bit of it happened. So I guess what I want to know is how do we -- how do we make that work better, right, our risk mitigation factors, along with all of this other stuff. I mean, you just talked about --

CHIEF INVESTMENT OFFICER MUSICCO: Yeah.

COMMITTEE MEMBER TAYLOR: -- the active management, right, and active risk taking. How do we do the downside risk as well and still get paid, right?

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. And I think we have to take again a more holistic review of the portfolio just for growth in general, where are we getting our growth from, separate and different from where are we helping to dampen downside or where are we -- where are we getting our downside protection. It's -- it -- you know, it's -- it's easy to narrow in on any one of those 10 things that we flagged today and say it was the be-all and end-all, and it was our demise.

But at the end of the day, the bigger story here is through -- across the asset class opportunity to capture growth, we were light, or we didn't have the appropriate, you know, leaning into active risk in the right areas that we're returning the appropriate risk-adjusted returns.

And so I would suggest to you that you need to have those types of programs that are focused on the downside. We need to be more holistic in our thinking on where we're getting growth from and making sure we're getting paid for the risks that we're taking in those areas. And so there isn't one magic answer. I'd say that we can't look at any of these one programs in isolation and say that's where we really -- you know, that's where we missed the opportunity, other than really saying - we saw it in a number of the charts - the biggest impact by far was the 10 year we took a break from participating in in private equity.

And that -- you know, no matter what we would have done on the other things, and we've done the math, and we've run the scenario, but big picture messages no matter what we would have done with duration, with factor-weighted versus cap-weighted, opportunistic, value-add, none of that matches what we missed out on by not being in the private market program. And we are certainly fixing that now.

COMMITTEE MEMBER TAYLOR: And I agree and I appreciate that. And I want -- I just want you to know that the Board, whatever it takes, right? We -- we want to be able to pay benefits far into the future. So whatever it takes so that we can move the portfolio in the right direction, I think the Board would be on board with that. Let's just listen to each other.

Thank you.

CHIEF INVESTMENT OFFICER MUSICCO: Thank you.

CHAIRPERSON MILLER: Okay. Next, I have Controller Yee.

Did it come on?

Let's try it again.

There it goes.

COMMITTEE MEMBER YEE: Great. Thank you, Chairman Miller, and thank you, Nicole, for the report. I very much appreciate the straightforwardness, but also the challenges and the path forward that we'll be focused on. I'm hopeful that the Board will be getting more frequent reports of this type, you know, just given the environment in which we're all operating. And I know at the staff level and with your team that will be ongoing work that -- I think part of governance is also just, you know, kind of engaging the Board more on these issues as well.

Just on the issue of risk, I have a ton of questions actually. You raised the issue about not being adequately compensated for the risk that we took on. But just in terms of the comparison with peers, did we take on more or less compared to the peers.

CHIEF INVESTMENT OFFICER MUSICCO: It's an interesting quest -- it depends on the asset class. So I think, you know, those are compli -- it's a complicated question. And I think perhaps maybe that's our next deep dive we do is to give the Board a better understanding of where we are from our own risk appetite, or own risk profile --

COMMITTEE MEMBER YEE: Right. Right.

CHIEF INVESTMENT OFFICER MUSICCO: -- versus different groups, because it's such an important ingredient into how -- to how we compare to, because again, I -- we created this presentation because the question is why have you underperformed? And so we wanted to dig into the performance, or the returns, or the headline of each of those asset classes. But exactly to your point, Betty, there's so much more to it.

COMMITTEE MEMBER YEE: Right.

CHIEF INVESTMENT OFFICER MUSICCO: Are we taking -- what is our risk profile versus others? Are we getting paid for that risk? And I think that's the next step of our journey to be frank --

COMMITTEE MEMBER YEE: Um-hmm.

CHIEF INVESTMENT OFFICER MUSICCO: -- is it's more than just beat our benchmark, because we all know that that's not going to pay the benefits.

COMMITTEE MEMBER YEE: Exactly.

CHIEF INVESTMENT OFFICER MUSICCO: We need to really take a much deeper look at the risks that we are taking or not, and whether we're getting paid for that risk.

COMMITTEE MEMBER YEE: Right.

CHIEF INVESTMENT OFFICER MUSICCO: And so it's part of our journey.

COMMITTEE MEMBER YEE: No, and I appreciate that. And I think one of the main considerations for this Board is how much risk are we really open to taking?

CHIEF INVESTMENT OFFICER MUSICCO: Correct

COMMITTEE MEMBER YEE: So I would really welcome that deep dive.

And then with respect to our risk mitigation strategy, which was developed really centered around our investment return -- you know, rate of return, compared to peers -- I mean just in terms of constructing kind of a risk mitigation strategy, you know, some -- and I'll just talk about the other fund of which I participate, where it's actually an asset class. I mean, are -- when you look at coming back in November with that discussion, will it -- the capability question, will that be part of it, as just how it's constructed as well?

CHIEF INVESTMENT OFFICER MUSICCO: Yeah, absolutely. I think, you know, we have this dialogue on our team all the time now, are we using all the tools we can?

COMMITTEE MEMBER YEE: Yeah.

CHIEF INVESTMENT OFFICER MUSICCO: We're also being very frank that the last 10 years isn't going to look anything like --

COMMITTEE MEMBER YEE: Right.

CHIEF INVESTMENT OFFICER MUSICCO: -- the next 10 years. And so things that worked in the past, we really need to be thoughtful and make sure we're not, as we said earlier in the presentation, we're not in a set-go mentality, that we're really taking a look and poking at each other, and using the benefit of everyone around the table, which again, when we get into the next presentation, I try to go into a lot more details to why we've set up these governance committees, why we think they're beneficial precisely for these types of conversations.

COMMITTEE MEMBER YEE: Um-hmm.

CHIEF INVESTMENT OFFICER MUSICCO: There have been fits and starts historically at CalPERS into some of these risk mitigating strategies. And again, I go back to the comment I made earlier around having the appetite, having the culture that doing those types of activities, sometimes they go well, sometimes they do not. How do people -- how do folks feel when they take the risk to add on some of these programs?

COMMITTEE MEMBER YEE: Right.

CHIEF INVESTMENT OFFICER MUSICCO: A lot of that it's -- you know, a lot of it is just this human nature bit of investing and risk management. And so our next chapter of our journey is really digging into all of this. Why do -- why did we make decisions we made and what stands in our way from making different decisions going forward, and do we have those tools in place? And having that dialogue with the Board to make sure that we all are very clear with one other on the risk appetite of the Board and are we doing our job at executing on that, and are we sharing with you the pros and cons, or the pitfalls, or the gaps, or the missed opportunities we may all collectively decide is the right answer because of the risk appetite, for example. I feel like that's a whole big important journey that we need to go on together.

COMMITTEE MEMBER YEE: I agree, you know, and I welcome that.

I especially appreciate your emphasis and focus on governance. I think the people, the processes, the technology, all of that that is going to contribute to how we build this culture is really important. And I think my question there is, not to complicate things, but, you know, as you're looking at developing this culture, there are going to be externalities that continue to kind of put pressure on us. And -- and I'm not sure this is a bad thing, but how would you overlay I guess the work that we need to continue to do relative to achieving a net zero portfolio by 2050?

So, you know, here we're trying to kind of just really do a deep dive in terms of just other capabilities that can be brought to bear. We are looking to not keep doing these starts and stops with respect to our strategies. But we also kind of have this larger kind of global focus that other investors and peers are focused on. But can you just kind of comment about kind of how that gets overlaid on top of the work that we're going to need to do that you've just described.

CHIEF INVESTMENT OFFICER MUSICCO: Sure. I think -- maybe I'll start by trying to give you some comfort. I mean, one of the early conversations that Marcie and I had when I first joined was how do we make sustainable investing just in our veins, just part of our everyday --

COMMITTEE MEMBER YEE: Um-hmm.

CHIEF INVESTMENT OFFICER MUSICCO: -- way of doing business. And one of the first of many things that Marcie gave me support on was to bring the sustainable investing function, if you will, over into investments to report into the CIO for now, perhaps the DCIO of private markets. But really at the outset, because I think it's one of my top priorities --

COMMITTEE MEMBER YEE: Um-hmm.

CHIEF INVESTMENT OFFICER MUSICCO: -- is to make sure that we don't think of sustainable investing as a side hustle --

COMMITTEE MEMBER YEE: Kind of -- exactly.

CHIEF INVESTMENT OFFICER MUSICCO: -- or as something off to the side of our desk that we figure out how --

COMMITTEE MEMBER YEE: Yeah, it's totally integrated.

CHIEF INVESTMENT OFFICER MUSICCO: -- it's just completely integrated --

COMMITTEE MEMBER YEE: Right.

CHIEF INVESTMENT OFFICER MUSICCO: -- into everything that we do, strategy-wise, go to market wise, our branding, everything. And again, that -- that is a bit of a journey, though, right, Betty?

COMMITTEE MEMBER YEE: Yes.

CHIEF INVESTMENT OFFICER MUSICCO: That's not something I can flip the switch on --

COMMITTEE MEMBER YEE: That's right.

CHIEF INVESTMENT OFFICER MUSICCO: -- but I can start with tone from the top. And Marcie and I are very, you know, locked arm in arm on that approach here.

And so I guess it's a long-winded way of saying it's top of mind for us just to make sure that we just -- we are sustainable investors. It's not a separate strategy.

COMMITTEE MEMBER YEE: Right.

CHIEF INVESTMENT OFFICER MUSICCO: It is -- it is absolutely a part of the conversation and the decision-making, the governance that we have. Sustain -- being a sustainable investor is just like what's the risk-adjusted return we're expecting. It just becomes part of the dialogue every day, as opposed to let's go do some neat projects that make us feel good.

COMMITTEE MEMBER YEE: Good. Good. I really appreciate that approach. And I think it will be one that will serve us well in the long term.

CHIEF INVESTMENT OFFICER MUSICCO: And it will take time and we'll have to bring the Board along. I'm going to have to show you sometimes it will feel like we're making baby steps and other times it will feel like we're making great strides, but we just want to keep the momentum going. And, you know, we -- we aren't starting from a standing start. We've got a lot of great things already in the works, but I think just really pulling this all together, and again making sure it's not something that's off the side of our desk, but it's integrated into our decision-making --

COMMITTEE MEMBER YEE: Absolutely.

CHIEF INVESTMENT OFFICER MUSICCO: -- is super important.

COMMITTEE MEMBER YEE: Great. Thank you. Really appreciate the report again. Thank you Nicole. Thank you, Mr. Chairman.

CHAIRPERSON MILLER: Okay. Thank you, Madam Controller.

And next we have Frank Ruffino for Fiona Ma.

ACTING COMMITTEE MEMBER RUFFINO: Thank you, Mr. Thank you, Mr. Chair, and thank you for the presentation.

Just two quick question, one clarification. But the first question is back to the page five slide. It was I think the third or the fourth slide, the returns lower than peers.

So that shows that CalPERS trailed peers by 1.3 percent per year over the past decade. So were CalPERS returns more or less volatile than those of the peers?

CHIEF INVESTMENT OFFICER MUSICCO: I think it depends on the program again, Frank. I think you have to really break it down. And we're more than happy to come back with that and continue to get in the weeds on each of these differences. This was a very high level, more of a directionally here are the 10 things that we really need to do our homework around as to why and how we could have done things differently, but it would really depend on the actual asset class for the program to answer that question.

I'd say, in general, you'd see from the CEM benchmarking, we've taken less risk overall and got paid less for the risk we took. And so that's not a combination. That's not the quadrant we want to be in, and so we need to work on that.

ACTING COMMITTEE MEMBER RUFFINO: Okay. Great.

And I know you already made a comment about active management in the public market. And I just -- I'm not sure if I was clear -- if I understand you clear. So given the noted challenges of active management in the public market, should CalPERS consider reducing active management exposure further given its higher cost?

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. When I talk about active management, I really think of our program in two ways. We've got a massive beta part that needs to work with the policy, and it's our beta exposure, it's our index stuff. And then we have the opportunity to really generate alpha.

So when I talk about active management, I'm not just specifically talking about where we can generate alpha on the -- the public equity book, which is where a lot of the airtime gets spent. I'm talking about active risk budgeting across programs that all have an opportunity to generate dollars value-add, dollars to pay benefits. And so when we transition into this next phase together as a team and with the Board, we're going to be talking about how do we take our entire active risk budget, how do we slice that up across the different relevant asset classes and strategies, how do we set metrics for what we need to expect to get a return on for that active budget, and ultimately what is the value-add of dollars -- the real dollars in our pocket that we can pay benefits with, what does that look like and are we getting paid appropriately, are we being held accountable for that risk?

And so they're kind of -- they're different -- they're different concepts. Certainly on the private market side, that active management is more expensive, but hopefully you get more bang for your buck in that area, because it's a different -- it's a different thing altogether.

Our job is to make sure that we take a look on a relative basis at all the opportunities we have to generate alpha to make sure that we're getting paid for all the risk across the spectrum. And right now, our -- the way that we're set up, our behavior, our culture, our framework isn't focused in that way. We're kind of -- we look at it as, you know, where have we beat the benchmark? I'd like to start talking about where are we adding dollars to the genes, the benefits genes, to start paying benefits?

And it's just a very different approach and it's one that again takes a bit of a cultural shift, but it's -- and it will take time, but that's the direction I'd like to take us in.

ACTING COMMITTEE MEMBER RUFFINO: Thank you. And certainly we wish you well in that culture.

CHIEF INVESTMENT OFFICER MUSICCO: Thank you. I'll need your support, so...

(Laughter)

ACTING COMMITTEE MEMBER RUFFINO: Absolutely. Thank -- thank you, Mr. Chair.

CHAIRPERSON MILLER: Okay. Thank you.

And we go to Director Lisa Middleton.

COMMITTEE MEMBER MIDDLETON: Thank you, Mr. Chair and thank you, Nicole, for this presentation. Very helpful. I want to go back to your discussion on private equity and the lost decade. And I'm repeating what I think you've already said was 2009 through 2018. And certainly looking at the last few years, from this Board, I have seen a very strong commitment to private equity as a class. Yet, if I listen to what's happening outside of this dais, there remains considerable, if not misunderstanding regarding the value of private equity, substantial resistance to continuing a strong investment in private equity.

Please describe for us what you think our strategy should be going forward, one, to better educate the public regarding the importance of private equity, but two, and most importantly, to better insulate CalPERS from engaging in the kind of destructive practice that we engaged in between 2009 and 2018.

CHIEF INVESTMENT OFFICER MUSICCO: I love this question and I could spend all day on it, so I'll do my best to be -- to be brief and hit the important points.

So I think -- first off, I think in the last few years, under Greg's direction and the support of the team and the Board, we really have turned around, not only the program itself by deploying capital, but just really the attitude and the approach -- our approach with partners, the perception partners have of us of being a good partner, our agility our in-house governance around it, et cetera. So I think that that is something you've observed and I think that's all good news and it's a great starting point.

I think private equity is an asset class, especially heading into kind of this new era that we're about to head into actually provides for a tremendous opportunity to CalPERS in particular. And I'll -- I'll give you my thought on why.

Number one, the team has done a very good job at choosing partners that are real value creators. When I look at the list, even up to the most recent partners that we've been doing diligence around, you know, it's almost like old school private equity investing for the most part, a lot of value exposure, a lot of teams that have in-house value creation. And why is that important?

Well, it's important because I think in this new -- this new era we're about to enter into, it's going to be the old plain, boring type companies. Cash flow is there. You know, you understand how margins can be improved or not. That's where I think real value is going to be added in this next era of where we are with inflation, where we are with interest rates. And so I think the team is doing a good job, has done a good job of constructing a very diversified portfolio that isn't just growth focused. In fact, we're light on growth and we're almost trying to think about how do we -- how do we make that balance between going from what's been historically more of a value lens, if you will, to a growth lens.

The second thing I would say is in spite of ourselves, we actually have more room to do more in private equity than some of our peers, because we were late to the game. And so it's bit of a -- it's a bit of a interesting way that we've landed here, but there are many programs around the world that find themselves overallocated, not so much to their private equity programs, but to their illiquid problems.

And so there could be an opportunity for us to backfill old vintages by picking up secondary buys of programs that we get to do the work and the analysis to decide how does that fit into our puzzle. And I think that that's a real opportunity, and not just with private equity, but all of our private market programs, real estate, certainly private credit as well, and infrastructure. So I think that's all helpful.

I think the other thing that's happened in the last few years is our reputation, our reputation for being a good partner. And, you know, what -- what defines a good partner?

Well, you know, we give quick noes as much as we can give a quick yes. We demonstrate our in-house capability as being, you know, strong, thoughtful, decisive. I get feedback all the time on our team that are looking at co-investments that that is the -- the level -- that's the quality that we are now being perceived in the market. We're being perceived as being true thought leaders on ESG integration into our program. We're being seen as true thought leaders on human capital management. And so when we start to build our reputation about being forward thinking, you know, where the ball is going type partners in private markets, that's just going to open up a tremendous door for us, in particular into co-investing.

And that kind of brings me to the next point, which is our real opportunity now is to take all those lessons learned and take all those great partnerships that we've been building on in the last, you know, few years and really start trying to drive our co-investing program. We're one of the few plans on the globe frankly that can show up and in a thoughtful way with appropriate governance and risk oversight show up with large equity checks to help get some needle moving opportunities in the market done.

And if you combine the fact that we've improved our reputation, if you sprinkle in some of the asks that were coming forward and having a first read on, that help us be deemed a bit more agile and give us a bit more flexibility, we're suddenly in a position to become a first call on some of these really needle-moving from a scale perspective opportunities that actually do start to move the needle on a 450 to 500 billion program, which is a very unique challenge that we have. Our size alone is -- you know, puts us in -- gives us a whole other set of unique constraints or, you know, difficulties at times.

And so overall, I think that if we start with we're going to be sustainable investing partners and we start with the fact that we have a reputation for being good partners, we can be agile. We can be thoughtful. If we layer in the resources and be thoughtful making sure that we have the right tools in our toolkit and we leverage the expertise of outside partners when needed, I actually think, Lisa, we're in a really excellent time to be deploying into the private markets space overall. And I think the team has done an excellent job at repositioning private equity, real estate, and infrastructure over the last call it five years.

COMMITTEE MEMBER MIDDLETON: All right. Thank you. Very helpful. I want to change focus just a bit. I appreciate looking back over the last decade. But that begs the next question what is the next decade going to look like and how is it going to be different than what we've experienced over the last 10 years? Are there particular asset allocation classes that you think are more likely to be different? How do you approach raising the question what should we be doing differently going forward?

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. I think I'd go back to some of my earlier comments just around where I think the real -- where we need to be thoughtful about spending more time I guess you'd say is really more on the value side of things versus growth. I don't think -- I think we've all benefited from this turbocharged decade of growth and growth assets. I think we're going to want to spend a lot more time in the roll-up-your-sleeves category, meaning we're going to want to look at more value plays. We're going to want to look at partners who actually have to go in and do something, do different. We're going to want to make sure that our own monitoring approach internally is best in class. When, you know, things are flying, and everything is rising, and everyone is making money, you can -- you know, at times, it's easy to forget that that momentum or that consistent approach to making sure we're doing what we think we're doing, we're getting paid for where we think we need to get paid, we're getting paid for the risk is really important.

And so part of our total fund homework right now is making sure we have our own monitoring approach in place that's best in class across the asset classes. And so I feel very good about where we are with liquidity. I feel very good that we haven't even unleashed this different approach to looking at value creation, or value-add, or thinking about risk budgeting and getting a return on that risk. It's a whole different approach that -- it's going to be a lot of work and it's going to be a big culture change for us, but this is a very good time for us to be doing it.

We can leverage partners that we already have. We can start deploying a lot more capital into co-investing and we can start -- you know, we are going to have a reputation as being an employer of choice, because not only of our -- of our culture, but because we're doing things. And I think for the next little while, certainly on the private market side, as I mentioned earlier, a lot of groups are kind of a bit on hold right now, because they're overallocated. We are in the opposite place. So if you want to come and learn alongside some of the smartest minds in the industry through our partners and even with the talent that we have in-house, we're going to become an employer of choice and I really believe that.

COMMITTEE MEMBER MIDDLETON: All right. Nicole, thank you and always be coming back to us and telling us what you need to help you.

CHIEF INVESTMENT OFFICER MUSICCO: I appreciate it. Thank you.

COMMITTEE MEMBER MIDDLETON: Thank you, Mr. Chair.

CHAIRPERSON MILLER: Thank you.

Next, we have Director Pacheco.

COMMITTEE MEMBER PACHECO: Yes. Thank you, Nicole. Good morning. And thank you for your presentation. I really appreciated it. Also, thank you, Chair Miller, to allow me the opportunity to have a few questions.

So my first question is actually on the last page of your presentation page 16 on the path forward. And I just want to know how long do you think it would take to have this change this culture of resilience and innovation in the total fund to bring it to -- to bring it to fruitness, because I -- I kind of -- I see your point and how it's important. It means it actually gets central to our -- to being successful is having this culture. But I -- what are your thoughts of the time line and have you even thought about where we would go from there? That's my first question.

CHIEF INVESTMENT OFFICER MUSICCO: Well, I think the good news is is that we've already -- we're already well on our way in some of these areas. A lot of it's cultural change, right? So sometimes, you know, opportunities will present themselves that I -- I didn't even realize would create a spark in getting folks excited about innovation, for example. The -- the fact that we now come together weekly and discuss any needle moving opportunity of size, despite the fact that we have all kinds of delegated authority at the MID level to do, you know, interesting things, we've -- we've put that aside as far as having the dialogue and the conversation being in the room. I think that's going to end up having all kinds of ancillary benefits that I didn't even imagine on culture, on risk appetite, on feeling, you know, supported.

I think the fact that we're really trying hard, and I'm really appreciative of the engagement of the Board. We're really trying hard to engage with you and you are showing that you are engaging with us. That alone -- I mean, if I don't have to be worried that I'm not going -- that I can't talk to you about something openly and say I just took a look at the last 10 years and these are the things that are on my mind. If I didn't feel like I could have that open dialogue, that would set us back. We're in an opposite place right now. We're coming forward to you. We're saying here's where we really think we need to go. We need your support.

I've heard on a number of occasions if you need resources, whatever you need, Nicole, tell us. But then it's on me to share with you where I think things are going sideways, or I'm worried, or I think there are concerns, or if I feel that, you know, we're going down a direction through the risk lens that I don't think is going to get us where we need to get to, or if I feel like we're being to aggressive in another way and I'm worried about that we don't have the resource in-house to do it, having that open and transparent dialogue with you I think is what's going to make executing on this something that will exceed our expectation. So I wish I had this specific timeline.

I like to think in two-year chunks. I kind of think first year get it up and running, second year see it humming, third year it's on its way. So I think of it as the first, you know, couple years. I'd say we're right on schedule. I was -- I've -- I've had tremendous support from the team. As I said, we're getting good traction in the market on some of our key hires and the interactions that we're having with the Board have exceeded my expectations.

And so, look, I think to build an in-house direct deal doing program, that's a 10-year journey. I'm not going to pretend we could bring everything in-house. It's -- and when I say 10 years, it's between the systems and training up the people. But in the interim, in a very short time period as in like from year to year, we can be doing a lot of interesting things with strategic partners. We can leverage the in-house capabilities we have and buffer them with the outside expertise, you know, safe pairs of hands, smart eyeballs around the table. There's so much that we can be doing given the liquidity position we're in, given the authority that we have, and just given the opportunity set that's right in front of us.

And so again, once we're through this Board meeting, I'm excited about our next few Board meetings, because I feel we can turn from where have we been to some of the really exciting things that are in the pipeline for where we'd like to go.

COMMITTEE MEMBER PACHECO: That -- that's great. I really am -- I'm really impressed with your enthusiasm and optimism. And I'm -- I'm very optimistic as well. In terms of having the information on hand for us at the Board to understand at a very high level, on page three, you know, when I looked at the realized 10-year Sharpe Ratio of 1. -- you know, 1.0, which is -- you know, it's okay, but I -- do you think that we need to develop more -- a more robust matrices -- key matrices for us to kind of evaluate we are, because the Sharpe ratio it certainly will -- takes into account the returns relative to the investment risk. And I' just curious what your thoughts are on that.

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. I think what you'll see, you'll start to see us talk a lot more about the -- the active risk bit, so more on the information ratio. You'll start to see us being a lot more focused. Are we getting paid for the risks that we're taking and are we taking the risks to begin with? So absolutely, there will be a lot more focus on those types of metrics going forward. And I will be holding myself and our team accountable to make sure that, you know, we're sharing with you our journey, but certainly that internally that that's how our brain starts to think. Are we taking the appropriate amount of risk, are we getting paid for that risk, and how do we compare?

COMMITTEE MEMBER PACHECO: That's -- that's Excellent. And so that leads me to another question about risk. So CalPERS has used some long-term treasuries, fixed income, as an inexpensive risk mitigation process. In recent -- in recent ALM cycles should CalPERS consider other ways to mitigate risks in the public markets, for instance?

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. I think who our team has been talking about now, and there's a bunch of bodies of research already going on is the last 10 years isn't going to look like the next 10 years. So tools that we would have used historically we can't assume are still going to use. That doesn't mean you throw things out and assume that it's just a whole new game. There are many attributes of all of our programs that should remain, but then it's just a matter of balance. Are there other areas we can be allocating to through that risk mitigation lens?

COMMITTEE MEMBER PACHECO: Um-hmm.

CHIEF INVESTMENT OFFICER MUSICCO: The answer is most likely, yes. It's just a matter of us figuring out and making sure the governance is around the decision to as well as the decision not to -- to do certain things. And right now historically as we saw, it's been quite a siloed decision-making process and now it's not going to -- it is no longer siloed. It is done in a more holistic way taking into consideration what every opportunity that we have, that we're balancing liquidity, we're balancing risk, we're -- what are the trade-offs?

COMMITTEE MEMBER PACHECO: Right.

CHIEF INVESTMENT OFFICER MUSICCO: And so you'll start to see us come forward with different ideas for risk mitigating strategies as well as growth strategies.

COMMITTEE MEMBER PACHECO: I look forward to that information. That's going to be very exciting.

Thank you very much. Thank you.

CHIEF INVESTMENT OFFICER MUSICCO: Thank you.

COMMITTEE MEMBER PACHECO: Thank you, Chair.

CHAIRPERSON MILLER: Thank you.

Our next question comes from Dr. Willis who's participating remotely.

COMMITTEE MEMBER WILLIS: Good morning, Nicole.

First of all, I'd like to thank you for taking us on your journey. And I appreciate your straightforwardness and your candor.

My question is in relation to the opportunist -- oppor -- opportunistic real estate investments. Can you clarify and explain why it's considered higher risk -- a higher risk investment and compare to others?

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. We certainly can. I'll have Sarah come forward again. She's the expert on the team in that area in particular.

COMMITTEE MEMBER WILLIS: Thank you.

MANAGING INVESTMENT DIRECTOR CORR: Sarah Corr, real estate. The -- (clears throat) -- excuse me. The opportunistic is riskier because it is -- an example would be buying land and getting it entitled, and then building a housing development, building an office building. So there's lots of risks in that. Whereas, as the core is buying an existing building that's fully leased, and therefore has less risk to it.

COMMITTEE MEMBER WILLIS: Okay. What about in terms of high level debt, do you encounter that as well?

MANAGING INVESTMENT DIRECTOR CORR: Opportunistic would have more debt on it as well, correct.

COMMITTEE MEMBER WILLIS: Right. Okay. Thank you so much for the clarification.

CHAIRPERSON MILLER: Okay. Thank you. And we're back to President Taylor.

Oh, let me try it again.

There you go.

COMMITTEE MEMBER TAYLOR: Thank you very much, Chair Miller. So I had -- it got brought up some time ago so I'm going to circle back to what Ms. Yee was talking about. And Nicole, you mentioned -- you brought up the fact that you're going to be integrating the sustainable investment group into the Investment Office. And I just -- I have concerns. I think I've voiced them to you before, but also here's my -- here's my concerns.

We have a well-oiled team in James, and Travis, and Tamara. So I just want to -- and they're working really well with stakeholders, extremely well on the S on the ESG, right? And I know Marcie participates a lot in the climate change events that are important to CalPERS add other events that are important to CalPERS, DE&I events, et cetera.

But I'm concerned in that the last time it was integrated into the Investment Office, there was a loss of agency from the Sustainable Investment Group. So I want to make sure that these folks are still able to do their work with the stakeholders that they currently engage with all the time, as well as implement our goals. And one of the things I see -- and I know you're brand new, so it's -- it kind of came to a screeching halt, but one of the things I see that didn't happen was last -- last year when Ms. Simpson was still here, we were working on having a new five-year ESG strategy. Well, that is nowhere to be found at this point. I don't know -- we haven't heard a report on the research or anything. And I know we need a new head of the program, et cetera. We have an interim head.

But I just want to make sure that this important piece of work that you recognized that we are so world-renowned for is still autonomous and has the agency it needs to do that job it needs to do, that the Board has asked it to do.

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. Thank you, Theresa. Absolutely. I think that's top of mind for

Marcie as well, and as a result it's top of mind for myself and would have been. I think my idea of bringing the position over to investment was frankly not to -- there should feel no change. If anything, it should feel -- we will still all benefit from the incredible work being done by the current team. That isn't going to change.

I think what does change though is my team within investments, we all know that if each and every one of us is not a success in our individual business objectives, then we're all going to hold each other accountable for just not being a success overall. And the challenge of having such an important role of sustainable investing not residing within investments, it doesn't allow me to hold every single one of my team members accountable for its success.

And right now, the way that we've set ourselves up by having these nine business objectives and by having elements of the sustainable investing piece a part of those nine, if that role, if that mandate is not a success, then we've failed as an investments teams. I can't have that same expectation of my team if it's not -- this was my rationale for wanting to have it within the team. And so my hope is that you'll start to see that -- and hopefully again by November, you'll see some, you know, great movements we've made in some of these programs. We're very close to announcing some really large initiatives that will make us feel really proud, not only to ourselves but in the market for some of the things that we can do that really move the needle in some of these areas of emerging managers, diverse managers, et cetera, as one example.

You'll start to see that we're much sharper focused on integrating across ESG across all our asset classes. We've got a huge body of work that has been ongoing with some of our partners. Well, why isn't it with all of our partners. I mean, it's hard to get to all. But in theory, by having it reside within investments, I just feel like one plus one will be 10. So that's my hope and that was the intention of bringing it and really making it an absolute necessity to see it be a success, otherwise none of us are a success on the investments team.

COMMITTEE MEMBER TAYLOR: Great. And so I'm -- I'm assuming then that the accountability factor for each of the asset classes, you'll be working with them on that to make sure, as well as still -- I don't think you really answered to the agency part of our folks that are currently there. I get integrating it, right, and making those folks accountable, but making sure that the team that's already there has the agency necessary to do their job.

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. No question. I mean, that can't suffer at all to meet the needs of what we're tying to do with weaving sustainable investing into the rest of the organization. There's a body of works that go on that have -- don't really have the eye in investing, but they do. At the same time, they do. And so what you've seen and what you've been working with, and what the Board has felt real benefit from I hope only is amplified, and that would be the intent.

And I'd like the feedback if you're feeling that it isn't, because the intent is to make sure that we're seen as world class on -- for all aspects of what we deem sustainable investing initiatives.

COMMITTEE MEMBER TAYLOR: I appreciate it. And then one last question. For some odd reason, it just -- I thought that there was going to be a research arm to this. Was I wrong? Is that the case, you're going to have --

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. I mean I'd love to fold in research in many ways, research around the risks in our portfolio, research within the investment opportunities and risk just within topics on how we can be seen as global leaders. Again, these things take time and they will require resources. And there are pockets of all of those things are already happened. It's just a matter of pulling it together and being a lot more consistent in what we're doing and how we're reporting it to yourselves and our stakeholders.

And in addition to that, we have a whole communications team now that's just focused on making sure we're communicating well on all of these activities and more. And so we're really trying to tackle it from a few different angles.

COMMITTEE MEMBER TAYLOR: Well, you mentioned a bunch of stuff. Number one, we should be telling our story always, and number two, I'll look forward to this new governance to see how that works within our Investment Office, and get things moving, and succeed in getting your goals going. So I appreciate all of this. Thank you very much.

CHIEF INVESTMENT OFFICER MUSICCO: Thank you.

CHAIRPERSON MILLER: Okay. Thank you.

I see no more requests from the Board. And I really appreciate the dialogue, and the material, and the presentations, and the thoughtful approach you've taken to bringing all this together in a way that helps us not only, you know, see where we've been, but, you know, have a, you know, kind of an encouraging and confident look forward to where we -- we may be able to go going forward.

At this point, I'd like to invite Mr. Jerry Fountain from CSR up. He's asked to comment on Item 5a. And if you'd come on up, I'll give you the floor.

MR. FOUNTAIN: Good morning. And I appreciate this opportunity to speak to the Board.

I may be less generous with my comments than past speakers. I feel that we haven't done well over the last 10 years. Other organizations operating in the same investment environment have done much better. And looking at the lessons learned and the path forward, I believe that this path forward should have been an everyday job description of our Investment staff.

Obviously, these things they know about, but the implementation has -- has been lacking. I'd be more confident sitting here today if I heard a little bit of how these steps were going to be implemented, rather than this is what we plan on doing. And I'll sit here 10 years from now luckily and hearing the same thing, this is what we need to do, this is what we want to do. How about telling me how you're going to do it.

So possibly -- and this is critical on my part, but possibly the Board needs to provide more oversight to the Investment staff, and possibly take the step one forward and reevaluate the qualifications and philosophies of your current staff members.

As I said previously, other organizations have operated in the same investment environment have done better than we have and there should be a reason for that. And this report that is submitted is a great report, but I take it just as a justification of poor performance.

Thank you.

CHAIRPERSON MILLER: Thanks. And I introduced you, but if you would introduce yourself for the record.

MR. FOUNTAIN: Oh, I'm sorry. Jerry Fountain. And I'm speaking here as a private person as the stakeholder of CalPERS.

CHAIRPERSON MILLER: Great. Thanks very much.

Okay. I think that covers it for 5A.

COMMITTEE MEMBER TAYLOR: You have one more speaker.

CHAIRPERSON MILLER: One more speaker for 5A.

Oh, that's -- okay. I will ask Terry Brennand to come on up and speak on Item 5.

MR. BRENNAND: Good morning, Mr. Chair and members. Terry Brennand on behalf of SEIU California. Happy to be here on this rainy day.

I'm really happy to hear the comments of your new CIO. I think we're moving in the right direction. However, I have to agree with Jerry from CSR, my members are really disappointed in past performance here at

CalPERS. We have been told that we had to de-risk the portfolio for the downturn for about a decade. We've been in the process of it for at least five or six years. During that process, we underperformed every one of our peers on the upside, all with the promise that when we got to the downside, we would be better protected than other funds.

We would be better protected against a downmarket. Well, now we've had the test. And granted it's only one year, I understand up and downs, but in the test of a downmarket, we continue to underperform our peers. And that's a huge disappointment for those of us who believed that this was a strategy that was going to be successful. And it's turned out that, you know, shadowing a benchmark is not going to be acceptable.

What we have delivered for our members and our agencies in terms of performance is well below the expectations of this organization, this Board, this Investment Office, and I'd look forward to working with Ms. Musicco in the future here on changing that dynamic, restructuring our thinking process so that we're not stuck in this mode of constantly underperforming our peers and still delivering something near a benchmark. You're going to be talking tomorrow about -- or later this week about performance bonuses and incentives. I'm not seeing any value-added.

Just chasing the benchmark is not delivering for our members. It's not delivering for your Board. It's not delivering for California. And I'm looking forward to changes to make that better. There are a few other things that weren't mentioned that we need to consider, including accelerating or reach toward net carbon neutrality. It's time. We have to up the program. When you've got 200 fossil fuel investments and you've got two of them incorporate carbon capture, that's not good enough.

Also, you're outside investment team -- (microphone turned off)

CHAIRPERSON MILLER: Oh.

COMMITTEE MEMBER TAYLOR: Whoops.

MR. BRENNAND: -- less diverse than they need to be. Thank you for your time.

CHAIRPERSON MILLER: Yeah. Thank you, Terry.

Okay. I think that does it for that item, 5A.

And moving to 5B, which is revisions to the Total Fund policies.

(Thereupon a slide presentation.)

CHIEF INVESTMENT OFFICER MUSICCO: Thank you. We're just having some of my colleagues come up to participate in this part of the agenda. Greg, Sarah, and Amy are joining us at the presenter's table.

So this is really a first reading of -- of some of the potential changes that we'd like to discuss with you around our investment policies. And it ties back to some of the conversation we were having earlier about ways to make us more agile, both internally but also perceived through the eyes of our investment partners. Certainly as we're about to embark on this era of opportunity to be deploying more capital into co-investments for an example, having a few more tools in our toolkit, and updating some of the policies to reflect the size of the programs, the strategic asset allocation, execution requirements just to get to that execution point.

There's some suggestions and some history. And hopefully, by the end of this presentation, the rational will become a lot clearer, that it's -- it's more about making sure we're agile. It's more about fine-tuning and right-sizing for the size of programs that we have and for the execution of the strategic asset allocation that it is about -- about anything else.

And so with that, maybe we could flip to the next page.

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CHIEF INVESTMENT OFFICER MUSICCO: So again, we'll have a policy -- I'll do a quick overview of the why we're here today and what we're asking for, and Greg, and

Sarah, and Amy will go through different updates on their program and how that relates to these policy requests and Amy will walk through the policy changes.

Next slide, please.

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CHIEF INVESTMENT OFFICER MUSICCO: So the punch line here is that the new strategic asset allocation requires significant deployment of capital. As you know, in November, the Board approved a new SAA, which included increased allocations to private equity, real assets, and private debt as its -- as a new strategy overall.

And today, what we're asking for are some policy changes just to help us get to that endgame. In some cases, it's about more flexibility. We've got broader deal sources and we have a -- we need a wider filter to capture attractive deals. We need more agility to capture those deals. In other case, we're just looking to refresh historical levels that would have been granted to us established at significantly lower NAVs of -- of those programs.

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CHIEF INVESTMENT OFFICER MUSICCO: So before we launched into that, I thought it was important just to spend a bit more time on this new governance model. I know I've touched on it a few times, but I think it's really important to give the Board comfort that whenever we're talking about policy changes, you know, it -- it can -- it can lead to, you know, perceptions that may not be accurate around giving us, you know, more flexibility without the appropriate amount of oversight, for example. So I want to make sure I just touch on that head on.

When I arrived and did my walking tour, I delivered to the Board and to the team this notion of innovation needs to be at the core of everything we do. We need to be having a lens on resiliency just given where we are in the markets from now and going forward versus where we've been.

And so we kicked off the second stage of my listening tour, so starting around 90 day onward with the establishment of these three governance committees. And again, the point wasn't to create bureaucracy for the sake of bureaucracy. It was really trying to drive a few things.

Number one, we have nine business objectives and I want to make sure I do everything in my power to make sure we execute on those objectives. And so we need forums in place to make sure we're doing work we said we were going to do. The second piece is we have a number of -- a number the business objectives that we've laid out are more around the people and culture bits. And so we needed a forum to make sure that as the CIO I was getting frequent updates and that the team was being held accountable in a forum amongst each of us, our peers, within our -- within our teams that we're being held accountable of getting that work done.

The third pierce was we've talked a lot about how we have this massive opportunity to be thinking through a return on risk perspective, a risk budgeting perspective, a, yes, there's a very important policy piece that is around a benchmark, but more importantly to get us to the endgame of being able to provide benefits. We really need to look at whether we're getting paid appropriately for the risk we're taking. And so having an entire forum dedicated to these risk initiatives, the portfolio construction initiatives, new strategy initiatives to some of the earlier questions of are you going to do different things.

We've created the Total Fund Management Committee so that we can have weekly discussions with the right individuals around the table. It's a combination of myself as Chair of each of these three committees as well as the managing investment directors, as well as the investment directors or others who run the day-to-day functional operations of each of these relevant teams around leverage, and liquidity monitoring, risk management, et cetera.

And finally, the third Committee is and Investment Underwriting Committee. And again, we know that we are very fortunate to have the delegated authority from the Board to make investment decisions across the Board. But what I wanted to ensure as CIO is that I was in the weeds enough to know exactly what was going on within each and every program to make sure each of my team members were aware of what was going on in each other's programs, because again, if we don't have a total fund perspective, if we're just making decisions in silos, we're not going to get to where we need to get to.

So the point of Investment Underwriting Committee was to make sure that everything from investments at a certain dollar threshold, partnership or exposure at a certain threshold, important proxy decisions that are being made that could impact us from a reputational perspective that -- where we can really move the needle for example are all floating up to this one committee on a weekly basis.

And finally, the business objectives that have everything to do with investing and investing better, those working groups come forward and present to this Investment Underwriting Committee.

So hopefully, you know, the -- the buzz words of people, portfolio, processes, and performance, start to take on real life. They're more than just buzz words, because they feed into -- everything we're doing through those four pillars is showing up and we're being held accountable for action and momentum being made in these business objectives within these three -- these three committees.

We can go to the next slide, please.

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CHIEF INVESTMENT OFFICER MUSICCO: And so really it's about giving you all a sense that the oversight continues to get stronger and stronger. This graph is just to show that there are six teams, including Board consultants, that regardless of where we land on some of our policy requests, there are six layers, if you will, of every decision that we make. And so the oversight absolutely remains in tact. This is just about flexibility and keeping up with the size of our programs.

Can we go to the next slide, please.

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CHIEF INVESTMENT OFFICER MUSICCO: The final piece I wanted to just -- to tease out for all of you before I hand it over to the team is that as we're requesting to have more flexibility, again there is this built in oversight, if you will, through our deal pipeline information and our post-closing information. And somewhere in the middle we touched on it a little bit, but we haven't previewed it for you, but it's in the works is having a more consistent approach and dedicated approach to monitoring of our portfolio.

And so again with these -- the requests and this first reading of these policies, we just want to make sure that you walk away understanding that there is more governance in place, that there's six levels of oversight in place, and that each and every deal that is coming through the walls -- and when I say deal, I mean partnership or an actual co-investment -- each and every single one of those opportunities that we're looking at comes through the committees is -- is tracked through our deal pipeline information. We have our Compliance team that is overseeing that as well.

And when we close on opportunities, we're -- we have this ongoing monitoring approach that we are spending a bunch of time improving and making sure we bring up to best in class.

Next page, please.

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CHIEF INVESTMENT OFFICER MUSICCO: So with that, we thought it was important to make sure that we really walked you through the specifics of the programs to give you a better sense of the why we're here asking for policy changes, because again depending on the program, there may be slight nuances. But we hope after the presentation, we can get into any questions or concerns that you may have with the requests that are being made in this first reading.

So with that, I'd like to transition to Greg to discuss the Private Equity Program and the changes that we see there and the requirement for our asks.

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MANAGING INVESTMENT DIRECTOR RUIZ: Terrific. Thanks, Nicole.

I wanted to take a few minutes to provide some context on the growth of the private equity industry over time and the implications on our Private Equity Program. So here on this slide we lay out global private equity fundraising over the past decade. This is the amount of capital raised each year by private equity funds to invest in private companies.

Now, because this capital is invested over a multi-year time horizon, the total amount of capital that could be invested in private equity today, which is commonly referred to as dry powder, would be larger than the amount shown here. As you can see in the graph, the amount of capital raised by private equity funds has increased significant over the past decade, increasing from 150 billion in 2010 to 750 billion in 2021. As the capital raised has grown, so has the number of larger transactions completed each year.

On the next slide --

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MANAGING INVESTMENT DIRECTOR RUIZ: -- we show the data on the evolution and transaction size over the past 15 years. The light gray bars show the percentage of transaction sized below 100 million. And each bar above the light gray bars shows progressively larger transactions. Over the past decade, there's been a significant shift to larger transaction sizes.

This has direct implications for our co-investment program creating a material expansion in the co-investment opportunity set, both in the number of potential opportunities, as well as in the size of opportunities offered to us.

Co-investment is the primary lever we have for increasing the cost efficiency of our program, given that co-investments have limited to no fees or profit sharing. As the co-investment opportunity set has expanded, it has created a larger set of potential investments for us alongside our high conviction partners.

On slide 10, we show --

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MANAGING INVESTMENT DIRECTOR RUIZ: -- CalPERS historical annual private equity commitments. As the private equity industry grew substantially over the course of the past decade, CalPERS did not scale our commitments relative to our total fund size, averaging annual commitments of 2.7 billion from 2009 through 2018.

We have since begun methodically scaling our capital commitments to private equity with a longer-term goal of committing approximately $15 billion per year to ultimately reach our 13 percent strategic asset allocation target.

Over the past four years, we have methodically increased our average annual commitments and we are now in line with the longer term average pacing we are targeting. We are, however, continuously working to increase the quality of our private equity exposure by shifting more capital to our highest conviction opportunities in both managers and companies as we look to leverage our scale as competitive advantage moving forward.

I'll now hand the presentation over to Sarah to touch on real assets.

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MANAGING INVESTMENT DIRECTOR CORR: Thanks.

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MANAGING INVESTMENT DIRECTOR CORR: The infra -- the infrastructure market has grown significantly over the past 10 years. While the average deal size for the entire market is 750 million, it increases to 2.5 billion for deals over 500 million, the target market for CalPERS. Additionally, the size of the market is expected to grow. The energy transition alone will create massive demand for new infrastructure. According to recent McKinsey report, to get to net zero by 2050 will require 3 trillion per year in new capital spend.

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MANAGING INVESTMENT DIRECTOR CORR: The Real Assets team is focused on building out an infrastructure portfolio over the past two years and has made good progress. The portfolio grew from 4.8 billion in June of 2019 to $11.6 billion in June of this year. However, to meet the new strategic asset allocation targets, the infrastructure needs -- portfolio needs to triple over the next three years. Doing this effectively and efficiently will require CalPERS to commit larger dollars to each investment.

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MANAGING INVESTMENT DIRECTOR CORR: As the commitment limitation has remained constant in both real assets and the infrastructure portfolio have grown, the limitation as a percent of the program has come down. We believe it would prudent to increase the limit to be consistent with what the Real -- Real Estate Program can do.

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MANAGING INVESTMENT DIRECTOR CORR:

Infrastructure investing is more predominant outside the United States and deals can be lumpy. One large transaction outside the United States could have a material impact and change the exposures. As a result, we would suggest that increasing the policy limit on international within the infrastructure portfolio, but leaving the limit the same at the assets level will give more flexibility in investing in infrastructure outside the United States.

And I'll turn it over to Amy now.

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INVESTMENT DIRECTOR DEMING: Thank you.

And now I'll talk about some of the specific -- the four areas of policy changes that we think are necessary to carry out the Board's strategic asset allocation decision and we would really like your feedback today for this first read.

Next slide, please -- oh, sorry, same slide.

Wait. No, next slide.

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INVESTMENT DIRECTOR DEMING: Thanks.

Okay. So regarding staff delegation limits. So first we're requesting higher staff authority limits given that the plan's assets have increased as well as their target asset allocations. In most cases, this is simply a refresh of our prior limits. And more on that one to come. Next, we'd like to establish Deputy CIO limits between the CIO and the asset class heads that were the managing investment directors.

Third, we've added secondary sales of funds and CIAs to the delegated authority structure at two, four, and six billion for the MID, DCIO, and CIO respectively.

Lastly, we think that, you know, we've -- Nicole spent a little bit of time talking about the Investment Underwriting Committee. We think that the -- the IUC, as we call it, the central decision-making would replace the limit on any one program -- program head's fiscal year spending.

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INVESTMENT DIRECTOR DEMING: And when we think about updating staff delegation, there are conceptually three factors that influence delegation limits: first, the size of the total fund, which we know has gone up; second, the allocation to the asset class, which again has gone up; and then any shifts to the business model. So when we think about co-investment as a strategic initiative, this is where the shift comes into play.

So in our case, we have all three. And the path to the new strategic asset allocation is to write larger checks. And we think we need higher delegate -- delegated authority to get there.

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INVESTMENT DIRECTOR DEMING: So what you see here in these charts is that delegation limits for funds and co-investments, as a percentage of the Private Equity Program, are at all-time lows. When the prior limits were put in place, they contemplated to -- relative to the asset classes NAV at the time. However, private equity has grown quite a bit without concurrent scaling and delegated authority.

In the left chart, you can see on the green arrows where the team has -- where we've proposed setting the new delegated authority limit. It's below the orange arrow, which is what you -- what is the '27[SIC] ALM cycle where the -- you know, where delegated authority was in 2017. So still, you know, below our historical delegated authority and this is for funds.

When you look on the right-hand side, that's for co-investments. We are again at all-time lows. However, in this case, we are asking for higher delegated authority, and you'll see that on the upper right that green arrow up there.

You know, Greg has -- Greg has described that co-investment is -- Nicole has as well, is a strategic priority for CalPERS, and the team will need to write larger checks to achieve scale investment and co -- scale co-investments.

Just -- just, you know, for general awareness, in the last two years, the private equity team underwrote upwards of 50 co-investments. And if we want to continue to scale that program, it will be important for them to be able to commit larger dollars amounts in addition to executing -- executing larger volume co-investments.

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INVESTMENT DIRECTOR DEMING: So for infrastructure delegation limits, they -- they are also relatively low versus historical NAV. We are proposing limits. You can see again the green arrow. And it's very aligned with where we have been in the past and where we were in the last ALM cycle.

And then just for some back -- background for -- for real assets, it was only three or four years ago that the team was committing one to two billion annually across three or four total co-investment -- or, sorry, infrastructure commitments. And by comparison, you know, we're on track to do about seven and a half billion this year and 12 commitments for this fiscal year. And the only way that we think we can keep up this pace is to write larger checks when we have high conviction. And this will require higher delegated authority as well.

Next, switching gears -- next slide, please.

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INVESTMENT DIRECTOR DEMING: We also wanted to talk about prudent person opinions. We are also recommending increasing -- increasing the thresholds for PPOs as we call them. Much like delegation limits, PPO thresholds should be updated given the growth in the NAV and the strategic asset allocation targets. When the prior thresholds were put in place, they were contemplated relative to the asset and NAV -- NAVs at the time and the target allocation. The new thresholds that we are proposing represent a deal size that is larger. And larger deals come with longer lead times, so that allows us the time to get the PPOs.

On smaller deals, you often will have less time. And therefore, if we are required to get PPOs on smaller deals, it could eliminate us from certain opportunities that we would have otherwise liked to take advantage of. And just thinking back from Nicole's slides, you know, PPOs are one of multiple ways that we approach governance around decision-making. And we feel that we have the right governance today to warrant higher PPO thresholds.

Also, given that we have a new private debt program, we established prudent person opinion thresholds for that program.

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INVESTMENT DIRECTOR DEMING: So now with respect to the Private Equity Program, there are some additional requests to change policy. So first, we're looking to broaden the sources of deal flow. Nicole spent some time talking about establishing strategic partnerships and investing alongside them. If we can have the ability to invest alongside institutional investors that we don't -- do not currently invest, it will give us opportunities that we do not currently have and that we would like to use our competitive position to take advantage of.

Second, there are two proposed changes that will help private equity's ability to scale. The first one would be increasing the committed capital limit per general partner from 10 to 15 percent. There -- this is consistent with an exception that's been already granted for three of our larger general partners.

The second is to increase our percentage per fund investment limit. So currently our limit is at 25 percent of any given fund and we would like to increase that to 35 percent.

Lastly, we would like to modify the strat -- the private equity strategy targets to better reflect our goal of diversifying the portfolio across middle market, growth, and venture segments.

And next slide, please.

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INVESTMENT DIRECTOR DEMING: And then for the Real Assets Program, you know, you saw in Sarah's chart that international is -- is becoming a bigger portion of the infrastructure market. For the -- for the real estate -- or, sorry, Real Assets Program, we would like to take -- we'd like to modify the infrastructure geographical limit with a shift towards international.

And with that, we would like to open it up for questions.

CHAIRPERSON MILLER: Okay. Thank you very much. Appreciate the presentations. And we'll start off questions from President Taylor.

COMMITTEE MEMBER TAYLOR: Oh, thank you, Chair Miller. Hold on a second. I want to make sure I've got the questions.

I'm going to start with the global infrastructure RA, it looks like we're going to be delegating outside the U.S. Is there -- is that where most of the deals are? Is that why, Sarah, you were talking about that?

MANAGING INVESTMENT DIRECTOR CORR: Correct. International makes up a larger part of the infrastructure market than the U.S. does. Currently, it's a 0 to 60 percent international --

COMMITTEE MEMBER TAYLOR: Okay.

MANAGING INVESTMENT DIRECTOR CORR: -- and we'd like to take that 0 to 70 percent international. The deals are just very lump. And so one deal can, you know, change the portfolio significantly enough and we just want that extra room --

COMMITTEE MEMBER TAYLOR: Okay.

MANAGING INVESTMENT DIRECTOR CORR: -- so that we don't violate the concentration limit.

COMMITTEE MEMBER TAYLOR: Okay. And then I had a question on page 18 of the 25. So -- I need to go back in a second, but also let me get to 18. I just want to make -- so why -- why do we need the increased limits, the larger amounts? I think I'm concerned, because we -- you know, we've given you guys a lot of authority, and given where we have been, I want us to be able to make great returns. I want us to be able to do the things we need to do. But on the other hand, given the 10-year history we've had, I'm wondering why we need to increase these amounts so -- so much. These are -- these are significant increases. So I don't know who wants to answer that.

Nicole.

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. I think, Theresa. It's really a reflection of the market opportunity that is in front of us, the ability to move the needle, because of the size of our programs and overall program. It's really almost -- it's a practical ask. It's an agility ask. It's our ability to speak for the dollars. A big part of us being deemed a partner of choice, if you will, is that we can give comfort that while we will give noes maybe as much as we give yeses, that we can speak for the dollars without having risk that we could get along really deep in the weeds on a deal alongside a partner only to create risk in that process for them, that we could be deemed not able to speak for the dollars, if you will.

And so a lot of this is just about us having a bit of flexibility to lineup with the size of programs that we're trying to execute on, the size of deals that we're seeing that are most likely to be coming in the door, that make sense for us to do -- be doing in order to move the needle.

COMMITTEE MEMBER TAYLOR: Okay. So one of the things we were always told is that we were such a large investor that it was -- it was hard for us to do deals, especially in PE and real estate, because they -- we can't participate in these smaller deals. So now you're saying there's lots -- larger deals. So I'm -- is that -- and then we're going from -- I mean, we're going up 1.9 percent, 2.4 percent, from 3 to 3.2, which isn't -- that's not hugely significant. I'm just a -- I just want to make sure we're given you the appropriate authority, but at the same time we're not just chucking our authority away.

CHIEF INVESTMENT OFFICER MUSICCO: No, understood. Understood. Yeah, look, it's a -- it is a -- from your perspective, it would be a delicate balance. From my perspective, I'm just trying to position the team to be deemed as -- as agile and be able to move with where the market is going. We've had a number of calls, as I said, in the past few weeks from other institutional investors that are finding themselves in a bit of a pinch, because they've well exceeded, because of the denominator effect their -- their allocations to their private market programs overall.

And so, you know, you get those calls, you need to be able to be agile and move within a time frame that's competitive to where else they could go to get a quick yes with -- with you know, real conviction that we could speak for the dollars. And so by having the ability to speak for these larger thresholds, it just put us in a much more competitive position to meet the needs of what our programs require to execute on the SAA. So it's a bit -- it's a bit of a math -- it's more of a math issue of how do we get there?

Well, we're going to have to write larger checks. If we write larger checks, we're going to have to look at our delegated authority levels. We're going to have to look at some of the things that are wrappers around our decision-making capability. So you'll see in the language things like can we have the flexibility to do deals with non-GPs, because technically today when a Canadian pension calls and says would like to come in alongside us in our Private Equity Program, our real estate program, our infrastructure program, as it sits today, they're not deemed a general partner. And so we don't -- we just don't practically speaking have that flexibility.

So we tried to look through the lens of is there anything in our policy today that prevents us from being agile, prevents us from being able to execute where we need, and how we need, and with the agility we need to get to the SAA. And so that's really the theme that we're trying to put upon you to consider.

COMMITTEE MEMBER TAYLOR: Okay. So that makes sense. And then I want to kind of pivot to the -- how does the new governance structure like help us feel comfortable that we're giving you this -- this extra money? Does it -- does it actually give some more checks and balances throughout?

CHIEF INVESTMENT OFFICER MUSICCO: I think checks and balances is a great way to articulate it. I can give you an example. When I first arrived on the scene within the first few weeks, we were -- because of the time -- the timing Sarah's Real Estate Program was coming forward for approval. And Sarah would have benefited from the six layers, you know, between Board consultants, and our own in-house lawyers, and our own team, et cetera. But at the end of the day, those -- that decision was really for the most part being done frankly quite siloed.

What these new governance committees do is put a real check on, okay, if we do that over there, if we execute on that partnership opportunity, where is the opportunity lost elsewhere? What does that mean from a liquidity perspective? What does that mean from a risk-on perspective? Are they the right partners? If we're doing a -- if we have an opportunity to work with partner XYZ, maybe we've had a negative experience with that same partner in a different asset class or maybe more importantly, we're actually in the 7th inning of looking at something with that same partner and maybe there's a way for us to leverage this broader relationship with them in a way where we can negotiate better fees, better governance, et cetera.

So the belts and suspenders of all of these needle-moving opportunities now coming to a single forum where all MIDs are represented, where I'm represented, where the Deputy CIO is represented, and we're in that room with both the investment lens as well as Sterling and his team's risk and liquidity lens, we're just putting a lot more belt and suspenders around all of these needle-moving opportunities. And that's only at that level. After all those existing levels have already seen the deal, the Board consultants, the individual team -- deal teams, they've still gone through the rigor that they've always gone through, this is just extra layer.

COMMITTEE MEMBER TAYLOR: Okay. And then my last question is on the prudent person opinions raising that -- that threshold also kind of concerns me a little bit, because, I mean, that's that -- that's that other check and balance, right?

CHIEF INVESTMENT OFFICER MUSICCO: Um-hmm.

COMMITTEE MEMBER TAYLOR: So I want to make sure that we're not shorting ourselves some expert opinion.

CHIEF INVESTMENT OFFICER MUSICCO: Understood. Yeah, again I would think of it, we're just seeing -- we're seeing larger deals and we're trying to do more deals. And so at a certain level, the question -- the question you should be asking yourselves is is it a the -- is it at a practical level for the types of deals we're now doing? And so if we make that threshold too small, it means that our resources are being used up on deals more frequently on smaller checks when we could be using those same resources working alongside on PPOs where the deals are more needle moving. And so I -- as I see the size of check rising, it makes sense for us to rise -- rise with the tide --

COMMITTEE MEMBER TAYLOR: Right.

CHIEF INVESTMENT OFFICER MUSICCO: -- bring those levels up for the PPOs. Otherwise, we could find ourselves in every single situation for every single deal that Sarah is looking at or that Greg is looking at requires a PPO, and that just starts to become a real, you know, cost at the end of the day, both time, people, resources, and just real dollars.

COMMITTEE MEMBER TAYLOR: Okay. I appreciate it. Thank you.

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. You're welcome.

CHAIRPERSON MILLER: Okay. Next, I have Director Pacheco.

Let's see, did that come on?

There we go.

COMMITTEE MEMBER PACHECO: Thank you very much. Thank you, Nicole, for your excellent presentation here. I -- so my question is back on private equity. And I was -- I was quite impressed with -- and let me just go to the slide. There was a slide with -- that Greg put together that showed the -- the private equity industry and deal size growth. So it -- in my -- you know, when I looked at this, I -- thank you for interpreting this how certain deals have shifted and how bigger -- bigger deals have become more expanded in the -- in the marketplace. And that kind of gives me an understanding of the whole process.

What I'm -- my question is is about the diversification at the very end of the presentation regarding a way to increase our diversification in our portfolio is to move more into growth equity, venture. You know, traditionally we've been -- we've been in buyouts. And I just wondered what are -- what safeguards or what processes or systems we would have in place to make sure that when we do that, we can -- we are -- we have the right systems in place, so that we make and maximize the alpha on those particular deals.

CHIEF INVESTMENT OFFICER MUSICCO: Yeah, absolutely. So I would -- visually, I would think about it as a barbell approach, where we have now these committees in place for those big, large, needle-moving deals they're all going to come through. But part of having our pipeline report reviewed weekly is that we've all agreed as a team that we want to make sure that we put the same rigor around underwriting those smaller, because they tend to be smaller, venture growthy deals, as we do the large deals.

And so while technically things wouldn't -- smaller regular way deals don't appear at this underwriting committee below a certain threshold, if they're deemed or earmarked as venture, or growth equity for example, as a team, we're discussing that pipeline every week and we have the opportunity to say we know you wouldn't normally bring a $75 million check forward to this committee, but we'd like to get more insight. We'd like to come along for the ride during your diligence on that opportunity in particular, or, for example, sometimes we underwrite funds where we underwrite a family of funds. And so normally the size of check that would bring -- that would be brought forward to this committee is probably the mothership fund and not necessarily the smaller of the family of funds, because it's a venture fund or growth fund.

Now, with this governance process in place, because we have a relationship threshold as well, we'll have the opportunity not only to earmark some of these venture funds that we'll want to make sure we have a closer look at, but any time we have large exposure to any one group, any one name, it's going to get vetted again with a little bit more rigor than perhaps historically. And so we're trying to tackle this barbell need to have some growth in venture in our program more than we have historically with the larger checks on the other end in order to deploy into the program requirements, but the oversight will be -- has been strengthened for both parts of that barbell.

COMMITTEE MEMBER PACHECO: And when you mention the oversight, you're talking about the three major committees that you --

CHIEF INVESTMENT OFFICER MUSICCO: Two in particular, the Total Fund Committee -- Management Committee, which would discuss the risk and are we getting paid for the risk and the liquidity, et cetera, and then the Underwriting Committee itself, which is should we underwrite, should we deploy, should we invest in that particular manager or co-investment, et cetera. So we're kind of tackling -- we're looking at them every opportunity through both the risk and investment lens.

COMMITTEE MEMBER PACHECO: Excellent. And as I think you mentioned earlier in the con -- in the -- in the discussion, that you would share all -- those two plus the other one that --

CHIEF INVESTMENT OFFICER MUSICCO: I chair all three of those committees. In particular, for me, I just -- I want to be held accountable for making sure that these needle-moving decisions that if they're going through that we as a team have decided together and I'm on board for all of them, because I feel it's really important to set that example of being held accountable for those decisions. And so I need to stand by them as much as I'm asking my team to stand by them for those larger decisions.

COMMITTEE MEMBER PACHECO: And one more just a procedural thing. You mean -- as you mentioned earlier, I think you said you're going to meet weekly in these meetings and --

CHIEF INVESTMENT OFFICER MUSICCO: (Nods head).

CHAIRPERSON MILLER: Okay. Very good.

CHIEF INVESTMENT OFFICER MUSICCO: The administrative -- the OAC is scheduled for every other Monday, but we can call ad hoc meetings. The other two meetings are held weekly. And we reserve time on both calendars for overflow. So if the Underwriting Committee is really meaty one week, we can use time in the Total Fund Committee and we have a really excellent -- I've been really impressed with the team's commitment to making sure that agendas are -- are created in advance, materials are being distributed, you know, by noon on the Friday, so that we have time by the Tuesday to have completely gone through the materials. We're really rolling up our sleeves for these opportunities that are of a size or of a nature that they need --

COMMITTEE MEMBER PACHECO: Right.

CHIEF INVESTMENT OFFICER MUSICCO: -- that they're getting floated up to one of these committees.

COMMITTEE MEMBER PACHECO: And that impresses me, because as you mentioned earlier, I mean, the time sensitivity to many of these deals they come and go. And if we don't take advantage of them, then we'll -- we lost our opportunity to there.

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. The team has shown tremendous commitment. I mean, they showed tremendous commitment doing the 10-year humble lookback. They're showing the same tremendous commitment to doing these weekly reviews of these -- of these companies and also learning. I mean, we all learn from each other every week when we sit in the room and we debate and go back and forth. And that's also a cultural thing that we're building together over time. I'm not going to suggest for a moment that the first few meetings -- you know, they're always going to be -- well, am I supposed to ask questions or am I supposed to poke and prod. We're trying to create this very open dynamic environment to really bring constructive feedback and questions, so that we just make for better investments.

COMMITTEE MEMBER PACHECO: Yeah. Thank you. That's -- that's very good. Thank you very much.

CHIEF INVESTMENT OFFICER MUSICCO: You're welcome.

CHAIRPERSON MILLER: Okay. And next I thought I had Controller Yee, but I seem to have lost you, so if you can hit your button again, I can -- operator error on my part I'm sure.

There we go.

COMMITTEE MEMBER YEE: Okay. Thank you, Chairman Miller and thank you, Nicole and the team. I really appreciate this presentation, given the overview that you gave us prior to this. And again, the focus on governance couldn't be more important. And it's not just governance. I actually see really some efficiencies that will be realized as well. And I hope for the team and the Investment Office, it's not -- and I just want to say I -- I hope there is nothing that comes across as being critical in any of our conversations or deliberations, because I -- in so many ways, you've had to do your respective work almost in a silo. And to be able to centralize just a lot of the internal thinking and the ultimate decision, I like this concept of the Investment Underwriting Committee especially, where there is a central point that everything can come to.

So I just wanted to kind of uplift that, because this is tough work. This is tough. And to, you know, not be able to do it and to share, you know, just what you're discovering in your respective areas, and you're doing it in an environment that continues to be highly competitive. And so to be able to give you this flexibility with still the checks and balances I think is exactly kind of the right thing we're -- we should be encouraging to really undergird the path forward as we continue to look at what that -- those elements of that will be.

I did have a couple questions. So in that vein, I'm -- I'm comfortable with the staff delegation limits that are proposed, so -- but on the PPO issue. And it may have been just my oversight looking at the various attachments, but is it fair to say or accurate to say that PPOs will be required for each of the areas? I got confused in terms of whether they would be required for the opportunistic strategies.

And I appreciated the conversation around how PPO sometimes, particularly the cost and the timeliness of them, can eat into just any benefit that we would be realizing at the end of it, but could you just clarify whether they would be required for the opportunistic strategy.

INVESTMENT DIRECTOR DEMING: The Opportunistic Policy has never had any prudent person opinion requirements in the past.

COMMITTEE MEMBER YEE: Oh, okay. Okay That's why I got confused. Okay.

INVESTMENT DIRECTOR DEMING: Yeah.

COMMITTEE MEMBER YEE: Got it. And is there a reason why? Is it the scale or is it kind of just the nature of kind of what those particular strategies are?

CHIEF INVESTMENT OFFICER MUSICCO: I think it's a combination of both scale and nature. I think -- I mean, I wasn't here for it, but when it was described to me in the way that I think of our opportunistic bucket, it is for those opportunities that do not fit neatly --

COMMITTEE MEMBER YEE: Right.

CHIEF INVESTMENT OFFICER MUSICCO: -- within any one silo. So it's difficult to -- if -- if we get -- if there isn't a home for it to reside neatly, it's difficult to see necessarily the need or the value of bringing in, you know, a PPO that will only have a couple weeks time to execute on that -- on that oversight. So we just haven't worked that in, because sometimes they move quickly. It's not a set timeline.

COMMITTEE MEMBER YEE: Right.

CHIEF INVESTMENT OFFICER MUSICCO: Sometimes they're really large in scale, et cetera. And so it just wasn't contemplated historically. And I am a strong believer that giving us as much flexibility as we can have within that opportunistic bucket is what that bucket was intended for.

COMMITTEE MEMBER YEE: Um-hmm. Okay. Okay. That makes sense. And then --

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: I'm sorry --

COMMITTEE MEMBER YEE: Oh, yeah, please.

MS. DEAN: Rose Dean from Wilshire. The Opportunistic program up until now had a significant amount of focus on private debt, which was now created to be obviously a dedicated allocation --

COMMITTEE MEMBER YEE: I see.

MS. DEAN: -- in terms of private debt allocation. The PPO requirement is now formalized in the --

COMMITTEE MEMBER YEE: Private debt. Okay.

MS. DEAN: -- Private Debt program to be consistent with Real Assets program. So you will have the PPO requirement in the Private Debt. Opportunistic obviously is not a static allocation anymore, so that doesn't have the requirement that it never did for -- for the PPO requirement.

COMMITTEE MEMBER YEE: I see. Okay. Thank you for the clarification. Okay. Thank you.

My next question has to do -- let's see, just kind the -- this whole concept of -- of the dilution of CalPERS ownership stake in customized investment accounts. I just want to kind of get a sense of like what kinds of issues that would pose, you know, from a governance perspective or maybe ESG framework. But can -- can you talk about that a little bit.

CHIEF INVESTMENT OFFICER MUSICCO: I'm going to have Greg come up and specific -- oh, he's -- I didn't see you at the end there, Greg. Sorry. Go ahead.

MANAGING INVESTMENT DIRECTOR RUIZ: Sure. Controller Yee, I just want to clarify the question.

COMMITTEE MEMBER YEE: Yeah.

MANAGING INVESTMENT DIRECTOR RUIZ: It's about the change in our percentage ownership and customized investment accounts?

COMMITTEE MEMBER YEE: Right. Right.

MANAGING INVESTMENT DIRECTOR RUIZ: Yeah. So currently it's a hundred percent.

COMMITTEE MEMBER YEE: Right.

MANAGING INVESTMENT DIRECTOR RUIZ: The thinking there is there may be opportunities where we want to partner with another institution in doing -- in taking on a customized investment account or in working with a partner. And right now, we're restricted from doing that, because we would have to be a hundred percent owner. So it kind of opens up a set of possibilities where we may be able to access high quality managers where there's another high quality allocator next to us and jointly invest. So that's the thinking around that shift.

COMMITTEE MEMBER YEE: Yeah. And I -- and I like the -- the flexibility that that affords. I think my question really relates to what happens when we are not a hundred percent owner and with respect to issues like ESG or governance.

MANAGING INVESTMENT DIRECTOR RUIZ: Um-hmm. Yeah, I think what you'd see is we would still have a very high level of influence in those situations, much more than we would have when making fund investments, you know, where we tend to be a very small percentage. So I think you would still see us in a very advantaged position relative to funds. Although, we would have some tradeoff around our absolute level of control --

COMMITTEE MEMBER YEE: Right.

MANAGING INVESTMENT DIRECTOR RUIZ: -- being a hundred percent versus something less than that to pick up opportunities that might be really attractive. Now, it would be in our control to determine which of those we wanted to go into. And so I think we certainly have -- you know, we've been working to embed sustainability in kind of how we approach everything. So we have the option of doing it or not doing it up front. And I think you would find the level of governance still extremely high relative to kind of any other part of the program.

COMMITTEE MEMBER YEE: Yeah. And I would suspect just the conversation we had earlier about sustainable investing that that would be a consideration at the front end relative to --

MANAGING INVESTMENT DIRECTOR RUIZ: Correct. Yeah.

COMMITTEE MEMBER YEE: Okay. Okay. Good.

And then I'm trying to reconcile this issue. So I think about six years ago CalPERS reduced the number of GPs to 25 or so, and lately has been increasing the -- the number to broaden the pool of potential investors. And so would allowing up to 15 percent of committed capital just to any GP restrict the pool and limit the diversification again?

MANAGING INVESTMENT DIRECTOR RUIZ: Yeah. So what we've -- the way we think about it now is we want to have diversification across investment strategies. Managers are kind of one way of thinking of that, but it's an incomplete way of thinking about it. So historically we've been very concentrated in large buyout. And what you've seen over the past number of years is us expanding our exposure to middle market and growth and venture. And we think those give -- that gives us kind of what I think of as real diversification. Those segments may move differently than large buyout. So that's the overall kind of direction of travel.

The thinking around increasing that percentage -- while overall you are seeing we are having more managers not fewer over the past few years, the thought around doing that is there are times when we are offered co-investments that are large and we're looking to increase that part of our portfolio, that could lead to particular situations where you might have more exposure to a particular manager. We think of that as a positive dynamic, because the co-investments are so fee advantaged relative to everything else that we wouldn't want to limit our ability to take on co-investment with high conviction managers.

Now, I think that is one that would be relative -- I don't think that would come up with much frequency, but we wanted to use this opportunity to lay it out, because to not take co-investment alongside our highest conviction managers to me would be -- would not be the direction we're work -- you know, we're working --

COMMITTEE MEMBER YEE: Right.

MANAGING INVESTMENT DIRECTOR RUIZ: -- to move the program.

COMMITTEE MEMBER YEE: Right. Okay. No, that's -- that's helpful to think about diversification beyond just, you know, kind of the manager perspective.

And then I think my last question is to you, Sarah. And that is as the infrastructure portfolio becomes more international, and I think what I'm asking here is just as you're coming back to report to us about that, obviously, I think that comes with a lot of -- probably more risk and different types of risk. And so just kind of your perspective on that.

MANAGING INVESTMENT DIRECTOR CORR: To be clear, the international is developed international that we're asking for an increase to of 10 percent. But we -- we come back annually and give our diversification and it's also in Meketa's semi-annual updates what the diversification is.

COMMITTEE MEMBER YEE: Okay. Okay.

I'm -- every time we talk about going international, it just makes me nervous, so -- because of just the global risk there, just attendant to anything we -- we do around the globe.

MANAGING INVESTMENT DIRECTOR CORR: It would largely European exposure.

COMMITTEE MEMBER YEE: Okay. Appreciate that. Thank you. Thank you, Chairman Miller.

CHAIRPERSON MILLER: Okay. Thank you. We've been at it quite a while and I've got quite a list of folks with questions, so I think if we could take a 15-minute break and then we'll reconvene and come back with Director Middleton's question at that point.

(Off record: 11:06 a.m.)

(Thereupon a recess was taken.)

(On record: 11:22 a.m.)

CHAIRPERSON MILLER: Okay. Let's reconvene. Let's call the Investment Committee back to order.

And the next person I have is Director Middleton. Let's see if we can get you.

I got --

COMMITTEE MEMBER TAYLOR: You need to call it to order, because we're not -- people are still talking.

CHAIRPERSON MILLER: Okay. No everyone has stopped talking, because I'm whispering.

Okay. Lisa, you have the floor.

Oh. Okay. Just hit your button again. There you go.

COMMITTEE MEMBER MIDDLETON: Okay. Thank you. I think Controller Yee hit on the first question that I wanted to ask, but let me do a little follow-up. As we go back to the meeting that we had in July off-site, clearly geopolitical risk was highlighted. One only has to open the newspaper to see how big of an issue it is. That does give some pause when we start to think about increasing the amount of infrastructure exposure we have on a global basis. So, reaction.

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. I'll have Sarah give a bit more of the detail I guess into the go-forward. But I think big picture, I've -- I've been pushing our team really hard to make sure that we think through a global lens, because we are a massive program and we have a lot of work to do to hit our objectives. And so we're going to be thoughtful and measured, but I think it would -- it behooves us to do the work to come to conclusions that are, you know, a combination of experience, a combination of where our views are going forward, not taking kind of the current emotion around, but really thinking through a long-term patient investing lens.

And so for asset classes like infrastructure, we are going to need to look farther afield than just North America. I think where we'll spend a great deal of time is understanding the jurisdictions that we're talking about and the partners, probably more importantly the partners that we're going to find ourselves aligning with, but we're going to do that work.

And part of us having again this new Governance Committee is my hope -- and, yes, I took the comments earlier around us expanding our diversity of thought, diversity, you know, around the table. My hope is that by having more diversity of thought and experience around the table, we'll start to make better educated decisions and make sure we're taking the right risk-adjusted decisions at the end of the day.

But I wouldn't want to give this Board the impression that we're not thinking through a global lens at all times, because we -- we must. And so we'll be thoughtful and we'll make sure that for each of the strategies -- frankly any of these strategies going forward, we want this to be a dialogue with the Board and to get perspective, to get -- the last thing I want you ever to do is open up the paper and be surprised at a broad strategic move that we've made without, you know, at least doing the educating and brining everyone along for the -- for the -- for the whole experience.

MANAGING INVESTMENT DIRECTOR CORR: I would just add to that, that the request that we're asking is for developed markets. There are further restrictions on emerging markets, of 0 to 15 percent, and 0 to 5 percent on frontier markets. And we're also leaving the -- at the real assets level, we're leaving it at the current restriction, so we're essentially limit -- limiting the ability to do international real estate and giving up to get the ability to do international infrastructure.

COMMITTEE MEMBER MIDDLETON: All right. You know, I think that's helpful, but clearly as we move toward, there's going to need to be a recognition of the geopolitical risks. And that needs to be fully a part of all of our assessment as we look at investments going forward. All of that said, I'm very pleased to hear that infrastructure is going to be something that we're looking to increase rather than see diminish.

So lastly, with -- really this more a comment than a question. I, frankly, appreciate the need to perhaps limit some of the number of PPOs that we get in order to become more efficient. But the other side to that is those PPOs that we are looking at need to become much more consequential as we move forward.

Thank you, Mr. Chair.

CHAIRPERSON MILLER: Okay. Thank you.

Next, Director Willette.

COMMITTEE MEMBER WILLETTE: Thank you so much, Chair Miller. And I first want to say thank you so much for this thoughtful presentation. I'm actually really exited about innovation and changes we need to deliver for our beneficiaries. And I understand cultural change is very difficult, and matching practical steps is not easy, so I also applaud and support those efforts.

That being said, you know, we're accountable to two million members on these decisions. And I think it's -- it puts the Board in a difficult position to explain to our members why we're going to give increased delegated authority at this time. It's our fiduciary duty to be prudent, to be careful in these decisions. So I am cautious about providing more authority or delegation until we see how some of these changes and especially the cultural changes kind of shakeout.

I think something that would help me would be just understanding -- you stated that there's a lot of -- we're seeing larger and more -- more deals happening. And I'm -- I'm wondering how many deals have we lost out on, for example, and not just quantity but maybe volume. Where would we be if we had at various tiers, right? Instead of going from what we have now to what's proposed, what -- what would be in between and what that would mean in terms of timelines? Like I said, how many deals we lose out on, how much return for our members do we lose out on?

As I stated, I'm just a little cautious without there being maybe assurances or conditions on the increased delegation.

Any thoughts, I'd appreciate it.

CHIEF INVESTMENT OFFICER MUSICCO: Thank you for the comments. Let us go back and just do a bit of digging. I think it's one of those things, we don't know what we don't know. Right now, we're not perceived in the market as being a first call for some of the larger transactions, because of our current delegated authorities or our inability to say when someone calls can you stand up for this capital if went through your own internal processes or does it require Board approval, et cetera. So we'll have to do some theoretical work for you, but understand, you know, you'd like to have a view into that.

My hope is that this added governance model that we've put in place for ourselves helps a lot to build up that -- that trust, just knowing that we have that additional oversight. I also hope that us continuing to demonstrate that we're going to bring you along for our thinking, the whys, not just the -- the lookback and say this is what we did, hope you like it, that we're going to be bringing this Board along more as we think through some of our strategies.

I hope that today, you know, you leave knowing that I'm absolutely holding myself accountable as well as the rest of the team for decisions going forward. We've got these nine business objectives that ultimately at the end of the year we'll look at each other and say are we a success or are we not? And each of us is going to own those together. Again, it's anecdotal, but it hopefully is starting to show you a bit of the culture that we're building.

And I have to say I don't think it's anything new. I think this culture has been percolating for some time. I think that without having a CIO in place for a period of time, the team was waiting to have -- because if that wasn't the case, then I would not have had the buy-in that I've had so quickly out of the gate for all of these new approaches.

You know, as -- as was pointed out, when you've been able to operate for a number of years in a silo and suddenly somebody says, hey, despite what you're so-called allowed to do, I need to be discussing this stuff with you on a frequent basis, the natural reaction for many, if they didn't believe in this cultural change or if they didn't believe that this was the right direction, would have been -- would have been to have pushback. And I've had nothing but support on the matter.

So again, I -- I hear where you're coming from. I think -- I'd go back to we're really asking for kind of a practical math ask in order to execute on the strategic asset allocation that we're now fortunate to be able to execute on on behalf of the beneficiaries. Without some of the movement in these numbers, we just -- it -- we just frankly will be having different conversations with the Board, which will be we aren't able to deploy in the way we need to in order to hit those objectives, because of the math of the practicalities. But we can certainly come back for the next read and make sure that you have a good understanding of the building blocks, or maybe said differently, in theory the types of transactions in the marketplace that should be becoming to us that we're maybe not getting a call on. So let -- we'll get creative to come back to you on -- with some of that. I don't know if Greg or Sarah if you guys have anything -- any other anecdotes to add to that, but that's the best I can think of to do that exercise.

MANAGING INVESTMENT DIRECTOR CORR: I guess some of the anecdotes I could add, almost all the infrastructure investments have had to be approved by the CIO, because they exceed my delegation, and that causes, you know, some -- some delays. And there are a few transactions that even exceeded the CIO's delegation that we had to scale back on, because of the capping out at two billion on the infrastructure side.

COMMITTEE MEMBER TAYLOR: Well, it would be good to see that.

COMMITTEE MEMBER WILLETTE: Thank you so much.

CHAIRPERSON MILLER: Yeah. Thank you. And, yeah, and we'll consider that Committee direction to come back with some further illumination in that regard.

Great. Thank you.

Next we have President Taylor.

COMMITTEE MEMBER TAYLOR: Thank you, Chair Miller.

I forget a couple of things. One was I want to ask the value-add of -- I already know the value-add. You've said it several times of our governance -- these governance committees. I guess what I'm looking at also that I forgot to ask was how do you feel about the limitation it may impose on deal time frames?

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. We've -- we're making sure in part of putting these in place, the deal time should not feel -- these are being run in parallel with the time line that the deal team is already on. And so it's just adding on an extra set of eyeballs. It's -- there -- it's no more information. Frankly, what comes forward to this Committee in my mind is table stakes. It's more that we as a team get to decide together on these needle-moving opportunities. So work that's being done, the input from the consultants, the input along the way from the deal team is already happening. And if anything, by having a preview or an additional set of eyes within this committee, we're asking that team to go back and sharpen their pencil -- pencils in a few areas, whether it's around, you know, what's the bigger opportunity, what's the partner dynamics, what kind of governance will we get, are we weaving in sustainability to the extent that we should be in our thinking, et cetera. So this won't slow us down, because it's being run in parallel.

COMMITTEE MEMBER TAYLOR: Okay.

CHIEF INVESTMENT OFFICER MUSICCO: It's just giving us more belts and suspenders on decision-making.

COMMITTEE MEMBER TAYLOR: So basically as the deal starts, then they come to the committee with the new deal before it's really even come to fruition.

CHIEF INVESTMENT OFFICER MUSICCO: The way -- yeah.

COMMITTEE MEMBER TAYLOR: It's not like a later thing.

CHIEF INVESTMENT OFFICER MUSICCO: No, it's not. I mean the way that it works practically, Theresa, is if something is -- falls within the realm of needs to come forward, there's a heads-up memo and that's really a discussion. Here's the opportunity, here's the partners, here why -- here's why we like it, here's why we think the resources should be - meaning people resources - why we should be spending time.

What -- are there any objections? Are there anything we should be considering? And it's been amazing to see the dialogue, because we have so many different perspectives around the table. Maybe James is bringing up a labor issue, maybe, you know, Sarah is bringing up a jurisdiction, maybe Greg is saying, oh, we have partners who are excellent in investing in that sector. We should be leaning into it. And so now the dialogue is suddenly becoming, you know, really thorough and it's arming that deal team with so much more perhaps than what they would just have in their own committees. And again, those committees continue. It's just this is an extra side piece that is happening alongside or in parallel.

COMMITTEE MEMBER TAYLOR: I really like the communication. I think that's excellent. I love seeing more communication, not less obviously, so I'm very pleased about that and thank you for the explanation. I wanted to -- I don't know how to say this without maybe making some folks mad, but does this cause us to maybe need more meetings for Investments, because it sounds like as deals are coming through, we're going to be needing to know this or are you going to just -- are we going to have emails?

CHIEF INVESTMENT OFFICER MUSICCO: I think -- so there's a couple things. The pipeline we're -- the pipelines, we're cleaning up our pipeline review to make sure that they're thorough and we're adding a few more columns. We're adding more information in those regular way pipelines that you already see. I think we tried on for size in the last Board meeting, when we do that roundtable -- the round robin of each of the asset class heads, where historically we've discussed managers, the intent now of having some of that is in confidence, because these things will be confidential matters. It gives us a moment to say, hey, we're thinking about opportunities XYZ. Stay tuned.

I know that you have the opportunity to be in dialogue with Marcie on a frequent basis. And so I've committed to Marcie that she not ever be surprised by opportunities that we're looking at. And, I mean, we have big ambitions to really grow our co-investment program. But at the end of the day what limits us is just the hands, and eyeballs, and feet. So, I mean, it's that -- we're very ambitious and we'll work towards it, but this will be a ramp-up. It won't be kind of hurled at you all at once.

COMMITTEE MEMBER TAYLOR: Okay.

CHIEF INVESTMENT OFFICER MUSICCO: And so we'll make sure that we use the tools that we currently have. We'll make sure we use that time we have with you during our quarterly meetings to flag for you any opportunities. And I'll make sure I use the communication channels I have with Marcie and you have with Marcie to keep you up -- up to speak on things.

COMMITTEE MEMBER TAYLOR: Okay. That would be awesome. And then my last thing I think I'm going to jump on with what Ms. Middleton and Ms. Yee said, which is infrastructure is a totally different deal than the real estate that we were -- so I'm just making sure we don't do Russia. That's all, so back at you.

All right. Thank you very much.

CHIEF INVESTMENT OFFICER MUSICCO: Thank you.

CHAIRPERSON MILLER: Okay. Thank you. Next, we have a question from Director Pacheco.

Let's try it again.

There we go.

COMMITTEE MEMBER PACHECO: All right. Very good. Thank you. Thank you, Nicole. All right, so my question is -- it's actually back to Board Member Willette and also with Theresa regarding the -- the alignment of the enhanced governance framework. And actually, with respect to the Total Fund Management Committee, and the Investment Underwriting Committee, and the reporting aspect, you know, of going back to the Board like, you know, where we're providing you all these additional tools, you know -- you know, hopefully, and -- but I want to know how you will be report -- reporting that information back to us, so that we can, you know, see we have some, you know, high level, you know, oversight on -- on this new process? Can you elaborate on that?

CHIEF INVESTMENT OFFICER MUSICCO: Yes,

certainly. So for the Total Fund Management Committee, the team has been working quite diligently providing me with a CIO dashboard, as we work on this together, the things that are pertinent, and relevant, and on my mind. And so the thought is once we work the kinks out and hopefully in the timing for November when we start to introduce some of these new concepts to the Board, that will end up being a regular tool that we'll share with you, so that you know -- you're looking through my lens and you know what's on my mind, and we'll work on that together.

And again, those are the types of opportunities we have to work on it together, because you might say you know what, Nicole, I'd like a bit more of a deeper insight into how much of your pipeline is specifically into emerging markets, and how -- you know, what does that flow look like, and who are the trusted partners. I mean, there's -- part of our data and tech strategy is to make sure that we are using the bits of data to be better decision-makers, but also to be able to share how we make those decisions with the Board and with the rest of the executive team frankly.

So my hope is that we're -- we are -- we're thinking through that exact same lens that you are, whereas sharing with you how we think and how make decisions only benefits all of us, so that no one is surprised.

COMMITTEE MEMBER PACHECO: And -- and do you think that gathering this data is a -- is a -- would it be difficult or do you -- or do you foresee any road blocks?

CHIEF INVESTMENT OFFICER MUSICCO: Most of the data exists. I think that we could invest and need to invest in different tools to maybe integrate where the data is today. I think that there are certainly tools in the market that help us with more user-friendly reporting of that data that we have that exists and make us more efficient.

And so we're right in the midst of thinking about our broader investment tech strategy. We have technology in lots of pockets. We've got world class technology and technology leaders. It's just a matter of us pulling it together through the lens of the INVO team and saying what have we got, what should we be leveraging, where could we maybe be more efficient --

COMMITTEE MEMBER PACHECO: Right.

CHIEF INVESTMENT OFFICER MUSICCO: -- both through a spend perspective, but also return on effort perspective on where the data sits, how we use it, how we share it, and make decisions with it.

COMMITTEE MEMBER PACHECO: Oh, excellent.

That's -- thank you very much for that information.

CHAIRPERSON MILLER: Okay. Thank you. And I don't see anymore requests to speak from the Board. We do have a request to speak from a member of the public who's in attendance on 5B, so I'll call Alyssa Giachino up to the podium. And if you would introduce yourself for the record. And then when you start speaking, your time will start, and be displayed on the little clock there.

MS. GIACHINO: Good morning. Can you hear me?

Morning, Chair and Committee members. Alyssa Giachino with the nonprofit Private Equity Stakeholder Project echoing some of staff's remarks. The growth in private markets is transforming finance, but large players like private equity are hardly regulated and exempt from most financial disclosures, leaving regulators with more blind spots concerning the risks buyouts -- buyout firms might pose, Bloomberg recently reported.

Private equity firms have invested over a trillion dollars in the energy sector since 2010. The lion's share of these investments have been in conventional forms, like oil, gas, and coal. And in many cases, dirty assets that public companies have offloaded. Private equity's lack of transparency obscures the hazards these investments pose to investors in the public, an important considerations as you look at scaling up. We're looking forward to hearing more from staff on sustain -- how sustainability is integrated into these private market policy changes and the governance structure.

Last week, we released a private equity climate risk scorecard, the first of its kind, that ranks eight large private equity buyout firms based on metrics around their energy holdings and emissions, as well as their climate pledges. The scorecard was developed by the Private Equity Stakeholder Project and Americans for Financial Reform.

The rankings include several private equity managers that CalPERS invests with. The Carlyle Group ranks last with an F grade due to its surpassingly dirty portfolio fossil fuel holdings and weak climate policies. Following it are Warburg Pincus, KKR, Brookfield and its subsidiary Oaktree, Ares, Apollo, Blackstone, and TPG. The billions of dollars that private equity firms have deployed to drill, frack, transport, store, refine fossil fuels, and generate energy stand in stark contrast to what climate scientists and international policymakers have called for to limit our trajectory to a 1.5 degree Celsius warming scenario.

With the scorecard, we've developed a set of demands that -- for the private equity industry that seek to ensure alignment with science-based targets, disclosure of direct and indirect emissions, environmental impacts, energy transition plans, political spending, and climate lobbying, and integration of climate environmental justice with the communities impacted by the climate crisis. These demands were endorsed by 13 organizations, including the Action Center on Race and the Economy, Friends of the Earth, National Resources Defense Council, Public Citizen, and others.

We encourage CalPERS to engage your private equity and infrastructure managers to ask them how they will ensure that their portfolios are aligned with science-based targets, that they transparently report energy holdings and all emissions, and work with impacted communities and workers on a just energy transition.

Thank you so much.

CHAIRPERSON MILLER: Thank you for your comments.

MS. GIACHINO: And I have copies of the report to share. Thank you.

CHAIRPERSON MILLER: Okay. I have no more requests to speak, and so that will conclude this item.

And we will move on to 5C, CalPERS trust level review and annual program reviews with a great big thank you to the team for putting together and presenting the last item and all the informative discussion.

(Thereupon a slide presentation.)

CHIEF INVESTMENT OFFICER MUSICCO: Thank you very much. We're just going to have a few of my colleagues come up and join me at the table here.

CHAIRPERSON MILLER: Wonderful.

CHIEF INVESTMENT OFFICER MUSICCO: We have Lauren, Simiso, Arnie, Greg, and Sarah joining for this presentation.

So this is our semi-annual trust level review with a deep dive of each of the individual program performance each September. And so I'm really pleased to be able to have myself with my colleagues up here today to dig into each of the programs. We'll have -- Lauren will first come up to describe and walk through some of the more macro issues ahead of us right now. And then we will get into each of the individual pieces of -- of our program. The hope is by the end, you'll have a very good understanding of what the -- the role is and responsibility of each of the programs, how it's -- how it's performed in this past year, some of the strategies or ideas that we're thinking about going forward, how we're weaving sustainability into those programs, and then again a frank look at what's worked and where we need to take the program.

I'll do a quick high level snapshot before handing it off to the rest of my team. And then towards the end, we will leave time again for questions.

So maybe without further ado, since we've had a great session in the previous two, I'll just pass it right over to Lauren to give us a high level market overview.

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INVESTMENT DIRECTOR ROSBOROUGH WATT: Thank you. Lauren Rosborough Watt from economics. Thank you for having me here today. It's a pleasure. Thank you, Chairman Miller.

What you'll see on the slides -- there are more slides that I typically bring to the Board. I'm not going to speak to everyone and skip through, but if you move to slide five, that's where I'm going to spend the majority of my time --

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INVESTMENT DIRECTOR ROSBOROUGH WATT: -- talking about the current stance of the global and U.S. macroeconomy and the balance of risks going forward. And the following four slides for your interest related to this discussion.

So the current stance of the global macro environment can be characterized as one of slowing global momentum, and in some reason -- regions quite rapidly, and an increase in macroeconomic uncertainty. The U.S. and global economies are slowing from their post-pandemic search, which I'm sure you all know about. It continues to experience supply chain disruptions, although these are dissipating.

The global labor market remains tight compared with both the pre-pandemic levels and also the post Global Financial Crisis, so post-2008 levels. And the world is experiencing more pronounced and explicit geopolitical tensions than what we've seen in a number of decades.

So it's the culmination of these shocks that's resulted in the price pressure or the inflation that we see today. You know, U.S. personal consumption expenditures index are the Federal Reserves preferred inflation measure, last printed 6.3 percent on the year, headline inflation is higher than that. In the UK, headline inflation just recently slipped below 10 percent per annum. And in Europe, inflation is anticipated to breach nine percent by the end of this quarter.

And the consequence of that, in order to maintain price stability, central banks globally are now embarking on the fastest pace of policy tightening that we've seen since the late 1970s.

Central banks have certainly expressed the need or the desire to bring aggregate demand closer to aggregate supply in order to dissipate these price pressures. And what we know historically is that when central banks are committed to bringing price pressures back towards their target that they've been successful in doing so.

Relatedly, quantitative easing and quantitative tightening, so the cessation of quantitative easing to be clear and quantitative tightening increases uncertainty. So together, macroeconomic volatility, greater household uncertainty and risk aversion has weighed on asset prices and asset returns.

When we look forward from a cyclical or a business cycle perspective, the balance of risks continues to be tilted towards tighter financial conditions going forward and weaker growth in particular in the near term. In deed, many analysts are anticipating recession in Europe by the end of this year, and some analysts are now expecting a recession in the U.S. in early 2023.

I want to take a step back briefly and talk just a little around the shocks that we've seen. Pandemic, supply chain, high inflation, conflict, these are things that the global economy has experienced in the past. But the combination of these shocks in such a tight time period is definitely unique. There are some similarities and some differences, but I think it's fair to say that the unusual -- unusual and sizable nature of these shocks has impacted on financial market and asset price returns over the last year.

I'm going to take an extra step back again and bifurcate a little bit from the short-run to the long-run. Part of our role is to consider -- consider how the macroeconomy and changes in the structure, whether that changes long-run relationships. And I brought a number of open questions to you around 18 months ago. At that point, it was just after the pandemic saying here is a number of questions that we might want to think about and investigate about whether the structure of economy has changed going forward. I'm just going to bring forward three at this point in time.

One of them was monetary policy. And I think it's fair to say that quantitative easing thousand is a sort of stand -- a part of the standard toolkit that central banks use now going forward. And that has an impact on cross-correlations of assets and also on the asymmetry of downturns now that central banks can move beyond the zero lower bound of interest rates and continue to ease policy, if necessary.

Another question we presented was on inflation. And the salient point here is that high inflation and low growth is an unusual state of the world. Although, we have seen it before.

And I think it's important to draw out that inflation by definition is a transitory state. It is a rate of change in prices over time. And when central banks are committed to ensure that inflation remains within their target, typically around that two percent level on an annual basis that they can do so in the near term, but, of course, this is transitory. Once inflation pressure have dissipated, central banks will, you know, take their proverbial foot off the brake and ease tightening policy going forward.

And the final relationship is whether the drivers of long-run interest rates - and we've spoken about this with you before, three of them population, demographics, globalization - whether these drivers of long-run interest rates have changed.

The pandemic I would say has brought to the front of mind the impact of these delicately balanced supply chain linkages and relatedly deep globalization. And we have seen some evidence of onshoring globally. And we do -- you know, we have seen also some discussion around conflict around globalization within some global economies.

So these are always potential future states of the world that we consider. But in the near-term the probabilities around those have changed somewhat. Deglobalization in particular has permanent effects on both the U.S. economy but also the global economy and how it functions.

So I think my three main talking points here today was to highlight to you where we've been over the past year. What, in terms of the business cycle, the cyclical effects look like, the balance of risks going forward. The second one was to highlight once again the unusual nature of the shocks and the combination of the shocks that we've seen in the last two years, but also over the last year. And the final one was to -- to highlight to you how we think around some of these impacts and whether that has permanent effects on the economy and what that means for both the global economy, but also for our portfolio going forward.

Thank you for your time today.

CHIEF INVESTMENT OFFICER MUSICCO: Thank you, Lauren.

So from here, if we can move the page forward, please to page -- do you have the clicker. Just to the table of contents.

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CHIEF INVESTMENT OFFICER MUSICCO: There we go, for trust level highlights.

So as we said, today I will give a brief overview, some of which we've talked on already, and then we'll dive right into each of the program reviews and then come back with some questions.

If you could turn to the next page, please.

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CHIEF INVESTMENT OFFICER MUSICCO: So we saw a brief version of this earlier today. As we know, that the PERF ended the year down negative 6.1 percent, which was the first negative fiscal year return since fiscal year '09. And as mentioned, the market value was down almost 30 billion from June 30th, 21st, and down 62 billion approximately from its height around the end of calendar year 2021, including that negative one-year return. However, the 10-year PERF return -- return of 7.7 percent does exceed the actuarial discount rates in effect for most of the period, but that discount rate was lowered recently from 7.75 percent to 6.8 percent over the 10-year period.

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CHIEF INVESTMENT OFFICER MUSICCO: And so as we touched on earlier, this cone chart shows that the PERF's cumulative total return from July of 2018 to June of '22 relative to the return and volatility expectations under the strategic asset allocation have been well within those expectations. We have experienced less risk than experienced and we've also earned lower returns on expected. And we saw this chart briefly in the last presentation.

Next slide, please.

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CHIEF INVESTMENT OFFICER MUSICCO: When we dive into the asset classes themselves and we'll get into this in each of the programs more deeply, you'll see that the private asset -- private assets, private equity, and real assets have been amongst the highest performing asset classes for all periods.

Private equity has been the highest performing asset class across all longer term periods i.e., the three-, five-, and 10-year. Really, the one-year return of negative 6.1 percent was driven by the negative performance of our public asset programs, i.e. the public equity and income programs, which was only partially offset by the large positive returns of the private assets programs.

Growth assets, again that would be considering both public equity and private equity, were the primary drivers of the five-year return. The two growth asset classes contributed 80 percent of our positive 6.7 five-year return, but only account for just under 60 percent, or 58 percent, of our asset allocation. And all programs have made positive contributions to the five-year returns.

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CHIEF INVESTMENT OFFICER MUSICCO: In summary, when we look at our -- the total fund excess return by assets -- by asset class versus the benchmark, we do see that the PERF has a positive excess return for all the periods of 10-year, five-year, three-year, and one-year, with private equity again experiencing the largest excess returns over most periods with the most recent one-year performance of 1,297 basis points.

And again, this has really been the driver of PERF's excess returns in most recent periods, whereas real assets have had negative excess returns across these periods.

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CHIEF INVESTMENT OFFICER MUSICCO: So the total fund risk summary. As we said, we're going to start using -- going forward in November, we'll start using the Board meeting to dig a lot deeper into our risk profile. The total fund tracking error is 1.63 percent, while the actionable tracking error, which I believe is a metric that got introduced just a couple years ago capturing all our public market strategies and our allocation management, is just as 0.1 percent.

I mean, the message here that we discussed earlier is that we've -- have very low actionable tracking error, very act -- low active risk being taken in the portfolio. The beta of 1.1 reflects a higher risk posture of the total fund verse -- versus our policy benchmark, which again is also validated by the higher portfolio volatility of the 12.9 percent that you see versus the benchmark volatility of 11.7.

We saw and we've discussed that the fund has an underexposure to U.S. assets versus its benchmark. And the highest contributor to our actionable tracking error has, in fact, come from our credit related spread factors versus any other area.

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CHIEF INVESTMENT OFFICER MUSICCO: When we think about risk, it should be no surprise that our total fund volatility is really dominated by -- from our growth-sensitive asset classes, such as our cap-weighted program, which is about -- just over 40 percent contribution to the risk, our factor-weighted program at 15 percent, and then private equity at 25.3 percent contribution to our fund volatility.

The treasury segment acts as a volatility diversifier. So it has a negative contribution of 0.4 percent to the total volatility. And in terms of tracking error, as we had mentioned earlier, the majority is coming from private assets, with private equity almost at 80 percent of that tracking error and real assets just at 18 and a half percent. The final page that I'll touch on briefly is just over -- overseeing our investment expenses on the next page, please.

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CHIEF INVESTMENT OFFICER MUSICCO: This is just to summarize our internal versus external investments and the cost of those programs demonstrating the trend line, if you will, of the total external management fees as well as our internal or investment admin costs. Our implementation style of having more internally managed funds has certainly shown to be an advantage when we're looking at our CEM benchmarking ing comparison peer group. But as we grow into that co-investment program and doing more deals with external managers, you can expect the trend line for external managers to continue to increase over time. But overall, our administrative and investment operating costs have remained relatively flat.

Next slide, please.

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CHIEF INVESTMENT OFFICER MUSICCO: So today, where we hope we're able to have an open dialogue with this -- with the Board is really to look at two buckets, number one, what's worked, and number, two our areas for refinement. As you know, the ALM cycle completed the adoption of our new strategic asset allocation in November. We've added new asset allo -- asset classes, such as private debt and emerging market sovereign debt. We've introduced leverage to improve portfolio diversification. We have some key hires in place, myself coming on board and we're in the market for a few other key hires to make sure that we're executing on the strategy.

And so we do -- and we as discussed earlier, we feel like in the market right now, we are very well positioned to take advantage of market dynamics for finding real value in expanding our co-investment program just to name a few. But as we've also discussed today, there are a number areas for refinement and there's a number of areas when we look back, we need to do more work. We need to make sure we have the resources in place, the right appropriate strategies, and we need to make sure we're constantly communicating with yourselves and our stakeholders on our intentions around that.

And so while we -- while private equity and real asset allocations are now at -- are near our long-term targets, we do need to continue to deploy into private assets consistently and in a disciplined manner based on our lessons learned.

Our people strategy, I said it earlier, our assets go up and down the elevators each day. And so we have a real requirement and need -- a real priority around making sure we're attracting, retaining, and equally important just developing the talent that we have in place. We have -- you know, one of the real -- people often ask, you know, what were some of the pleasant surprises. One of the real surprises to the upside for me when I arrived here was just the breadth and depth of the bench strength that we have here. I think continually developing our skills though and sharpening our pencils and learning. As the market changes around us, making sure we're staying ahead of that is really important for our existing team in addition to bringing on additional talent. So we're very focused on that.

And I need to make sure that we are -- that we are incentivized to perform, that we are incentivized and to be held accountable. And so we're working through that. Part of that, as I said, is to take a much deeper dive on how we think about whether we are being paid for the risk we are taking, having a better system in place for monitoring our programs and holding ourselves accountable for that. So that really all falls underneath people strategy, and which is why it's one of our nine core business objectives.

I mentioned earlier one of the questions about technology and innovation. We need to build this culture of innovation. We have a few programs in place, but I think exposing our team and bringing real thought leaders that are our current partners or thought leaders that are potential partners in the tent, so to speak, to help drive skill development within our team to introduce new innovations, for us to be open-minded to hear out what other groups are doing. We've got a large group that's going to tour the Canadian pensions, for example, in a few weeks where we're going to learn from our peers in Canada everything from what they're doing with technology, what they're doing with risk management, what they're doing in the investing world. Being open-minded to learn from others and to learn from each other I think is part of our cultural evolution here that we're really working hard towards.

The improved governance model, we've -- we've spent some time on it. But just based on the questions, we'll do a better job at making sure you really understand what exactly it is that we're doing within those committees and why we think it's making us better decision-makers. And so we'll take the opportunity to give you examples of -- opportunities that come in, we'll share with you our experience of here is a heads-up memo that caused us pause and we said no thank you. Here's a heads-up memo, where we said we need to do more work and where we pivoted to partner with another partner. We'll bring along for that journey when we have the opportunity to have some of those one-on-one times to make sure that you're very clear on why we think we've got better mouse trap as far as decision-making and governance.

And so, what I'd like to do -- next page, please --

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CHIEF INVESTMENT OFFICER MUSICCO: -- is really transition to each of the different programs. Again having at a high level, cover -- covered total fund, we're going to take time to review the individual programs. Each section has the following bits of information to be presented. We're going to talk about the role of the asset class, including the risk and return profile. We're going to talk about the market environment and investable themes that are pertinent to each of the asset classes. We'll talk about our asset allocation targets and the ranges. We review our key performance and risk measures that each of the asset class heads thinks about. We're going to highlight how ESG is integrated into our programs and give you some insights into what we've been up to this past year.

And then we're -- again, we're continuing this journey of evaluating ourselves really looking in the mirror, really, you know, taking a look at what we've done, how can we do it, and talking about it, and being humble about it. And so you'll hear our own self-evaluation by asset -- by each program around what we think is working and really where we need to take ownership for refinement.

And finally, we'll look at key areas of focus for each of the programs for this fiscal year.

So without further ado, I'd like to call upon Simiso to introduce to us our Global Equities program.

Thanks, Simiso.

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MANAGING INVESTMENT DIRECTOR NZIMA: Thank you, Nicol. Good afternoon, members of the Investment Committee. Simiso Nzima, CalPERS staff.

Today, I'm going to walk you through the Global Equity annual program review. I won't go into each and every slide, but I'll give -- I'll seek to give you an overview of the performance, accomplishments, and forward-looking initiatives.

Looking at slide 20, really I want to start talking about the role of public equity within the total fund. Because as Nicole alluded to earlier, we really need to look at these not in a siloed approach, but what it -- what each program brings to the total fund.

The role of public equity in the total fund is to provide growth exposure, efficiently capture the equity risk premium over a full market cycle, and be a source of liquidity. The program is essentially split into two, the cap-weighted segment, which is 67 percent of the program, and the factor-weighted segment, which is 33 percent of the program.

I'll go through each of those segments as I go through the presentation. About 96 percent of the Public Equity program is invested in cost-efficient internally managed strategies.

If we could move to slide 21, please.

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MANAGING INVESTMENT DIRECTOR NZIMA: This slide shows the Board-approved CMAs. We invest in public equity for the higher expected returns relative to other asset classes, but the high returns come with high volatility, that is the variation around the mean. As shown on this slide, you can actually see the risk return dynamics of the public asset class. With the cap-weighted segment, annualized expected return of 6.8 percent and the expected annualized volatility of 17 percent. In the factor-weighted segment, expected return of 5.1 percent and expected volatility of 13.5 percent.

It is important to note, as, you know, Nicole discussed this earlier, that the factor-weighted segment has a lower volatility than the cap-weighted segment. It is still riskier or has higher volatility than most of the asset classes that we have bar private equity. So it is still a growth asset class. It will still have higher volatility, even though it is lower than the cap-weighted segment.

I make this point to emphasize the fact that the factor-weighted segment, while it is defensive, it is only defensive relative to the cap-weighted segment and not to the rest of the portfolio.

If we can move on to slide 22, please.

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MANAGING INVESTMENT DIRECTOR NZIMA: On this slide, I'll talk about the market environment and some of the investment themes that we're looking at. The high level of inflation in the economy has led the federal reserve to raise interest rates aggressively. And this has roiled equity markets. Fears that the Fed will overtighten financial conditions and cause a recession, both an economic recession as well as an earnings recession, have resulted in the contraction of multiples, as well as the downward revision of earnings expectations, enhance the current equity market drawdown that we're seeing.

The risk/reward dynamic for equities in the short term looks challenged, given the Fed's continued raising of interest rates, and thus we expect to continue to see a volatile equity market.

As discussed during the June IC, equity markets go through periods of high volatility and severe market drawdowns, but tend to rise over the long term reflecting economic growth. The tendency of equity markets to rise over the long term rewards those investors who can weather the short-term storm of volatility and market drawdowns.

Currently, there's a lot of dispersion in terms of valuations in the equity market, and this is actually a stock pickers market. The market is prime for active management. Here, we're talking about, you know, looking at companies which have growth at reasonable price, free cash flows, quality growth, companies with greater pricing power, and so forth.

We must be responsive to the current market environment and be nimble. Public market valuations have rapidly adjusted downwards creating good entry points. History suggests that periods of market volatility and indiscriminate selling of stock presents a richer opportunity set for active strategies. And hence, our goal is to increase our allocation to active equity strategies.

If we could turn onto slide 24, please.

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MANAGING INVESTMENT DIRECTOR NZIMA: Now, I'm going to spend a little bit more time on the cap-weighted segment of the public equity portfolio. This segment is largely indexed with 94 percent allocation to the index-oriented strategies. This was a result of the 2019 strategic decision to reduce active risk in the portfolio. For the last fiscal year, the cap-weighted segment end a negative 15.8 percent compared to its benchmark return of a negative 16 percent, thus we slightly outperformed the benchmark by 20 basis points, but it's still a negative return.

Over the longer period, the three-, five- and 10-year periods, the cap-weighted segment had positive absolute returns, as well as positive excess returns. Over the cumulative -- on a cumulative basis relative to the 2017 SAA expectations, the cap-weighted segment performed in line with those expectations.

I will not go through slides 25 through 27, but these slides show the breakdown of the performance and risk of the cap-weighted segment. Nonetheless, all the underlying strategies in the cap-weighted segment had positive excess returns over the one-, three-, five-, and 10-year periods, with the only exception being the Emerging Manager Program.

If we could move to slide 28, please.

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MANAGING INVESTMENT DIRECTOR NZIMA: Let's see, I think it should be slide -- let's look at the next slide, 29.

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MANAGING INVESTMENT DIRECTOR NZIMA: Okay. Thank you.

So here now we're looking at the factor-weighted segment. For the last fiscal year, the factor-weighted segment had a negative return of 6.9 percent compared to its benchmark return of a negative 6.8 percent. As you may recall, and as we discussed earlier, the factor-weighted segment is defensive in nature. It tends to underperform the equity market when the equity markets are going up and tends to outperform equity markets when equity markets are falling.

The goal of the factor-weighted portfolio is really to dampen the volatility. So if you look at the volatility of the cap-weighted segment, that volatility is 18.5 percent, that's the forecasted volatility, was the factor-weighted segment as -- and forecasted volatility of 13.7 percent.

From the performance perspective, we can actually see this attribute when you compare the performance of the two segments. With the cap-weighted segment and the negative 15.8 percent this past fiscal year, the factor-weighted segment end a negative 6.9 percent. So it actually did the job that we expected it to do in terms of having relatively better performance than the cap-weighted segment.

If we could move to slide 33, please.

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MANAGING INVESTMENT DIRECTOR NZIMA: So now, I'll shift gears and talk about our work on the governance and sustainability strategy. We continue to execute on our governance and sustainability strategy, which focuses on improving long-term sustainability and resilience of the portfolio. We do this by holding boards of our portfolio companies accountable on executive compensation, which is pay for performance, corporate board diversity, and climate change.

On executive compensation, we continue to vote against executive pay plans, which do not show sufficient alignment between pay and performance. We also vote against compensation committee members for designing pay plans that do not align pay and performance.

On corporate board diversity, we continue to see an increase in the number of diverse directors appointed to boards. We vote against nominating and governance committee members where we don't see improvements in terms of board diversity.

On climate change, we voted against 95 directors at 26 Climate Action 100+ companies for not adequately responding to the Climate Action 100 initiatives. Slides 33 through 37 provides additional detail regarding the work that we're doing in terms of leading the market on sustainability issues. We consider sustainability an integral part of managing our public equity as well as our total portfolio for long-term resilience.

If we could jump to slide 38, please.

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MANAGING INVESTMENT DIRECTOR NZIMA: Now, in terms of evaluating what is what and areas of refinement. As alluded to earlier, all the underlying strategies in the cap-weighted segment end positive excess return over the one-, three-, five-, and 10-year periods, with the exception of the Emerging Manager Program. Applying the lessons that we've learned from history can only enhance our ability to add value to the CalPERS portfolio. Additionally, we continue to optimize our technology and operating costs resulting in cost savings in the program.

In terms of areas of refinement, as Nicole alluded to, one of the things that we're looking at is the enhancement of the active risk allocation framework to facilitate an increased allocation to active strategies to take advantage of increased market volatility and further diversify the active equity strategies.

We're also working to refine the business process around active strategy, such as in contracting to facilitate the opportunistic deployment of capital.

If you move to slide 39, please.

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MANAGING INVESTMENT DIRECTOR NZIMA: So in terms of the priorities, the initiatives that we're looking at on a going-forward basis, we'll continue to execute on the Board approved governance and sustainability strategy and to influence the broader market when it comes to sustainability issues. We will work to thoughtfully build back our active equity strategies book, ensuring that it fits within the total fund mandate to efficiently harvest the equity risk premium. Earlier on, Nicole did refer to the fact that we cut active risk or allocation to active risk in 2019, and that has never been deployed back. So this is part of that effort in terms of deploying back some of that active risk.

We are actively engaging with some of our strategy partners to explore strategies which may help mitigate the growth orientation of the portfolio in the short term. We're looking at both defensive and value strategies. We'll also look at different region, and sectors, and factors to see if there are areas that can better weather the high inflation and rising interest rate environment.

That is all I had for you today. Thank you for the opportunity to share our team views. And I think I'll hand it back to Nicole.

CHIEF INVESTMENT OFFICER MUSICCO: Yes. Thank you, Simiso. We thought we'd try to keep this interactive unless you disagree, and pause between each of the presentations, so that as your questions are coming up on each of the programs, you can ask them, or is your preference to go through each of them and then save for the end? Whatever works best for you.

CHAIRPERSON MILLER: I have no requests for questions right at the moment.

Oh, there -- there I do.

CHIEF INVESTMENT OFFICER MUSICCO: Sure. Great.

CHAIRPERSON MILLER: Controller Yee.

CHIEF INVESTMENT OFFICER MUSICCO: There's just a lot, so we figured maybe we'd open it for questions in between each of the presentations.

CHAIRPERSON MILLER: There we go. Oh, okay. Controller Yee, then Director Pacheco.

COMMITTEE MEMBER YEE: Great. Thank you very much. I really like the structure of the presentation, so thank you for that thoughtfulness there.

My first question actually goes back to one of the slides, Nicole, that you had addressed, slide 17. And it had to do with the increase in investment fees. I just wanted to understand a little bit better. So we have the fees increasing to 21 -- just a little over 21 basis points this year, from 15.4 basis points last year. And just why the increase, since there was less AUM and the performance was much lower than the prior year.

CHIEF INVESTMENT OFFICER MUSICCO: I'll get Greg to give you more of the specific details, if needed, after my comment. But essentially, these aren't going to show up linearly. Often fees are called upon or paid as capital is being called. And we would have been in a very heavy deployment. In the last three years, you would have seen we've been deploying capital into those private markets. And so given how busy the markets have been, the opportunity sets that we've had, our managers most likely where -- what this is reflecting is that capital is being called and has been deployed, and therefore the fees are starting to get charged.

COMMITTEE MEMBER YEE: I see.

CHIEF INVESTMENT OFFICER MUSICCO: Now, that's not always the case.

COMMITTEE MEMBER YEE: Yeah.

CHIEF INVESTMENT OFFICER MUSICCO: Sometimes fees are paid on committed dollars, but other times they're paid on invested dollars. And so what I would say to you is what you should read from this is that we're very active in deploying capital into private markets --

COMMITTEE MEMBER YEE: Uh-huh.

CHIEF INVESTMENT OFFICER MUSICCO: -- which is what we're trying to do, because of the sins of past, if you will. And that number will be volatile and it will reflect our activity with third-party managers, which we need because of the size of -- of the pool we're trying to deploy --

COMMITTEE MEMBER YEE: Right.

CHIEF INVESTMENT OFFICER MUSICCO: -- in addition to until -- if and when we build up our own expertise in-house, we will need to leverage the expertise of third-party partners, where we'll get more bang for our buck, if you will, is if we do a good job at choosing the right partners and finding ways to do more with them, in a more cost efficient manner, like co-investing, which is what Greg and Sarah are spending a bunch of their time thinking through when we choose partners.

COMMITTEE MEMBER YEE: Sure.

CHIEF INVESTMENT OFFICER MUSICCO: What's the purpose of the partner? Do we see a path to doing more cost efficient deployment of capital, et cetera.

CHIEF INVESTMENT OFFICER MUSICCO: Okay. I don't know if Greg or Sarah if you guys had additional comments on that, but that's how I would read that chart.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: Yeah. I would -- I would just jump in with a couple of things really quickly, Madam Controller. Number one, the dashed line is the internal management -- or internal expenses and then solid line is external. So it's actually the total of those two that is the total expense load for the organization. So the total would get you to about 25 basis points, which is actually really cost advantaged relative to -- to really all of or peers.

The other thing is again, and this is to Nicole's point, orders of magnitude at the end of fiscal year '21, we had something like six percent private equity, something like 10 percent real assets, and something like zero private debt.

COMMITTEE MEMBER YEE: Right.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: And we know those are the more expensive asset classes.

COMMITTEE MEMBER YEE: Right.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: Fast forward a year, and part of it is it does have to do with the denominator, but part of it also just has to do with really strong deployment that you saw talked about in -- you know, in the sort of performance review. You get to the end of this fiscal year, and we're approaching 13 percent private equity --

COMMITTEE MEMBER YEE: Um-hmm.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: -- up to 13 percent real assets, and about a percent, percent and a half of private debt. And those are just the more expensive assets classes. So, you know, Greg talks about this a lot, we all talk about this a lot, you really want to think of net performance, net of expenses.

COMMITTEE MEMBER YEE: Right.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: But we would expect to see the cost go up for the -- for the foreseeable future, not the way that they were pre-financial crisis, but I would expect to see the costs go up in the handful of basis points as we get -- continue to get traction in the private assets.

COMMITTEE MEMBER YEE: No. I appreciate that. And I'm not looking for anymore granular. It was just kind of from our perspective looking at the increase just to see how -- kind of what's the framework within which we need to consider whether we should be concerned or not. Yeah.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: Yeah. Just real -- I mean you can see the focus that we put on --

COMMITTEE MEMBER YEE: Yes. There's a lot of -- lot of different --

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: -- on fees and the like.

COMMITTEE MEMBER YEE: Right. Right.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: And this continues to be a focus. And that's one of the reasons why I really like this chart is because it helps us --

COMMITTEE MEMBER YEE: Yeah.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE:

-- see where they're coming from and then also see, you know, what is AUM based and what is, you know, sort of, you know, capital deployment based.

COMMITTEE MEMBER YEE: Yeah.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: So this is definitely private assets is the theme here.

COMMITTEE MEMBER YEE: I appreciate that. And I don't know if, Greg or Sarah, you wanted to add anything else, but I'm not meant to be --

MANAGING INVESTMENT DIRECTOR RUIZ: Yeah. I'll just -- I'll just add a quick point on private equity. And I think Nicole and Dan laid it out well, but within private equity, what we're seeing -- there's an important distinction, just the absolute fees being paid, and then the fees as a percent of our assets under management. What we've seen now for a couple years, which is continuing this year, is we are -- the absolute fees have gone up, because we're deploying much more capital, but the fees as a percent of our AUM in private equity continue to decline, as a result of the increased scale we have in co-investment. So that really is exactly what we're looking to drive and I would expect that to continue to happen going forward. But then we have these other areas within private markets that both Nicole and Dan hit on where we're deploying that are adding to the overall fee load of the entire fund.

COMMITTEE MEMBER YEE: Um-hmm. Got it. Okay.

MANAGING INVESTMENT DIRECTOR CORR: The only thing that I'll add is that management fees as a percent of assets under management we're flat over the year --

COMMITTEE MEMBER YEE: Right.

MANAGING INVESTMENT DIRECTOR CORR: -- but because of the outside -- outsized performance in real estate of 24 percent, a lot of the partners hit their incentive payouts. And so our incentive payouts were higher than they were in 2021.

COMMITTEE MEMBER YEE: Got it. Great. Very helpful. Thank you.

And then two other questions. And Simiso, I'm going to pose these to you. On slide 33, so just curious about why CalPERS voted against fewer executive comp proposals and compensation committee directors this year compared to last.

MANAGING INVESTMENT DIRECTOR NZIMA: Yeah. So if you recall, in 20 -- 2021, we reduced -- so we narrowed our benchmark, so that kind of reduced the number of companies that we have in the benchmark from about 12,000 companies to about 6,000 companies.

COMMITTEE MEMBER YEE: Yeah.

MANAGING INVESTMENT DIRECTOR NZIMA: So really we're voting on a fewer -- you know, we're voting on a fewer say-on-pay proposals because of that. And, you know, from a percentage perspective, we're looking at, you know, the 48 percent versus 54 percent. Ideally, you'd actually want to see that number come down, you know, over the years, because then that means that pay is aligned with performance.

COMMITTEE MEMBER YEE: Right.

MANAGING INVESTMENT DIRECTOR NZIMA: And hopefully, that's part of what's happening in terms of -- of that, but also part of it could be that -- you know, the smaller companies that we narrowed out for benchmark may be had -- sort of more challenged pay for performance alignment.

COMMITTEE MEMBER YEE: Sure.

MANAGING INVESTMENT DIRECTOR NZIMA: So it could -- it could be a combination of those both things.

COMMITTEE MEMBER YEE: Okay. Good. Well, hopefully it's an improvement in terms of the company's performance.

Okay. And then the other question is can you give a flavor perhaps on some of the 2023 shareowner proposals that may be contemplated?

MANAGING INVESTMENT DIRECTOR NZIMA: Yeah. I think the way we've approached shareowner proposals really is -- is twofold. You know, it's -- one is based on the -- on the themes that we're looking at, you know, climate action, if we're -- or corporate board diversity. If we are not getting traction from an engagement perspective, the next stage of accountability that we look at -- so if we don't get traction, we vote against -- we vote against, you know, directors where it's members of the nominating and governance committee, whether it's members of the risk committee for climate. But the next stage after that, in terms of accountability, is to -- actually to file shareowner proposals. So really it's dependent again on the issue of are we getting traction or not? And if we're not getting traction on that, then we file those -- the shareowner proposals.

The other aspect really is related both in terms of the -- the work we're doing, but also our partners, because sometimes we file proposals with partners. Some partners don't have the -- the ability or they don't have the infrastructure to be able to file a proposal like we do, so where we co-file with others and then run proxy solicitations. If you made a co- -- a few years ago -- I think three or four years ago we internalized the running of proxy solicitations to reduce the cost, and so we're actually able to run proxy solicitations internally, and more effectively, and cost efficiently. And so we use that path as well, where we trusted partners on issues that we care about whether it's human capital management or things like that, where we can co-file proposals with trusted partners with the understanding that we'll run proxy solicitations.

COMMITTEE MEMBER YEE: Okay. So --

MANAGING INVESTMENT DIRECTOR NZIMA: So I think we'll come back to the Board, I think, in March where we preview the 2023 season in terms of these are the things that we're looking at and so forth. And I think that we'll come back to the board in March.

COMMITTEE MEMBER YEE: Okay. No. I appreciate that. And I may have misread it as thinking that it was new areas versus, you know, those areas which we have been actually leaders in engagement. So look forward to the report going forward.

Thank you very much. Thank you, Mr. Chairman.

CHAIRPERSON MILLER: Okay. Thank you.

Next, we have Director Pacheco.

COMMITTEE MEMBER PACHECO: Yes. Thank you very much Chairman Miller. So my question is on -- actually on page 26. It's on the cap-weighted excess returns by strategy. And it's basically about the public equities and the Emerging Manager Program. You know, it appears to be consistently a distractor of performance. And I'm just wondering what -- what recommendations you may have on, you know, achieving better outcomes in that portfolio.

MANAGING INVESTMENT DIRECTOR NZIMA: Yeah. I think, you know, when it comes to the Emerging Manager

Program, I think we need as a team, not just the public equities side, but the total fund, really to take another look in terms of how the program is structured and whether we have the right partners in place or what is it that is causing the underperformance. This is something which, you know, my team, at least in public equities, is something which we want to dig deeper into, but I also think it's much broader than just the public equity side of things. This is something which I know Nicole is -- is in the process of hiring an MID for sustainable investments and this falls under that -- that drawer as well, so I'll defer to Nicole and see if she has any additional thoughts.

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. I would just say I think this is a good example of without a total fund lens on these programs --

COMMITTEE MEMBER PACHECO: Right.

CHIEF INVESTMENT OFFICER MUSICCO: -- these things can start to run -- run wild on their own.

COMMITTEE MEMBER PACHECO: Exactly.

CHIEF INVESTMENT OFFICER MUSICCO: And so the first question is is if we are going to do Emerging Manager Program, where are we getting the best risk-adjusted return? Where do we have the right skill set in choosing those managers? Where do we feel we're able to most move the needle? And all of those bits of the conversations need to go into the decision-making versus just assuming that there should be an Emerging Manager Program residing within the active program --

COMMITTEE MEMBER PACHECO: Right.

CHIEF INVESTMENT OFFICER MUSICCO: -- of Simiso's overall strategy. I mean, maybe there are better places for him to be thinking about taking active risk and that Emerging Manager Program could reside elsewhere. And so I think historically those types of decisions were done in a si -- more siloed manner and we're going to look at that through a different approach through a total fund lens.

COMMITTEE MEMBER PACHECO: Total fund lens. Thank you.

And the other question I have is on the page 35 and 36 on the CalPERS Board diverse -- diversity engagement. So I noticed the -- in the cohort, you know, we had a lot of like activity. We had -- we had a larger target. And then over time, from 2017 to 2020, it seemed to be -- you know, it seemed to have decreased. Is there -- is there a reason behind this or I'm just trying to understand these graphs more clearly.

MANAGING INVESTMENT DIRECTOR NZIMA: Yeah. Thank you. Thank you for the question and it's a good observation. You know, over time you actually want to see that -- this graph decrease, because what it says to you is that we have fewer companies that lack diversity on their boards. So if you recall, we started this engagement in -- initiative in 2017. And at that point, you know, there were, you know, 500 -- 504 companies in the Russell 3000 based on our criteria that led board diversity.

And so, you know, each year, if you get more companies added to the index, then we run the screen again to see if, you know, those companies lack diversity. So the decreases are actually a good thing, because it tells you that things are working. And this is supported again if you look at the targets relative to the companies that have actually added diversity after engagements. You look at, you know, the 2017 cohort, 90 percent of the surviving companies have added elements of diversity that they didn't have when we started engaging them.

And, you know, even the other cohorts, 2018, 2019, and 2020 you can see the numbers are really high means companies are getting our messaging and adding diversity to their boards. And that is why you don't see any cohort for 2021, because when we looked at those, the companies that we have that haven't added diversity, they're still the same companies that in the older cohort. There are no new companies that don't lack diversity that have come to the -- to the portfolio.

COMMITTEE MEMBER PACHECO: And when -- when you're talking about diversity, you're talking about just adding, you know -- in what respect is it, more gender, more minority, you know?

MANAGING INVESTMENT DIRECTOR NZIMA: Yeah. So, you know, technically when we started this initiative, what we used because of the lack of data, our criteria was to use gender as the identifier. But when we actually engage with companies, we engage them across all the spectrums of diversity, gender, race, you know, sexual orientation, and so forth. So we're actually broader in the engagement.

As the data improves, I think we'll be able to become more granular in terms of that. And we've been voting against boards where we feel they have -- they lack diversity, whether from an engagement perspective even just from a numbers perspective looking at their Board composition and feeling like they don't have a reasonable level of diversity on the Board.

COMMITTEE MEMBER PACHECO: That's wonderful. And just -- just a side bit, with respect to the infor -- of the companies that we have engaged with diversity and so forth, the information is being shared publicly or is it just -- I'm just trying to understand that whole process.

MANAGING INVESTMENT DIRECTOR NZIMA: We don't -- so our engagements with companies are private and confidential --

COMMITTEE MEMBER PACHECO: Right.

MANAGING INVESTMENT DIRECTOR NZIMA: -- so we -- you know, we engage privately. We -- you know, the only part that would be public would be when we vote against, you know, directors for lack of diversity, then we'll put that publicly, you know, in our -- in our voting portal or when we run a proxy solicitation -- where we have filed a proxy proposal and we're running a proxy solicitation, then that becomes public. But in terms of the actual engagement, we feel, and history shows us, that when we engage privately and confidentially, we tend to have -- it results, you know, better than if we just go and name and shame in public.

COMMITTEE MEMBER PACHECO: Absolutely. Well, thank you very much. That was -- that was very good. Thank you very much.

CHAIRPERSON MILLER: Thank you.

Next, we have President Taylor.

COMMITTEE MEMBER TAYLOR: Thank you. Thank you, Chair Miller.

I was going to ask a bunch of those questions, so never mind.

(Laughter)

COMMITTEE MEMBER TAYLOR: But I did want to ask Greg and he already sat back, but I did want to ask Greg what he thought about our ESG integration in the private equity and do we have an answer for the S? You know, we have -- I don't know, we have a lot of problems with the S in private equity, workforce issues, et cetera. Is there anything that -- I know you guys are working on integrating is. Is there anything you can expand on?

MANAGING INVESTMENT DIRECTOR RUIZ: Sure. We have been working to integrate ESG into private equity I think in a much more fulsome way. And the way we've approached it, and I can some more -- some more detail later, but we really have wanted to understand the state of play today. So there is a tremendous amount happening in the private equity industry where managers are embedding ESG factors more deeply into -- into their investing.

But as an allocator, we have not been able to see that with the level of clarity we'd like across our portfolios. So our approach has really been to better understand the data. And that's where we have worked to bring together a group, in the ESG data convergence initiative to really track ESG data in a standardized and longitudinal way, so that we can actually just see what's happening along these various factors. Our view is once we kind of have that real insight, then you can understand and we would expect the levers to move.

COMMITTEE MEMBER TAYLOR: Okay. Great. I appreciate that. And then Simiso, I appreciate your report on our ESG and our proxy voting. And I know that this isn't going to be your role next year, so -- and someone asked you -- I think Controller Yee asked you what your 2023 outlook was. Who's going to be directing that next year?

MANAGING INVESTMENT DIRECTOR NZIMA: Good question.

(Laughter)

MANAGING INVESTMENT DIRECTOR NZIMA: And, yes, you're right, that is not going to be my role. We are in the process of hiring someone --

COMMITTEE MEMBER TAYLOR: Okay.

MANAGING INVESTMENT DIRECTOR NZIMA: -- to backfill that position. We are hoping that at the next -- at the November IC, that individual will be here. We cannot, at this point, sort of, you know, be specific about that, because they're still technically working for another organization.

COMMITTEE MEMBER TAYLOR: Oh, yeah, yeah.

MANAGING INVESTMENT DIRECTOR NZIMA: But we have identified an individual, and they should be here by the next Investment Committee in November.

COMMITTEE MEMBER TAYLOR: Okay. Great. And -- so I want to tell you how much I appreciate you having the two roles and doing as much as you've done on our proxy voting, so -- and the work that you've done. So I just wanted you to know that we really do appreciate the work that you've done, while you were taking on your new role in global equity.

MANAGING INVESTMENT DIRECTOR NZIMA: Yeah, thank you.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: And, Madam President, while Simiso will hire a day-to-day director, he's still accountable for it, because it's still in global equity.

(Laughter)

COMMITTEE MEMBER TAYLOR: True.

MANAGING INVESTMENT DIRECTOR NZIMA: Yeah. I was going to say thank you for the kind words. We do have a great team, you know, in global equity, whether it's the portfolio management, you know, day-to-day implementation and management of the portfolio, the Governance and Sustainability staff, I -- you know, I'm here to represent the work that the team has done. So really, it's -- it's about the team, so -- but thank you. Thank you for the recognition

COMMITTEE MEMBER TAYLOR: Well, thank you very much. Thank you.

CHAIRPERSON MILLER: Okay. It looks like I have another question from Controller Yee.

COMMITTEE MEMBER YEE: Thank you, Chair Miller.

And, Greg, you mentioned the ESG data convergence project. And I don't remember but has CalPERS joined that ILPA Diversity Initiative?

MANAGING INVESTMENT DIRECTOR RUIZ: Controller Yee, so as I believe you're aware, I joined the ILPA board --

COMMITTEE MEMBER YEE: Yes.

MANAGING INVESTMENT DIRECTOR RUIZ: -- recently. We have not technically joined that initiative, but we actually are well underway with a strategy that we're kind of pioneering within our on portfolio.

COMMITTEE MEMBER YEE: Okay.

MANAGING INVESTMENT DIRECTOR RUIZ: It is still being developed, but I expect we'll be able to share a good bit more within the next six months. And I think -- I'm really hopeful that we may be able to kind of target diversity in a way that is particularly impactful, given our unique position as CalPERS within the private equity industry.

COMMITTEE MEMBER YEE: Okay. Yeah. I wasn't sure whether it would be helpful in terms of just emphasizing CalPERS commitment to DE&I with our general partners, but I -- and, yes, thank you for serving on that board on top of a full plate.

Thank you. Thank you, Mr. Chairman.

CHAIRPERSON MILLER: Continue.

CHIEF INVESTMENT OFFICER MUSICCO: Excellent. So thank you for that. Next up, we'll have Arnie and he will walk us through both the fixed income program and also is standing in for Jean Hsu and will discuss private debt. So we'll do a similar approach, we will have Arnie go through fixed income, pause, and then go on with the private debt program so we can get questions in.

CHAIRPERSON MILLER: Excellent.

MANAGING INVESTMENT DIRECTOR PHILLIPS: Good afternoon. Arnie Phillips, Global Fixed Income.

As Nicole mentioned, I will cover both global fixed income and the opportunistic area. They actually fit together quite well with opportunistic in primarily the private debt area largely being a diversified form of fixed income. So they're -- they're actually quite complementary and one of the reasons we're striving to get a larger allocation to private date over time.

So slide 41, which you have up there --

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MANAGING INVESTMENT DIRECTOR PHILLIPS: -- just highlights global fixed income is designed to be a pro -- to provide long-term equity diversification and to provide a reliable source of income and liquidity. This chart does show where the various product types land on the continuum of diversification, liquidity, and income.

And while we do still believe the long-term relationships apply, fixed income clearly has not provided the expected diversification since the onset of the Russia Ukraine conflict. And actually the majority of the interest rate moves occurred in about a two-month period following the onset of that conflict.

And interestingly, and not in a good way, it's really the first time in over 40 years where we've seen the entire U.S. Treasury index and the S&P 500 index both drop more than 10 percent in a year. And so, you know, going back -- I had to date it back to 1980, and this was the first instance where we saw those large moves in the same direction. Pretty strong correlations in the past moving opposite directions.

And it's kind of interesting because the entire U.S. curve has per -- U.S. Treasury curve has performed quite poorly. Even the five-year U.S. Treasury, which is below our U.S. Treasury index, we start seven years and out, has dropped nearly 10 percent this year in price, even with its relatively short interest rate exposure.

With the aggressive Federal Reserve interest rate hikes, we've actually seen the front end of the interest rate curve move much higher than the longer portions of the curve. The two-year Treasury yield is up nearly three percent in the last year with 30-year Treasuries up a little over one percent. So this has led to broad underperformance across the entire U.S. Treasury interest rate curve really regardless of the level of duration.

Next slide, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: This slide shows the capital market assumptions that were used in the last ALM cycle and also highlights what made the ALM process so challenging. The capital market assumptions for projected returns in fixed income are certainly much lower than they've been historically. And while our strategic portfolio is designed to have a long-term horizon, this year's fixed income returns have actually, you know, certainly been quite negative and quite disappointing.

Next slide, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: This slide just really shows how, you know, and talks about how volatile the asset markets, and as Lauren mentioned, just the overall global economy has been. And it certainly has increasing risk in all asset markets, including the fixed income markets. Trying to look forward, we do think those, you know, same factors will provide opportunities to tactically deploy assets, when managed through an active risk governance model that Nicole has put in place. So we are -- we are opportunistic that we can hopefully turn this into a positive.

Slides 44 through 55 provide a quantitative view of the global fixed income segments. And I'll highlight some of the pages. Slide 44 shows how global fixed income was structured last year. We had three distinct strategic asset allocation segments with over 95 percent of those assets invested in cost efficient internally managed strategies.

U.S. Treasury and high yield segments are designed to be relatively passive in nature. So you will see very little tracking error in the slides that come in the next few slides, because these segments were largely designed to match the indices risk characteristics.

Turning to slide 45, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: Our strategic asset allocation does include a long fixed income duration profile. Said another way, we have a lot of interest rate risk exposure. This is intentional in the strategic asset allocation and is designed to provide long-term drawdown protection against equity market drop. That risk exposure clearly did not work this year and resulted in a 16 percent loss for the U.S. Treasury segment.

Switching to page 48, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: This shows the spread segment, which is the one segment that we actively manage. It has also had very little tracking error this year, because we were not constructive on the markets. We have been and continue to be cautious about all the factors that Lauren laid out that are impacting the global economy and so we are positioned accordingly.

The relatively large interest rate exposure in the spread segment though did, along with the spread widening, did result in a relatively large absolute return underperformance this year.

On an excess return, performance versus the index, the spread segment continues to have very strong long-term data. And I would be remiss if I didn't note on this slide, Nicole noted, you know, a lot of our active risk has not been compensated in the past. This is one area that we do have very strong information ratio showing we have been compensated for taking risk in -- in the active markets and fixed income over time.

And we do have some ideas that we're working with Wilshire and the governance committees on some ways we think we can enhance that going forward.

Page 50, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: This just highlights what we've -- we've talked about already. You know, each of the individual sleeves of the spread segments have very solid long-term excess return performance versus the index, but we were relatively flat this year, given our depen -- given our defensive posture, which you can see on page 52, showing the spread segments, volatility, tracking error, and active positioning all at very low levels.

Slide 53.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: We transition to the high yield segment. It is passive in nature at the moment. So by design, we are largely matching the index risk characteristics. The high yield segment did have a challenging year, given that most risk assets underperformed during the year, which led to spread widening in high-yield markets.

And while it does have a lower interest rate exposure profile, the most of our fixed income exposures, as I noted earlier, the large interest moves in the shorter part of the interest rate curve did contribute to negative absolute returns in the high yield segment too.

Slide 55, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: This just highlights the passive nature of the high yield segment with volatility, tracking error, and active positioning metrics all at very low levels also.

Slide 56.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: This shows global fixed income, governments -- governance, and sustainability efforts, which really are embedded in global fixed income's daily fundamental analysis work. Our credit team is looking at every company we have, whether we want to be neutral weighting, overweight, underweight. And governance and sustainability we do believe leads to -- to performance. And so it is factor that every one of our analysts considers on every one of our companies.

Slide 56 does show some of the recent accomplishments in this area. We've incorporated some rating agency SG scores into the process. We've purchased a decent amount of sustainability linked bonds, and the credit team developed for use within all of fixed income an ESG questionnaire for all of our global fixed income external managers.

Slide 57, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: So global fixed income continues to be a strong long-term excess return provider and have successfully transitioned to the one team, one fund focus. But there's always efficiencies that can be incorporated into any process. And we're certainly working to improve the operational effectiveness in the new strat -- new strategic asset allocation segment, which now includes five segments, as opposed to the three we had in the past year. So we're working with other parts of the Investment Office to make these efficiency improvements.

Slide 58, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: For the current year, you know, we're going to continue to strive what we've done -- strive to do what we've done, which is provide long-term excess return versus the indices. We stand ready to help Nicole utilize our fundamental analysis expertise to assist the other areas of the total fund. This is likely to fit into the private markets on opportunistic, real assets, primarily probably the infrastructure side and then any co-invest opportunities that Greg may have.

And we're going to continue to search for ways to add innovative returns in the fixed Income markets. As I noted earlier, we are working with Wilshire in two different areas to get some data and solidify a strategy that will then go through the governance structure to hopefully add some enhanced abilities to provide some long-term return.

And then finally, you know, and I think very importantly, you know, we are cautiously optimistic that we're close to rebuilding some key staff losses. We did lose some folks in investment grade in our mortgage team and on our sovereign team. We're pretty far along in hiring some of those folks. And so I'm certainly much more optimistic than I was maybe two or three months ago when the -- the folks left and we've made a lot of progress in a short amount of time, so looking forward to getting the team back together.

So maybe I'll stop there before I move on to the opportunistic side of things and take any questions.

CHAIRPERSON MILLER: Okay. I have director Taylor. President Taylor.

COMMITTEE MEMBER TAYLOR: That's okay. You can call me Theresa too.

Thanks, Arnie. I appreciate it. Good -- the only thing that piqued my interest -- there was a lot. There was the interest rates that, you know, didn't pay us this time around. I get it. We're looking for better opportunities. I just wanted to ask, you developed an ESG questionnaire for external managers. So what is that?

MANAGING INVESTMENT DIRECTOR PHILLIPS: So it would be better answered by my credit team, but in essence, we want to -- similar to maybe what Greg is doing of reaching out to our manager every year and just getting an update on what they're doing in the area, what changes they've done. And if there's anything in there that maybe we can learn from to help our due -- help us do our internal job better. But it was really -- you know, the first time we've done it, we reached out to other parts of the organization that have been doing it for, you know, a time being. There didn't seem to be a reason to read the book -- rebuild the wheel if other folks were already doing it well. But we did a little bit of our own fixed income metrics to it. But really it's just to, one, show the external managers that we are watching, to show that we care about it, but also, you know, to get that feedback loop to hopefully learn something to do what we do internally better.

COMMITTEE MEMBER TAYLOR: So the data is what you're looking to gather, right?

MANAGING INVESTMENT DIRECTOR PHILLIPS: Yeah. And that -- that's a good point, because it seems like on a lot of these areas, the lack of standardized data makes comparisons challenging. And so, you know, we can at least start with our managers.

COMMITTEE MEMBER TAYLOR: Right.

MANAGING INVESTMENT DIRECTOR PHILLIPS: And then hopefully over time as we look to -- and some of the things we're working with Wilshire on, we'll add additional managers to build that template to then get the information from them. We may learn something unique from them that then, you know, we'll add to it. I view it as a very dynamic template. It is designed to acquire data, but we'll change as needed.

COMMITTEE MEMBER TAYLOR: I appreciate that. I think also leveraging the sustainability group would be helpful for the questions for sure, because they -- they're on the ground with, you know, whatever company that they're talking to from a stakeholder, right, with whatever concerns there are. So I think that would be a good idea as well.

So thank you.

CHAIRPERSON MILLER: Okay. Thank you.

I don't see anymore questions from anyone on the team, and so is that about a wrap for that?

MANAGING INVESTMENT DIRECTOR PHILLIPS: So I'll move to Jean's area. Let me get --

CHAIRPERSON MILLER: Great.

MANAGING INVESTMENT DIRECTOR PHILLIPS: -- back to my notes here.

So, yeah, so Jean gave me her talking points.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: And I'll go through them. If we get into very detailed questions, I have a couple folks from her team here that will be prepared to answer.

So slide 60, please. So we're there.

So this highlights the main roles of the Opportunistic Strategies Group, which is primarily made up of private debt and our Low Liquidity Enhanced Return, or LLER, Program, which in aggregate are designed to harvest an illiquid -- illiquidity premium, produce current income, and to invest opportunistically.

So each sleeve has a similar but independent mandate. LLER is intended to harvest the illiquidity premium of investments that have a remote probability of principal loss. Opportunistic strategies focuses on investments that are either perceived to be undervalued or outside the strategic asset allocation. Important to note that private debt was initially incubated under the opportunistic strategies, until it was given a strategic asset allocation in the recent ALM work.

Private debt does seek to generate attractive risk-adjusted returns driven by the illiquidity premium and the complexity in originating underwriting and structuring of private loans. Private debt does complement the private equity program, since investments tend to be at the capital -- at the top of the capital structure and generate current income.

But it also complements and diversifies our global income assets. Given private debt's largely floating rate interest exposure, which was a huge positive this year, as opposed to the longer duration interest rate exposure in our global fixed income.

Private debt is also diversifying relative to global fixed income in that it is not designed to be a liquidity provider, like most of fixed income. So it should be able to produce higher, long-term returns. And those benefits both to private equity and to global fixed income are why it ended up as a five percent allocation in strategic and why we desire to have more of it.

So slide 61, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: So this chart illustrates the capital market assumptions for private debt. And private debt does have one of the most attractive risk-adjusted return profiles among the asset classes, and is one of the few asset classes that actually has an expected return above the required rate of return, and obviously looks completely different than the fixed income assets towards the bottom of that chart. So again, showing the attractiveness and why we would like more of it.

Slide 62, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: So this chart shows the allocation as of June 30th. And for the LLER Program, we were able to build the portfolio from about seven billion to almost 12 billion in the last fiscal year, which is the reason it is now the dominant portion of the overall portfolio. In the past two years, Jean's team has been able to deploy about six billion of the private debt program, so it accounts for about 34 percent of the Opportunistic Strategies, and is a -- we're estimating it should be able to grow to about 13 billion by the end of this fiscal year. And then this slide just highlights the consistency and diligence it takes to deploy assets in the private market. It takes time to scale in these markets, but we do think it's worth the effort and the diversifying benefits we will get from it.

Slide 63, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: So diving into the performance of the sleeves, starting with the top left in the LLER Program, it continues to contribute to the total fund with an outperformance over its benchmark over three, five, and since inception. And all that is despite the challenging market environment over the past year. Jean's team does not believe there is any credit concern in the portfolio and we do expect a positive contribution to excess return once the market stabilizes.

Moving on to the opportunistic section. Currently, it only has two public market dislocation funds. This sector has generated an outperformance of 7.4 percent over its benchmark. The team was able to activate these funds during the onset of the COVID pandemic, which enabled CalPERS to capture attractive opportunities during that market dislocation. And despite the challenging market environment during the latest fiscal year, the funds were still able to generate a 6.4 percent return.

And then finally, looking at the performance of private debt, it has generated meaningful outperformance of 300 basis points over the seven percent benchmark. Although the program is still relatively small, the performance over the last fiscal year through a turbulent market environment highlights what we think is the attractiveness of the asset class in our strategic asset allocation.

Slide 64 --

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MANAGING INVESTMENT DIRECTOR PHILLIPS: -- you know, highlights some of the concerns. Really in private debt the concern is really around the underlying borrowers' earnings and their ability to service their loans. And considering, you know, the impacts of the rising interest rate environment and the ongoing inflation challenges that the markets are anticipating and dealing with right now.

Private debt does expect to continue to get attractive opportunities deploy as opportunities that historically may have gone to the public markets will fall into the private market side. So Jean's team is ready to take advantage of that.

Slide 65.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: This deals with the governance and sustainability section of what Jean has been working on. Jean has engaged her external managers to see how they incorporate ESG into their investment decisions. And Jean wanted me to highlight two examples of things that they've seen that they -- they are thankful for and really appreciate the managers doing. One of the managers has embedded a mechanism into their structure that will lower rates if they meet certain ESG criteria. And another manager took the initiative to be Article 8 compliant, which requires them to demonstrate and act with good governance practices. So probably similar to what Greg is doing, it's maybe not quite as mainstream there, but Jean is working to make it more mainstream.

Slide 66.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: You know, as we alluded earlier, the private debt area has deployed six billion. They've made about 20 billion in commitments. And the LLER Program has grown to about 12 billion.

In terms of areas for further refinement, Jean recognizes they need additional resources to sustain the current deployment pace and importantly require a different set of talent to further capture the economic benefit through co-investment opportunities.

And then finally, the team does realize they -- they will need further technological assistance to improve the existing infrastructure to help better understand the exposure, performance, and risks that are in the private debt portfolio.

Slide 67, please.

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MANAGING INVESTMENT DIRECTOR PHILLIPS: So going forward, Jean's team is focused on four main areas. The first is putting together a budget and a resourcing plan to achieve the five percent strategic asset allocation, which is a -- will require a larger amount of work on her team. The second is a establishing a formal review process for existing investments and strategies to better understand their risks and opportunities.

The third is deploying the technological -- technology enhancements that we talked about and improve the compliance monitoring.

And then finally, they'll just continue to deploy capital to meet that five percent strategic asset allocation. And with that, you know, Dan, Nicole and I are ready to take questions. And if you get weedy we'll bring up Jonathan and Ryan to -- to answer those.

CHAIRPERSON MILLER: Okay. I'm not seeing any questions from the Board, but I did have a -- kind of a comment, but for anyone. I'm really encouraged at seeing the way we have -- we've kind of incorporated and aligned ourselves in terms of ESG efforts throughout the organization, but I'm seeing this real movement toward actually integration of it all.

And I'm just wondering how -- how are you taking that all on and how are you going to kind of take the -- those individual aligned efforts that were kind of here and there, and bring them all together, and kind of conform them to some sort of a constancy, and priority, and coordination, so that we really get that consistent integration over time along with these cultural changes.

CHIEF INVESTMENT OFFICER MUSICCO: Yeah. Thank you for the question. I think it starts off with what we chatted about early on where bringing this role, this head of sustainability into the INVO office, me showing tone from the top that this is a huge priority for us. It's woven into our nine business objectives. And so the profile of the individual I'm putting a lot of value on the potential candidate for this role of MID of sustainability for someone who's had that task of taking pockets of greatness across an organization and finding a way to integrate it all, so that we too can do the same thing.

And so, in short order, you know, we're in the final strokes of panel interviews. We've got some great candidates for this MID of Sustainability. But one of the things I've asked each of the panelists to do is to spend time with these individuals to make sure that they've been in that hot seat before of getting buy-in and pulling together these different programs that often reside in pockets at different stages of their own evolution and making sure that they've had that experience of pulling it together.

CHAIRPERSON MILLER: Yeah. Will that work also be part of the Committee structure in the review or will it perhaps be a separate committee for oversight, and again coordination of harmonization of all those efforts?

CHIEF INVESTMENT OFFICER MUSICCO: Yeah, there's six or seven legs to the mandate in mind for this MID of sustainability. Some of those bits of the mandate would find airtime at our Administration Committee meeting. Some of those bits would find time specifically in the Risk Management Committee or the Total Fund Portfolio Management, and some would find time within the Underwriting Committee.

So to answer your question it's yes. It just depends on which part of the mandate, because they are -- it is multi-faceted. And that's why the individual -- you know, finding the right candidate to oversee this program, it's a tricky one, because we really need someone who's been able to have that executive presence and that experience of pulling together programs that often reside, but also to have experience in the investing side, have the experience in the generating, creating strategy side.

And so -- and the -- the great news is is we actually have a few candidates who do show, you know, great experience in a number of those areas. And so for us now, it's just who's going to fit best culturally for CalPERS. And so we've -- we've made some great traction there and I'll really excited about the potential candidate base for this.

CHAIRPERSON MILLER: Great. Thank you.

CHIEF INVESTMENT OFFICER MUSICCO: You're welcome.

CHAIRPERSON MILLER: Well, thank you for the -- the presentation. It's been very encouraging and enlightening. And at this point, I guess we'll move on -- well, I'm thinking in terms of timing. We're just about due -- we've been at it again for about two hours. We're just about due for a break and then have lunch coming right up. So I think it may be wise for us to just take our break and then roll into lunch and convene for 5D at about 2:15.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: Sorry, Mr. Chair. We do still have two more asset classes as part of 5C.

CHAIRPERSON MILLER: Yeah. Yeah.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: We've got the two private asset classes.

CHAIRPERSON MILLER: Yeah. Let's see. Yeah. Well, we'll continue and then maybe see what time we wrap and head to lunch, but we do need to take a break pretty soon. So, okay.

CHIEF INVESTMENT OFFICER MUSICCO: So we'll carry on then. Maybe what I'd ask then is the two private asset classes that we have coming up, we -- you've had the pleasure of seeing a lot of over -- over time. And so I'm sure that the team won't mind, but I'm going to ask that they accelerate through. This way it leaves us almost --

CHAIRPERSON MILLER: We don't nee to curtail it, because we've got -- you know, we've got the time. I'm just trying to be cognizant of when we -- when we take our breaks, so...

CHIEF INVESTMENT OFFICER MUSICCO: I'll just have them be thoughtful of which pages they land on and leave time for the presentation -- or sorry, for the questions.

Okay. We'll carry on then. Thank you.

CHAIRPERSON MILLER: Thank you.

MANAGING INVESTMENT DIRECTOR RUIZ: Okay. Good afternoon.

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MANAGING INVESTMENT DIRECTOR RUIZ: And thank you for the opportunity to provide the annual program review of the private equity asset class. I'll start with and overview of the role of private equity in our portfolio. Then we'll move into a discussion of the market environment, asset class performance, and how we are embedding sustainability more deeply into our program.

I'll conclude with a brief assessment of the program as well as a look forward to priorities for the coming year.

So on slide 71 --

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MANAGING INVESTMENT DIRECTOR RUIZ: -- we touch on the core role of private equity in our portfolio. And that is to generate returns in excess of public equity through investing in private companies. The program is guided by our long-term priorities, which include forming deep partnerships with high quality managers, ramping our co-investment program, and embedding data into all aspects of our program and decision-making.

On slide 72 --

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MANAGING INVESTMENT DIRECTOR RUIZ: -- we highlight the current market environment. As Lauren mentioned earlier, there are Macroeconomic headwinds which have led to a significant market pullback since the highs experienced in 2021. While private equity valuations shift more slowly than public equity, the underlying businesses face the same environment. And we expect the absolute return of private equity to decline in the coming quarters.

At the same time, we see opportunity. The valuation environment for deploying capital is more attractive in times of distress, so we will seek to maintain consist -- a consistent pace of capital commitments, opportunistically look to add high quality managers, and continue to ramp our co-investment program. Our goal is to remain consistent in our approach through all parts of the cycle.

On the next slide --

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MANAGING INVESTMENT DIRECTOR RUIZ: -- we give an overview of the private equity program, including asset class performance. In any discussion of the private equity asset class performance, I believer there are two important principles to consider, the first is time. So the goal of investing in private equity is to generate long-term capital appreciation. This leads us to focus on longer term performance more than individual year performance.

The second principle is measurement points. There are a number of complexities in assessing private equity stemming from the fact there that is not an investable benchmark, as you have with public equity. As a result, we engage multiple points of measurement including performance relative to our policy benchmark, the peer benchmarks, and absolute performance.

If I could point your attention the top right hand chart, we lay out private equity performance for the 10-, five-, three-, and one-year time periods, denoted by the blue bars in the chart. To ground you in the numbers, private equity generated a 13.5 percent return over the past 10 years, 15.7 percent return over the past five years, 18.3 percent over the past three years, and a 21.3 percent over the past year. Now as a reminder, private equity performance is based on 3/31 valuations.

Relative to last year, private equity performance has improved on an absolute basis across the 10-, 5-, and 3-year time periods. We've also laid out the policy benchmark denoted by the gray bars in that same chart.

You can see that private equity outperformed the policy benchmark for the one-, three-, and five-year time periods and underperformed for the 10-year time period.

Last year, the private equity portfolio underperformed the policy benchmark for all time periods.

On slide 75 --

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MANAGING INVESTMENT DIRECTOR RUIZ: -- we've laid out CalPERS private equity performance relative peer benchmarks, both Cambridge and State Street. I would note that these are -- that these returns are represented on an internal rate of return basis, which is consistent with how these peer benchmarks are reported. Here you can see CalPERS Private Equity Program has underperformed peer benchmarks across nearly all time periods, in many cases by substantial margins.

As we decompose our performance along various dimensions, we affirmed our assessment that the underlying drivers of underperformance remain the same, a lack of consistency, diversification, and cost efficiency. We are addressing these issues one by one. We've continued to commit capital in line with a methodical pacing plan to help embed consistency into our program in a way that will contribute to outperformance over time.

For diversification, we are actively broadening the Private Equity Program's exposure to the middle market, growth, and venture segments. And we've established new relationships with high quality managers in each of these segments. In regard to cost efficiency, we are scaling our co-investment program and have strong traction supporting our managers as an efficient co-investment partner.

While we expect absolute returns in private -- in the private equity program to decline in the coming quarters, we believe a consistent execution of our strategy focusing a methodical capital commitments, diversification across segments, and ramping our co-investment program will generate durable outperformance versus our benchmark over the longer term.

On slide 76, we pivot --

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MANAGING INVESTMENT DIRECTOR RUIZ: -- to touch on ways in which we have been working to embed sustainability more deeply into our program. And I'd like to take a minute here to go into a little more depth on the ESG data convergence initiative, or EDCI for short. This initiative was born from a simple problem. Despite the significant gains in integrating ESG factors into private companies, allocators like ourselves were unable to track standardized ESG data across their private equity portfolios.

So to address this problem, we convened a small group of allocators and general partners to see if we could do better. Our north star was and remains data. We wanted to see if we could agree on ways to track a limited number of critical ESG metrics across a small group of private companies. The traction the EDCI has gotten has materially exceeded our expectations.

Since formally launching the initiative about a year ago, we have expanded from a small initial group to over 215 allocators and general partners representing 24 trillion in assets under management and tracking ESG data for over 2,000 portfolio companies.

To our knowledge, this is now the largest data set of ESG metrics for private companies and we look forward to continuing to drive this initiative forward in the months and years to come.

In closing, I'll hit on slide 77 and 78 --

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MANAGING INVESTMENT DIRECTOR RUIZ: -- which look back on the prior fiscal year and forward to the current fiscal year.

Last year was a highly productive year for the Private Equity Program. We were able to deepen and expand our team capabilities and improve the quality of our portfolio through establishing new manager relationships and scaling with existing high conviction managers.

Further, we continue to build our co-investment program leading to lower aggregate program fees and closer connectivity with our partners. We also completed a secondary sale and we've see a step-function increase in our ESG engagement.

For the current fiscal year, we remain focused on deepening our core competencies focusing on manager and company underwriting, and developing differentiated knowledge in certain areas, while we will also continue to expand our co-investment program and our focus on sustainability.

Thank you for the opportunity to provide this update.

CHAIRPERSON MILLER: Great. Thank you for the update. I have a question from President Taylor.

COMMITTEE MEMBER TAYLOR: Thanks Chair, Miller. I think the only -- I am on. Okay. I think the only question I had -- I appreciate your whole report, Greg. And I -- I look forward to, as we continue to ramp-up, that we will continue to increase our revenue from private equity. My question is you're -- we are in the ESG data convergence program. We got -- and you stated something -- how -- I didn't quite get how much data we've gotten so far. I know it's only been active for like six months or so.

MANAGING INVESTMENT DIRECTOR RUIZ: Yeah. We formally launched it a year ago, but at that point we had a very small number of groups participating. So we went from call it 15, 16 groups to over 215 groups. And we now have data for these metrics captured in a standardized way across over 2,000 underlying portfolio companies.

COMMITTEE MEMBER TAYLOR: And that's going to help us institute our ESG program, right --

MANAGING INVESTMENT DIRECTOR RUIZ: Correct.

COMMITTEE MEMBER TAYLOR: -- throughout the --

MANAGING INVESTMENT DIRECTOR RUIZ: Correct.

COMMITTEE MEMBER TAYLOR: -- private equity. The only other question or maybe statement I want to make here is promoting broad shared employee ownership models -- excuse me -- in private equity through our work with ownership works is a great thing, except that you -- I can't even imagine most companies are going to want to play that game. So I would hope that we have other avenues rather than just this one model from I believe it's KKR of the ownership works, such as in KK's R -- KKR's own other funds, they aren't working with unions to unionize. So I don't think it's a only, you know, ownership works and not working with unions. It has to be a broad, you know, spectrum of resolutions for the S in ESG for workers and workforce issues. So I hope that's something else you're looking into as well.

MANAGING INVESTMENT DIRECTOR RUIZ: Yeah. I think what you'll see from us, and one risk of highlighting an individual thing is it may inadvertently suggest that a focus is only on that. But I think what you're seeing for us is we are working to engage much more broadly across these areas relative to what we've done historically. So the data convergence initiative is a big part of that. Ownership works is a part of that. Earlier we touched on some of the -- it's more nascent, but I'm really excited to report soon some of the work we're doing on diversity. So I think you'll see us continue to try and take on significant areas like this and embed them in a much more deep way in what we're doing.

COMMITTEE MEMBER TAYLOR: That's awesome, yeah. I think an RCP type policy using that date -- data that you guys are getting would be a really good idea as you're underwriting these -- the new funds and stuff, because I think as we're looking at it, you want to see DE&I, you want to see climate action in these private equity programs, and you want to see workforce issues taken care of, because those are the headline issues that come back to the Board.

MANAGING INVESTMENT DIRECTOR RUIZ: Yep.

COMMITTEE MEMBER TAYLOR: So I appreciate it. Thank you.

MANAGING INVESTMENT DIRECTOR RUIZ: Yep.

CHAIRPERSON MILLER: Okay. I see no more questions or requests to speak from the Board.

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MANAGING INVESTMENT DIRECTOR CORR: So I'll -- I'll cover Real Assets. To recap the fiscal year 21-22, I'm pleased to communicate the real assets team has had an active and productive year. It marks the first team the year's implementation of the five-year strategic plan that was approved by this Committee in July of 2020 -- 21.

Three key tenets of the plan included deploying capital at scale ina disciplined manner to manner to meet the total fund strategic asset allocation target, growing our infrastructure program by sourcing and partnering with market-leading managers, and expanding our business model to include commingled funds and co-investments accounts while maintaining a continued focus on separate accounts.

Go to slide 82, please.

CHAIRPERSON MILLER: If you can slow down just a tiny bit.

MANAGING INVESTMENT DIRECTOR CORR: Sorry.

CHAIRPERSON MILLER: I'm having a hard time keeping up with you.

(Laughter)

CHAIRPERSON MILLER: It's exciting stuff though.

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MANAGING INVESTMENT DIRECTOR CORR: The role of real assets specifically providing predictable cash yield drives the focus on core assets that offer resiliency through cycles. The real estate portfolio is concentrated in well located assets with defensive characteristics. And the infrastructure portfolio is comprised of essential assets with predictable revenue models.

Consistent with the strategic plan, the team continues to focus on deploying capital at scale, while maintaining high underwriting standards to achieve and maintain the strategic asset allocation.

Move on to slide 83.

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MANAGING INVESTMENT DIRECTOR CORR: Areas of concern for the real estate program include increases interest rate inflation and a slow down in consumer spending, which have led to some repricing in the markets. Early evidence of this repricing is shifts in valuation metrics. Discount and cap rates are expanding and rent growth and leasing assumptions are moderating.

Furthermore, there remains uncertainty related to long-term negative impact COVID has especially on office and certain transportation assets.

Some themes that we're observing, investors continue to be interested in private markets, which has increased competition for assets. The current dry powder for the real estate and infrastructure area is in excess of $600 billion. Investors are altering their portfolio of construction and targeting essential assets such as renewables and long-term contracted assets with inflation protection. Multi-family and industrial are the favored asset real estate sectors due to their essential nature.

Moving on to slide 85, I'll cover performance

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MANAGING INVESTMENT DIRECTOR CORR: Real asset -- real assets is main -- is -- real assets is meeting the return expectations set out by the capital markets assumption approved by the Board. It is also living up to the role by providing stable income return. Over the one-, three-, five-, and 10-year periods, the income return was approximately three percent. Although real assets -- the real assets portfolio has shown strong absolute returns, it continues to underperform the real assets policy benchmark, which has been driven by the outsized one-year performance in industrial and multifamily of 55.4 and 36.1 respectively.

Core real -- core real assets outperformed the benchmark over the three-, five-, and 10-year periods and real estate outperformed the benchmark in the three- and 10-year periods.

Though infrastructure delivered strong absolute return of over 14 percent, it underperformed the real assets policy benchmark. There continues to be a mismatch between the infrastructure portfolio and the real assets benchmark. This is something that we will work total fund to address in the future.

Moving on to slide 87.

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MANAGING INVESTMENT DIRECTOR CORR: Real assets sustainable investment objectives have primarily been focused on integrating ESG risks and opportunities into the investment process. Along those lines. We continue to evaluate emerging tools to better assess physical and transition risks associated with climate change and research opportunities associated with energy transition.

The energy optimization initiative provides a systematic approach for identifying attractive opportunities that reduce carbon intensity and meet our return expectations. There continues to be broad participation from our managers and benchmarking sustainable practices through GRESB.

Moving on to slide 88.

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MANAGING INVESTMENT DIRECTOR CORR: After the GFC, the focus of real assets was transitioned to core assets because these assets provide predictable income streams that much well with our longer-term liabilities, protection against inflation and price volatility, and resiliency through business cycles. Over the past year, staff successfully deployed capital at scale. Our preference remains to invest in separate accounts where we have more control, transparency, and favorable fee structures.

In Real estate, assets are predominantly owned through separate accounts where we have deep strategic partnerships with sector specialists, many of which are long tenured with CalPERS and over 20 years. In our separate account, CalPERS retains key rights, which provide us better alignment with our managers. These include the right to remove the manager, control leverage levels, and transfer assets, and the ability to extinguish allocations. Separate accounts have enhanced our performance through economies of scale reducing fee loads, expertise from sector specialists, and unique fee designs, which rewards managers when their performance is consistent with the role of real assets.

Infrastructure, we've expanded our manager bench through strategic relationships. We invest in commingled funds with co-investment components with market-leading managers. Going forward, we will work with total fund to address the infrastructure benchmark mismatch, where we are currently benchmarking infrastructure performance against a real estate benchmark.

A priority for the current year is to advance the strategic plan implementation through -- including human capital and technology resource planning.

To conclude, I would like to underscore the importance of maintaining a disciplined and consistent approach to the deployment of capital. Our focus on separate account aligns manage -- with aligned managers and core stabilized assets positions the portfolio defensively allowing it to be resilient during periods of market uncertainty.

As we look back, we have made good progress implementing the strategic plan, but there is more work to do. Thank you and I'll now take questions.

CHAIRPERSON MILLER: Okay. Thank you.

Very encouraging, particularly the continuing impressive performance of the core real estate stuff.

So I have a question from Director Willette.

COMMITTEE MEMBER WILLETTE: Thank you.

CHAIRPERSON MILLER: Hang on. Let me try it again.

COMMITTEE MEMBER WILLETTE: Thank you, Chair Miller. Thank you again to the staff for such a really thoughtful and excellent presentation today. I know we're nearing the end, but I just -- as noted earlier, it's been said a few times, I really appreciate the -- our leadership on ESG integration into all aspects of the work we do and specifically here in the real estate -- assets, as noted in the Responsible Contractor Policy too. And it does speak on -- I guess it's slide 87 actually, it notes the GRESB, which, if I understand correctly, helps establish ESG standards in real estate. And so I'd like to -- I'd like to request. I know we're going to talk about the RCP Policy more in November, but if you could talk about how the GRESB addresses our ESG work and aligns with our RCP work.

MANAGING INVESTMENT DIRECTOR CORR: Yeah. So the GRESB questionnaire is actually quite long and the managers spend a significant amount of time responding to those questions. I can work with staff to get some additional information to come back to you with that, if that's the direction from the Chair.

CHAIRPERSON MILLER: Yeah. That sounds like a good direction from the Committee for next time and we can have a little more fulsome discussion at that point.

COMMITTEE MEMBER WILLETTE: Thank you so much.

CHAIRPERSON MILLER: Okay. I'm seeing no more requests to -- for questions from the Board. So I think that -- does that conclude 5D?

Okay. Again, thank you all for just -- I can tell how much work went into this and it reflects all the fine work that's been going on for months, and just really looking forward to, you know, when we hear more of the fruition of these new efforts. And I know that particularly culture change is a -- certainly a long-term project, but I think we've -- we've got such a strong culture to build from and such a, you know, exciting new direction and new leadership, so we're looking forward to great things in the coming days.

So at this point, I think we will break for lunch and we'll reconvene -- it's 1:30 now, say 2:45? Does that sound good to everybody and with no objections we'll --

Okay. So -- yeah. They're for the end, because they're F. Yeah.

So okay.

CHIEF EXECUTIVE OFFICER FROST: Chair Miller, what -- what time for reconvening?

CHAIRPERSON MILLER: 2:45.

CHIEF EXECUTIVE OFFICER FROST: Okay.

VICE CHAIRPERSON FECKNER: They can't put that and block people's way.

CHIEF EXECUTIVE OFFICER FROST: What's that?

CHAIRPERSON MILLER: Oh, yeah. They're -- yeah, people have to able to get out.

COMMITTEE MEMBER TAYLOR: Do you mean 2:15. That's 45 minutes.

CHAIRPERSON MILLER: Oh, yeah, 2:15. Yeah. 2:15.

CHIEF EXECUTIVE OFFICER FROST: 2:15, I was wondering, because that would be an hour and fifteen.

CHAIRPERSON MILLER: Forty-five minutes. Yeah.

CHIEF EXECUTIVE OFFICER FROST: Okay. Great, 45 minutes. Thank you.

CHAIRPERSON MILLER: Yeah. Okay. We'll be back at 2:15, so we're adjourned for now. We're breaking for now.

COMMITTEE MEMBER TAYLOR: Recessed.

CHAIRPERSON MILLER: Recessed.

COMMITTEE MEMBER TAYLOR: There you go.

CHAIRPERSON MILLER: That's the word.

(Off record: 1:31 p.m.)

(Thereupon a lunch break was taken.)

AFTERNOON SESSION

(On record: 2:16 p.m.)

CHAIRPERSON MILLER: Okay. Let's end our recess and reconvene. If everybody would take their seats, we'll get started, and we'll jump back into information agenda items with 5D, the CalPERS trust level review consultant report and annual program reviews.

(Thereupon a slide presentation.)

MR. TOTH: Good afternoon. Tom Toth With Wilshire advisors. Pleasure to be speaking with everybody this afternoon. We've had, I think, a very fulsome discussion in terms of performance, so I'm going to try to focus on just a few slides around performance which I hope will really be more additive to what staff has just covered so in Item 5D in attachment 1, if we could flip to page 22.

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MR. TOTH: Hopefully, got my page numbers right.

Perfect.

So these next two charts that I wanted to -- to illustrate, I think provide a graphical description that helps you got a sense for consistency. And so what we're looking at here is a rolling three-year chart of active performance, so that is performance plus or minus the benchmark.

And so what you can see from 2013 through 2016 is that broadly active return averaged about a positive 25 basis points or so. However, from 2016 to about the middle of 2021, that active return was averaged closer to a negative 25 basis points. And more recently, you can see in the far right side of that chart, that's moved back to a positive 25 basis points. And my point here, and I think it's import -- an important one based on the discussions that we've had is that the active returns have been inconsistent, being above for a period of time, then below, kind of averaging out to sort of close to -- close to zero.

And the ambition of a more targeted active risk taking is to improve that consistency and ideally shift those results up, such that you're seeing consistent outperformance relative to the benchmark kind of across time. To use some financial jargon, you're looking to generate alpha relative to your beta asset allocation.

So on page 23, this is a similar chart, but this looks at that active risk result. So this is the rolling tracking error of the portfolio on a three-year basis over that same period of time. And as you can see going back to 2012, that tracking error was north of two and a half and has steadily declined over time to a low of about one percent in mid-2019. Now, subsequently, that has climbed back to about one and three-quarters percent. That has been driven almost entirely by the active risk associated with the private assets within the portfolio, as staff alluded to earlier.

The actionable tracking error or the amount that is more readily controlled by staff through active tilts within the public portfolio is currently quite low at about 0.1 percent, or 10 basis points. So there is significant room to increase that active risk taking and stay well within the Board's limit of one percent actionable tacking error or actionable active risk.

So those are the two slides that I wanted to cover here. I think it kind of Illustrates a lot of the points that were made in the much longer conversation with staff, but let me stop there and see if there are any questions.

Okay.

CHAIRPERSON MILLER: Not seeing any.

MR. TOTH: Fantastic.

So Attachment 2, I won't ask you to turn to. That is our broader performance report that is created independently of -- of the work that staff does. I actually will move us to Attachment 3, which is getting into the program reviews and the work that Wilshire does in terms of evaluating the efficacy of some of those programs.

And maybe before we dive into some of those key points, I thought it would be helpful to provide some background on these write-ups for the benefit of new members and may -- and maybe or refresher for those that have seen this before. Our annual program reviews are structured very similarly to the way that Wilshire evaluates external money managers. So focusing on facets like the broader organization, the team that is implementing the portfolio, how they gather differentiated sources of information and use that to come up with forecasts for security performance, and then taking those forecasts and creating a portfolio, so a portfolio construction score. And then how do they implement that portfolio within the market, so implementation and attribution. And our scoring is tiered into deciles. So you can think about that as basically one through ten, where the deciles, the first, second, third, and fourth deciles are above average, fifth would be considered an average process, and then below -- below average.

And we do correspond those deciles to letter grades, which you might have seen in the appendix, where the first and second deciles are A rated, third and fourth B rated, and so forth.

And so these are really meant to provide the

Board with an independent look at the investment teams really across the portfolio. And I'll focus these initial comments on kind of that high level organization before we delve into the -- the various teams. In past, Wilshire reviews have highlighted our concerns about staff stability. As everyone knows, a successful investment program really requires a true long-term investment horizon, and that comes from a consistent and enduring investment philosophy. So stability at the senior level of any investment organization is really how you build that enduring investment philosophy.

And this year's overall organizational score has been increased, given the hiring of a new Chief Investment Officer. And the conclusion of that search, we feel removes a substantial distraction for the broader organization. And so Wilshire's evaluation and our score reflects that. Other changes that are -- that impacted our score are the appointment of the Interim Chief Operating Investment Officer, as well as the positive impacts from allowing both the DCIO and the MID of fixed income to resume focusing on their established duties as opposed to the interim roles which they have, I think, ably fulfilled over the last year and a half.

We do view the updated governance very positively with the establishment of those governance committees, which we talked about at length around Operations and Administration, Total Fund Management, and the Investment Underwriting Committee. The fact that these committees are made up of the senior investment professionals across multiple market segments really should provide a diversity of experience and insight. And we view that very positively from a management perspective.

And lastly, on the broader organizational score, we would expect that score to continue to increase, as we move through time and that stability continues to be demonstrated. So we didn't ratchet the score up dramatically from where it was to an A. We generally take a more gradual transition towards those higher -- those higher rated scores, as again time and stability continue to be exhibited.

I did want to highlight a risk around resource constraints for the Board and the Investment Committee. As you know, CalPERS continues to compete for talent in a very tight labor market. And this isn't a CalPERS specific issue. This is one that is impacting certainly many investment management organization and frankly industries really across the economy.

Of note, I would point out that the teams are stretched in private debt and global fixed income. This is quite impactful, given the new dedicated allocation to private debt and expanded mandate within global fixed income with the emerging markets sovereign bond portfolio target.

Importantly, as we think about things that can be done to improve the resources associated in the Investment Office, discussions around compensation are certainly going to come up around that and we think that any of those discussions really need to take into account the understanding of the risks that changes can introduce. These risks can be personnel related around turnover or recruiting and retention, or portfolio related. And that's an important dynamic, because it can impact how much active risk is actually incorporated across the investment programs. And I know a deeper dive is scheduled to have these discussions within the appropriate committee and we think that is absolutely a good opportunity to delve further into those aspects.

As you heard in the earlier staff discussion, active risk management is a strategic priority moving forward. And there is significant desire to explore adding additional active strategies through a focused what we would call a risk budgeting lens. That's a term that you will hear quite a bit I think going forward. And in a challenging return environment, and we've talked about this over the years with, you know, low expected returns in some asset classes, active risk taking presents the opportunity to enhance returns, but it needs to be pursued in an efficient manner.

And the specific details that underlie the pursuit of those returns are really going to be critical to -- to its success. So Wilshire, as the Board consultant, will need to evaluate them on a case-by-case basis, before we opine on their relative merits. And I imagine we'll be very actively involved with that discussion and certainly look forward to it moving forward.

And the value of that active management comes not just in enhancing returns in a vacuum, but ideally is doing so in a manner that's uncorrelated to broad market direction in order to compound positively. So that's outperformance. I think it's important to recognize that outperformance in a down market is just as valuable as outperformance in an up market. And so that's really what we're striving for when we're talking about alpha, that's excess return that's uncorrelated to broad market directions.

Those are my comments on the broader organization. Happy to answer questions before I turn it over to my colleague to cover a few of the investment programs.

CHAIRPERSON MILLER: Okay. Seeing no questions, I would say carry on.

MR. TOTH: Ali.

MR. KAZEMI: Good afternoon, Ali Kazemi, Wilshire.

I wanted to cover two of the programs before handing it back over to Tom. First is the Trust Fund Portfolio Management Program, and the role of TFPM within the portfolio has undergone several evolutions throughout the years. However, one common theme that we noted in our review this year is over the last 12 months that those core functions have been fairly similar than what we reviewed last year. So that was nice to see.

We largely break out the functions into four categories. One is allocation management. You can think of that as the team that handles much of the day-to-day work of not only the PERF, but the Affiliate Funds. We've got the investment treasury and trading function, which was centralized several years ago. And it's meant to help reduce some of the operational risks related to the trading function.

The Research Economics Group supports PERF by driving thought leadership and assisting with support on various projects for other programs within the broader investment team.

Portfolio Strategies a complement to the Research Group, it's really focused on the strategic asset allocation evaluation looking at drawdown risk and helping to provide asset class research support for the other programs.

Lastly, the portfolio design team, this is a recent carve-out under TFPM, which started last year. The intention is to complement the portfolio construction process by helping to guide how the approved asset segments essentially come together. And so, you know, utilizing our standard framework for scoring, which Tom touched on in his comments, our scoring places the TFPM team in the fourth decile. That is a slight downgrade from last year, when it was third decile. And the primary driver for that decrease is really related to resource issues. And Tom touched on that in his comments as well.

We have noted that there are issues related to resources within that team, some open positions that are still in the process of being filled. And so our scoring was primarily driven by that. The information gathering, forecasting, and portfolio construction scores are still very strong and our team and attribution scores remain high. So that -- that slight decrease still keeps it in the above average territory, but is a reflection of some of those resource questions that we raised in our opening comments.

Moving forward to the global equity program, Simiso was up here earlier to kind of walk through the -- the Global Equity Program as a whole. And I think his comments were well said in terms of describing its -- it's role. But just to reiterate, its mandate is to essentially deliver the global equity beta risk premium, which is that strategic exposure to global growth, which has obviously been front and center and some of the performance discussions that we've had today. You can think of the three underlying core functions of global equity broken out by portfolio implementation, portfolio structuring, and then the corporate governance component, which Simiso also touched on.

In our view, this program has essentially performed as expected over the last 12 months. And Wilshire sees a high degree of consistency between our review last year and in talking with the team this year. The major improvement really coming from the hiring of the MID, which has been viewed as a very positive development for the overall team and kind of the overall culture within the team, so we're very high on that -- that move.

In addition, just from a performance standpoint, you know, that portfolio is vastly index oriented with almost 97 percent of the assets in index-oriented strategies. Even with that tight tracking error, the portfolio has been able to add some incremental value, about 15 basis points this year on top of 31 basis points the previous year. So given that tight tracking error band, it's nice to see that some of those legacy existing active and alternative beta strategies are adding value in -- over the last two years frankly.

So given all of that, in terms of our scoring, the GE program is still in the third decile. So this is the same score as last year. As Tom mentioned, third decile leads to about a scoring of B from a letter grade standpoint, above average. This reflects a minor increase in the quality of the team score with the hiring of the new MID, as well as a minor increase in the information gathering score, as we felt that really -- really positive communication between not only GE but the TFPM team in terms of those research groups communicating with each other, working through the implementation of the strategic asset allocation. And so that also was a factor in increasing that segment score.

So overall, the score continues to reflect a very strong team that is engaged with new leadership in place. The communication channels seem to be strong and reflective of what we think is a very collaborative culture.

So with that, I'm happy to answer questions before passing back to Tom for the rest of the segments.

CHAIRPERSON MILLER: Thank you. Yeah, we have several questions. We'll start with Frank Ruffino.

ACTING COMMITTEE MEMBER RUFFINO: Thank you, Mr. Chair. I had a question for Tom earlier about the co-investments. So I noted obviously in your report on Attachment D that staff completed and aggregated two billion, or 20 -- or approximately 21 percent of the aggregate commitments, no low fee co-investments, and so on. So the question is, is as the team has ramped up activity in this area, are there any early indications on how these co-investments are performing?

MR. TOTH: Mr. Ruffino, I probably would defer to -- to the private asset consultant to discuss that or potentially Mr. Ruiz as well. I can certainly give general commentary, but specifics I think I would -- it would be better left to them.

Did we want to do that or...

ACTING COMMITTEE MEMBER RUFFINO: We can get the answer later, Mr. Chair.

CHAIRPERSON MILLER: Okay. Thank you.

ACTING COMMITTEE MEMBER RUFFINO: Thank you.

CHAIRPERSON MILLER: Okay. Next, I have President Taylor.

COMMITTEE MEMBER TAYLOR: Yes. Thank you.

I had a couple of questions. I don't know if it's for you guys or for Dan and Nicole. You were talking about resourcing issue and I guess I have a -- as I understood it, there are positions available. Did we wait to fill them because we didn't have the CIO? Is that why we had resourcing issues? Because I'm pretty sure the Board has made it very clear that if you need positions -- Oh, Michael, there we go.

INTERIM CHIEF OPERATING INVESTMENT OFFICER COHEN:

Hi. Good afternoon. Michael Cohen with the Investment Office.

I think the answer -- certainly like everywhere in State government, the Investment Office and all of CalPERS is struggling sort of filling some of its positions, where we used to get dozens, if not hundreds of applications. But more broadly than that, you'll recall that the executive team at CalPERS established a position pooling concept, where those positions that weren't needed by a particular area are available basically for any of the branches to make a proposal for, and then the executive team can sort of authorize additional positions. So I think between working through filling positions, that certainly some of them were held as we were kind of waiting for Nicole to get on board, and then there's a domino effect downward.

COMMITTEE MEMBER TAYLOR: Okay.

INTERIM CHIEF OPERATING INVESTMENT OFFICER COHEN: Between that and access to additional positions from the pool to -- we have -- the executive team has already provided a substantial number of positions, more than a dozen, to the Investment Office in the areas that really saw the greatest expansion under the strategic asset allocation. So all of the private assets that you've been talking about the rest of the day. So those are just about filled up, so --

COMMITTEE MEMBER TAYLOR: We're moving on from there.

INTERIM CHIEF OPERATING INVESTMENT OFFICER COHEN: Yeah, we're -- I think going forward, I don't want to understate that there is a challenge certainly in filling positions, but we do have resources from a position allocation standpoint within the organization that should not be constraining upon the Investment Office.

COMMITTEE MEMBER TAYLOR: Okay. I just wanted to make sure, because I thought we were pretty clear about that. Go ahead, Dan.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: Yeah. The only -- I agree with everything Michael said. The only thing I would add to it is that we -- we've had a number of positions -- and Arnie spoke about it a little bit too during the program review, we've had a number of positions sort of in the market. We're making traction on a lot of them, but we're also having challenges in some of them.

COMMITTEE MEMBER TAYLOR: Okay.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: We found that we're going out with recruiters more frequently. You know, it's just a -- it's a tight labor market. You know, Sacramento can present a challenge. It also presents an opportunity. It can present a challenge. We -- you know, we've talked about our -- you know, all of the aspects of our sort of employment program including compensation, location, all of those things. And we're working our way through, but we've -- I agree with Michael that we've definitely had the support of the organization and of the Board. It's just a tight labor marketing and we're working through it.

COMMITTEE MEMBER TAYLOR: Okay. I just want to make sure, because that can't possibly be a primary factor of poor performance, I wouldn't think, because I -- I hadn't heard about that until just now, so -- and I -- I will say, Tom, you kind of gave us kind of an idea of what factors -- and Nicole did earlier of what factors led into poor performance. And we get it. You know, we needed to be better in private assets. And there were a couple of -- you know, a bunch of other things that factored into the performance.

I just want to make sure that we're not highlighting -- I think both of you, both said it was the primary thing, the resourcing issue, and I just -- I just disagree with that. I don't think that was the primary issue.

MR. TOTH: And President -- President Taylor, maybe -- let me clarify it. My point was that it's -- it's a risk --

COMMITTEE MEMBER TAYLOR: Sure.

MR. TOTH: -- not a driver of underperformance necessarily. And so as we're -- as we're looking at the efficacy of implementation moving forward with the shift in the asset -- the strategic asset allocation, trying to anticipate the resources going forward. So that was really more of a prospective risk factor than it is a reason for past performance.

COMMITTEE MEMBER TAYLOR: Okay.

MR. TOTH: It was very much forward looking --

COMMITTEE MEMBER TAYLOR: Gotcha.

MR. TOTH: -- not backward looking.

COMMITTEE MEMBER TAYLOR: My -- my

misunderstanding.

MR. KAZEMI: Yeah, I would just echo what Tom said. I mean this is meant to be kind of a qualitative view of the team and the structure itself rather than a justification tying historical performance to what we evaluated qualitatively. We -- we do factor in performance in terms of making sure if there are any outliers that we can explain those types of things, but really this is meant to be more of a qualitative review of kind of not just staffing but overall communication, what we see in terms of how the groups are working together. And -- and albeit, these are very, very slight decreases. When we look at the actual scoring methodology, we're talking like razor thin decreases here, but it is -- we want to be as transparent in terms of, you know, communicating what that means in terms of our -- our rankings.

COMMITTEE MEMBER TAYLOR: Okay. Great. I appreciate that. Thank you.

CHAIRPERSON MILLER: Okay. Next, we have Controller Yee.

COMMITTEE MEMBER YEE: Thank you, Mr. Chairman.

Just a couple questions. I haven't heard anything mentioned with respect to leverage. And I just wanted to kind of get your thoughts, and I'll ask this of

Meketa as well, with respect to some of the other asset classes, but is the amount of leverage in the portfolio appropriate? Are we able to make any assessment around that issue? And I think when we hear about private debt and real estate, I'm just curious as to whether as do the fundamental changes with respect to those areas, whether we're entering into a more, you know, kind of risky situation as it relates to leverage.

MR. TOTH: Sure. Ms. Yee, Maybe I'll touch on the leverage aspect just to answer the question right up front. Yes, I think the amount of leverage remains appropriate and not outsized relative to the portfolio construction goals that you have moving forward. I can say that we've been closely involved in discussions with staff around implementation and a very -- it's a very judicious step into the strategic leverage target that's been approved. It is not something that is being implemented, you know, in one fell swoop because that would --

COMMITTEE MEMBER YEE: Um-hmm. Good.

MR. TOTH: -- introduce and aspect of market timing we don't think is appropriate, so it's being very thoughtfully implemented. So we feel comfortable with where that currently stands. And then I believe your second question was around private debt and potentially impacts of leverage there. Certainly, fundamentals, much like broader credit markets are -- have gotten more challenged, with -- with spreads rising. That's true in both the public and the private side.

I think the benefits on the private side is as the investor you can be more involved in the structuring of those opportunities and it gives you a greater opportunity to drive some of those -- to put in place those values drivers to protect yourself as the lender. And as things are more challenged in the broader global market, the private debt borrowers are more open to it, because frankly they kind of need your capital.

COMMITTEE MEMBER YEE: Yeah, exactly.

MR. TOTH: And that's a benefit for CalPERS.

COMMITTEE MEMBER YEE: Um-hmm. Good. Good. No that's -- I am very happy to hear that response.

And then just kind of in your opinion, has -- have the defensive positions that CalPERS has taken to reduce drawdown risk paid off?

MR. TOTH: So the one that has is the low volatility equity. And I'll show that to you when we get to one of the later attachments, the trust universe comparison.

COMMITTEE MEMBER YEE: Okay.

MR. TOTH: The one that did not during this drawdown was the longer duration aspect of the fixed income portfolio. That has been a challenge. The long treasury being purest example. But true in the -- true in the long credit side as well, it has interest rate sensitivity. So it's -- I'll say it's a bit of a mixed result there. The mitigation from low volatility equity I would say has worked as expected strategically --

COMMITTEE MEMBER YEE: Um-hmm.

MR. TOTH: -- over the last call it 18 to 24 months, long duration fixed income has not.

COMMITTEE MEMBER YEE: Okay. I appreciate that. Thank you.

MR. TOTH: Um-hmm.

COMMITTEE MEMBER YEE: Thank you, Mr. Chairman.

CHAIRPERSON MILLER: Mr. Pacheco.

COMMITTEE MEMBER PACHECO: Thank you.

CHAIRPERSON MILLER: Director Pacheco.

COMMITTEE MEMBER PACHECO: Thank you. Thank you, Chairman Miller. Thank you, Tom, for this information.

So my question is back on the -- on I think it's Agenda Item 5D, Attachment 3, 7 -- page 7 of 23 on -- on the scoring. But what I wanted to know was with -- with respect to the new governance framework that we've outlined earlier in this -- earlier in our talk, do you feel -- what is your opinion that the -- that the staffing challenge may have on future -- the future what Wilshire quantitative score? Do you -- where -- where do you think that may land in your opinion?

MR. TOTH: Mr. Pacheco, hard to say. I -- I would expect that, as was alluded to earlier, progress is being made in terms of ramping up stamp -- staffing, and so we are cognizant of that. In some of the discussion that we have internally as well as when we're having regular reviews with -- with the program deems is looking at the org chart --

COMMITTEE MEMBER PACHECO: Um-hmm.

MR. TOTH: -- and looking at reporting lines, looking at where open positions are, and understanding the history of that. So how has the size of the team shifted over time based on their -- their mandates? And so I think as we move forward and we see some of the, you know, I'll call it new hires, come in to fill some of the, I'll call it, more specialize -- specialized roles in -- in the private debt area, for example, or maybe partnerships on -- on the emerging sovereign side, that will factor in. But I don't want to forecast and say I would expect, if that happens, then our scores will go to X. It's a -- it's a much more qualitative discussion than that.

COMMITTEE MEMBER PACHECO: So it's a -- it's a wait and see kind of moment then basically, in your opinion.

MR. TOTH: Yes, but I want to be very clear that as this is essentially an ongoing process, this is not just a discussion that happens once a year and then we report this to the Board. We are interacting with staff on behalf of the Board as your consultant through the year, every month, multiple times, depending on which programs we're talking to. And so if we were to see an issue that would require, you know, immediate concern -- caused immediate concern, we would bring that up to you well in advance of sort of the wait and see to the next go-around of these programs review.

MS. DEAN: So if I may add just one comment. Rose Dean at Wilshire. The reason why we highlighted the issue with staffing within the Private Debt Program is twofold. One, obviously it's a new allocation, which requires a lot of work up front to deploy the capital that's been allocated. So that has been the focus of the staff to deploy that capital as judicious -- judiciously as possible, as well as quickly as possible.

The second part here is that as the capital gets deployed, now the staff is not only charged with deploying additional capital to get to the target, but to manage the existing invested portfolio, so in terms of portfolio management as well as finding new investments will be an additional task for them to manage the portfolio judiciously. So we're highlighting that as the program ramps up, there will be additional needs for -- for staff to be further enhanced.

COMMITTEE MEMBER PACHECO: Okay. That -- and -- that brings back to the same question again when you mentioned earlier that both private equity and private debt are -- you know, the staffing is very thin. I mean, there's not -- they're really tight with respect to what they're doing, so -- so what is -- I guess the question is how -- how are we -- what do we need to do as -- as -- from a Committee perspective to kind of, you know, keep -- get it -- get it going, get the hiring going and so forth? I mean, what are your thoughts on that?

MR. TOTH: So if -- if I may very quickly, I think President Taylor's comments are -- go a long way towards addressing that effective --

COMMITTEE MEMBER PACHECO: Yeah.

MR. TOTH: -- not to put words in your mouth, but you have the resources you need. Tell us what you need and we will support you --

COMMITTEE MEMBER PACHECO: Yeah.

MR. TOTH: -- as a Committee. So I think it's been addressed.

COMMITTEE MEMBER PACHECO: Okay. Very good then.

Thank you.

MR. KAZEMI: Yeah. I would just add to that, you know, in terms of kind of the subcomponents, when we -- when we score that area, you know, we look at commitment to improvement, we look at the quality of the existing team, and then we look at stability. And when we look at the commitment to improvement, we've rated that as an A. When we look at the quality of the existing team, we've rated that as an A. Where the -- the scoring was brought down, it's just the stability component of that.

So you've got the commitment, you've got the quality of the folks already here. It's just about seeing some stability going forward --

COMMITTEE MEMBER PACHECO: Yes.

MR. KAZEMI: -- in terms of the retention and recruiting. And that would naturally lead, I think, to higher scores in the future.

COMMITTEE MEMBER PACHECO: Thank you very much.

CHAIRPERSON MILLER: Okay. Thank you.

Next, we have Director Middleton.

COMMITTEE MEMBER MIDDLETON: All right. Tom, Ali -- (clears throat) excuse me -- thank you.

A couple of areas. Could you talk about your comfort level with ESG strategies that are being employed in the Investment Office, and most specifically do you have any elevated concerns when it comes to private equity and private debt in embedding ESG into the programs?

MR. TOTH: Ms. Middleton, let me think about the best way to answer this. So I don't -- I wouldn't say that we have elevated concerns about utilizing ESG as part of the investment process within private equity, private debt, or other areas either. I think ultimately these are risks factors that -- and that a prudent investment process should take into account in terms of deciding whether the risk-adjusted returns that are likely to be delivered by those strategies are prudent. So, no, I don't think there is elevated concern there.

But you'll almost never hear me say there is no concern, because I tend to worry too much is what it boils down to.

(Laughter)

COMMITTEE MEMBER MIDDLETON: So the argument that -- phrased differently, that private equity, private debt creates greater ESG risk is not one you would accept, is that accurate?

MR. TOTH: I think it's -- Ms. Middleton, I think it will ultimately be opportunity-specific. I could come up with scenarios where it does, but then I could come up with counter scenarios where it's -- where it's addressed and mitigated through things like the RCP, which was --

which was mentioned earlier. So I wouldn't want to draw blanket statement.

COMMITTEE MEMBER MIDDLETON: All right. Thank you.

MR. TOTH: Um-hmm.

COMMITTEE MEMBER MIDDLETON: Another area. Earlier this morning, staff outlined some changes with the PPO process. Are you comfortable with the changes as recommended?

MR. TOTH: We are comfortable. And I wanted to specifically address the lack of the PPOs in the opportunistic strategies. It is something that we pointed out in our opinion letter to the Board and discussed with staff. And it comes down to, as was stated, balancing nimbleness of investment decision-making with prudent governance. And I think because of the governance structure, particularly the underwriting committee, that provides an appropriate level of governance, so that the Board can feel comfortable that there are multiple eyes on all of those opportunities.

And to the extent a PPO is used, it's very much a belt and suspenders approach. It's not a replacement for the diligence that's being undertaken by staff. And I think that's an important thing to remember.

COMMITTEE MEMBER MIDDLETON: Fair enough. Thank you.

CHAIRPERSON MILLER: Okay. I'm not seeing anymore requests to speak, so --

MR. TOTH: I will, if I may, Mr. Chair, just quickly touch on the other two programs, the one being Global Fixed Income. As the staff stated earlier, that is a portfolio that is strategically designed to provide diversification, particularly against equity risk, as well as a high level of liquidity and income. It is substantially actively managed with more than 95 percent of the portfolio managed internally, and the rest outsourced to a few key external managers.

From an active return standpoint, the GFI Program, it almost matched the benchmark. It was effectively in line over the last one-year time period. But over longer term time periods, the global fixed income portfolio has been one of the most consistent sources of value-add, again relative to the benchmark in the portfolio.

Our qualitative assessment of that program places it in the third decile, which is the same as last year. It does reflect the impact of that increase in the organizational score, but a reduction in information gathering resources, as they have lost a team -- a few team members, and we want to reflect that. It does a consistent score within portfolio construction and the implementation, which were very highly rated, remains. And overall, that third decile score we think does reflect a strong team in place and long-term success at managing that portfolio in a very challenging environment. By some estimates, the most challenging fixed income environment in a hundred plus years, if you -- if you look at some of the -- the longer term academic studies.

The last program is the Opportunistic Strategies Program. As we talked about earlier, it's meant to invest in strategies that don't fit neatly into one specific asset class, but do have relative value characteristics to enhance performance. And during the past few years, the program has been focused on building out private debt and has really incubated the initial commitments that are now kind of those first -- the first ones within the new private debt allocation.

We ranked the OS Program in the third decile as well. We feel it's led by very talented staff who have a very strong understanding of the opportunity set and the value drivers, particularly the demonstrated ability within private debt with some very strong performance, which -- which Arnie walked through earlier.

And then we have talked about as that area grows and we -- the requirements for portfolio construction, as well as committing new capital become more acute, we do think it could stand to utilize -- to bring in some additional resources

There is more detailed information on the scoring in the appendix of that opinion letter, but I will stop there and answer any questions before we move on to the universe comparison report.

CHAIRPERSON MILLER: I'm not seeing anymore requests for questions, so continue on.

MR. TOTH: Okay. Great.

So Attachment 4 is the trust universe comparison service report. So if we could pull that up. And I wanted to again I think make some -- some comments, which hopeful will be additive to a lot of the information that we've talked about already. So the CalPERS portfolio ranked at the 59th percentile over the last fiscal year and at the 80th percentile over the past 10 years. Staff earlier provided insight into how the portfolio has evolved over that time. And the information that we collect independently as part of this comparison have confirmed many of those takeaways. The portfolio has been structured with lower exposure to growth-oriented investments, felt most acutely in a lower level of exposure to private equity.

And Ms. Yee and Mr. Ruffino earlier asked about risk versus peers. If we look at slides four and five of the TUCS presentation, you will see that the -- the PERF portfolio has lower risk in comparison as it plots to the left of the median risk line, so the line that's going up and down. So it's to the left relative to peers.

Over the last three years, the PERF's volatility was 11.24 percent versus a median risk level of over 12 percent. So it's certainly fair to say the PERF portfolio exhibits a lower level of measured volatility, and that's been a drag on returns relative to peers over the last five years as riskier assets have outperformed.

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MR. TOTH: On slide six, that is a comparison of the asset allocation across for the PERF in comparison to larger public pension systems. The two differences that jump out are, in fact, that higher-than-average allocation to global fixed income that is inclusive of both investment grade and non-investment grade exposures, and a lower-than-average allocation to private equity. And we've talked at length about how much that has impacted returns relative to peers.

Turning to some of the underlying composites, I did want to highlight just a few items to provide some, I'll say, quantitative support to some of the comments that -- that have been shared today.

If we look at page seven and compare the global equity portfolio, it does include that dedicated allocation to factor exposures. And that equity factor exposure did protect on the downside, to Ms. Yee's earlier question, over the last fiscal year. And, in fact, the global equity portfolio rather -- relative to peer, global equity portfolios ranked at the top quartile, at the 25th percentile.

So it worked over the last fiscal year. But that lack of growth exposure, as Nicole's earlier slides showed, was a drag, particularly during the post-pandemic rally where growth-oriented stocks, large cap tech in particular, dramatically outperformed relative to the broader market.

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MR. TOTH: On page nine, we can look at private equity. Over the last 10 years, the portfolio ranks at the 41st percentile, so it is above median, with a return of 13 percent. And that -- again quantitative support to earlier comments, that's a premium of almost three percent relative to public equity returns over that 10-year time horizon.

--o0o--

MR. TOTH: If we look at global fixed income on page 11, there's no question that the portfolio has struggled versus peers over the last two years, given its longer duration positioning and higher sensitivity to interest rates. It is worth noting though that if you look at the 10-year results, even inclusive of those last two years, the fixed income portfolio ranks at the 37th percentile versus peer fixed income portfolios, so almost at the top third of that universe over that full 10-year horizon.

And then one final comment on those underlying mandates, if you turn to real estate, the real estate portfolio has outperformed peers over the past 10 years, also, coincidentally at the 41st percentile over that 10-year time frame. So hopefully that provides a little bit more context and peer comparison information from TUCS.

And I'd be happy to answer any questions that the Committee has.

CHAIRPERSON MILLER: I'm seeing no questions, so think everybody is good.

MR. TOTH: Fantastic. Well, I think I will turn it over to Meketa who -- which will -- who will handle the -- I believe the last three attachments in that agenda item.

CHAIRPERSON MILLER: Great. Thank you very much. We really appreciate your input.

MR. TOTH: Absolutely. My pleasure.

CHAIRPERSON MILLER: And welcome to Meketa.

MR. McCOURT: Good afternoon. Yes, there's more.

It's Steve McCourt, Meketa Investment Group. To my right Steve Hartt, to his right Christy Fields.

To go through our reports verbally, fairly efficiently, I'll be going through them, but obviously we're happy to answer questions, either along the way or -- or at the end.

The theme of this meeting seems to have been humility about the last 10 years. As I thought about these asset classes, their performance historically has actually been quite good. I think where the humility might be needed is on a forward-looking basis. And so I wanted to talk a little bit at the beginning about the market environment and -- and pricing of private markets.

As staff indicated in going through the -- the performance review, your private market asset classes are valued as of March 31st. So there's a lag in the valuations. To say the least, March 31st was a very different point in time than -- than today is. And the most significant change has been the increase in interest rates in the economy over that time period.

The public markets generally reflect price movements in real-time. In fact, sometimes they overreact to -- to changes in -- in fundamentals in the economy. The private markets take a long time to do that. So while interest rates have moved up considerably, the 10-year treasury bond today is yielding three and a half percent give or take a few basis points. Huge increase from the beginning of the year. Most private market asset classes haven't yet begun to reflect how rising interest rates or higher interest rates will impact valuations. And that's for a variety of factors, partly having to do with the lagged nature of valuations partly having to do with those valuations being based on transactions in the marketplace, and it takes awhile for transactions to occur under new economic realities.

All of this is to say that the roughly 30 to 40 percentage point outperformance of private markets over public markets in your fiscal year will erode at some point in the next year, not fully hopefully, but some portion of that will erode as -- as private market valuations begin to reflect the economic reality of rising interest rates.

So with that rosy note, I will -- I will go into the performance first of private equity. For your fiscal year ending June 30th, the private equity portfolio was up 21.3 percent, outperforming your policy benchmark by 13 percentage points. I wanted to highlight here the fairly significant improvement in returns versus your benchmark over the last five years. Five years ago over the then trailing five-year period, your Private Equity Program was underperforming its benchmark by over two percent per year. In this five-year most recent period, you're outperforming by two percent per year. So a really nice turn around in -- in relative performance of -- of private equity.

In terms of implementation, to echo some of the comments that Greg highlighted and has continually communicated to the Committee in the strategic plan updates, the private equity team has done a really strong job over the last several years in more consistently deploying capital each year, increasing the cost efficiency of the program through more co-investments that are being executed and adding to diversification of the -- of the portfolio by investing more in sectors of the private equity markets that were underexposed previously.

For the most recent year, your private equity staff made 69 commitments totaling $17 billion. Five or six years ago, that number was more like four or five million[SIC] dollars, so significant increase in activity in recent years. Your private equity program was in compliance with all of its policy limitations.

Moving on to real estate. Similar commentary on the real estate market. It has yet to reflect significant adjustments in valuations as a result of interest rate movements in the economy. We await for those. The -- the cap rate of the real estate -- institutional real estate market on March 31st when this report was done was 3.7 percent. Today, the 10-year treasury bond is 3.7 percent. The difference between the cap rate and the 10-year treasury bond is typically two to two and a half percentage points. So one would think that there's -- there's an adjustment coming down the road eventually.

As has been remarked, your real estate staff has continued to focus the bulk of its activity around core, high quality, income-paying properties. That strategy has continued to -- to pay dividends in the form of strong performance for your. As we look at your core portfolio, the trailing three, five, and 10 years, the core portfolio is outperforming your benchmark by -- by sizable margins over each of those -- each of those periods. Your Real Estate Program, like Private Equity, is currently invested within all the policy parameters.

And then finally on infrastructure, the performance of infrastructure for the year was positive 14.7 percent. Fairly modest compared to private equity and real estate, but certainly a strong return number on an absolute perspective. Sarah noted during her report about the benchmark mismatch between infrastructure and real estate, you'll note in our semi-annual reviews, we also show the consumer price index, which was the previous benchmark for real estate, and the program continues to outperform that benchmark meaningfully over time.

The one item I want to note quickly relates to the policy request to allow for a somewhat higher allocation to international infrastructure assets. As we've noted before, infrastructure has been and continues to be an asset class that is transacted at higher volume outside the U.S. And as a consequence as CalPERS views the asset class in those assets as attractive for its long-term return objectives, the -- the amount of assets outside the U.S. will have to increase in scale with the overall program. So that's -- that's the general rationale for that -- that policy request.

I will close my comments there and happy to answer any questions that anyone has on the three asset classes.

CHAIRPERSON MILLER: Okay. Thank you for that.

I'm not seeing any questions or requests to speak to that, so I thank you.

MR. McCOURT: Thank you.

CHAIRPERSON MILLER: Very much appreciated.

So I think that if no one has anything else, that will bring us to the summary of Committee direction.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: All right. I noted two bits of Committee direction. First of all, as a -- as we mentioned, we have planned to take the Responsible Contractor Program update to an information item, not information consent, but we also took direction to add sort of the GRESB lens to that and sort of how they -- how they align.

CHAIRPERSON MILLER: Yeah.

DEPUTY CHIEF INVESTMENT OFFICER BIENVENUE: And then the second one was also from Director Willette and had to do with on many deals we've missed as a result of the current delegation level and what we would expect that to change to with the new dele -- with the proposed potential delegation levels.

Those are the two -- the two bits of Committee direction I took.

CHAIRPERSON MILLER: That's all I remember.

Anybody else?

No, I think we got.

Okay. So we'll move now to 5F, public comment. I have several requests for public comment. And so if you want, you come on down. I'll start with Tim Behrens followed by Sandy Emerson and Lynn Nitler. So Mr. Behrens. Welcome and come on down. When you arrive and the microphone is on, state your name for the record and your time will appear up here, and you know the drill.

(Laughter)

MR. BEHRENS: Thank you, President Miller -- President Miller. I just promoted you -- Chairman Miller and Board members -- and Committee members. Tim Behrens from the California State Retirees.

So I wanted to first start off by congratulating Nicole and filling the position that we have not been patiently waiting to be filled. We appreciate you. And I have gone from being an angry stakeholder when I came here this morning to be an optimistic stakeholder. Really like the interaction I've seen for the last few hours between the Board and the staff.

So a couple of things. I'm glad that the Board is going to increase more oversight. I think the Board has always had the oversight, but I'm hearing now you're going to use it. So I'm glad to hear that. I'd like to see CalPERS looking closer at -- I can't read my own writing -- administrative tasks. I share the Board members' concerns regarding global investments. I agree wholeheartedly with Board Member Middleton. I'm worried about China and their relationship with Taiwan, amongst everything else we heard today. It sounds like at least six or eight other countries are in a recession and we have investments all over, so I'd like to continue to hear more information about that.

Finally, I remember the 2008 collapse that CalPERS had, as did the whole United States. And I also remember how quickly that the CalPERS Investment team was able to recoil and get back to where they were within a year. So I'm going to continue to be optimistic. I've told a couple of the management staff team that you have my backing. I think you can do it again, so let's try to get it done.

I've heard more about private equity today than I've heard in the last two years. Interesting. I think the only comment I would make and a reminder, because I think you're going to discuss in your November meeting that the President has a pilot program going on to privatize Medicare. And we have given the Board that information. The California State Retirees has come out publicly against that plan. We have President Biden's phone number. We're calling him and we're calling our local congressman urging them not to support that. So it would be easy for CalPERS to fall into a trap, because public -- or private equity has been offered 30 to 40 percent profits, if they will invest in this program. And if they invest in this program, then I'm not sure I'm going to get 30 or 40 percent of what I'm getting today as good service in my Medicare.

Thank you very much. Have a good day.

CHAIRPERSON MILLER: Great. Thank you very much for your comments. Is Sandy Emerson still in the house?

Nope, it looks like she left.

And Lynn Nitler?

Okay. I guess they've decided they didn't want to stick around to make comments today, but I'm sure we'll hear from them again at some point in the future, and they will be welcome.

So I think hearing no objections, we will now closeout our open session and adjourn into -- and recess into closed session. And I think that's it. And we will return to closeout in open session at the conclusion of closed session, correct?

Yeah. Okay. So we are now moving into closed session for items 1 to 7 from the closed session agenda and the open session Investment Committee meeting will reconvene following that closed session.

So thank you.

(Off record: 3:16 p.m.)

(Thereupon the Investment Committee recessed into closed session.)

(Thereupon the meeting reconvened open session.)

(On record: 4:52 p.m.)

CHAIRPERSON MILLER: Okay. We're back in open session and hearing no objections, we will be adjourned.

Any objections?

No.

We are adjourned.

(Thereupon, the California Public Employees' Retirement System, Investment Committee meeting open session adjourned at 4:52 p.m.)

CERTIFICATE OF REPORTER

I, JAMES F. PETERS, a Certified Shorthand Reporter of the State of California, do hereby certify:

That I am a disinterested person herein; that the foregoing California Public Employees' Retirement System, Board of Administration, Investment Committee open session meeting was reported in shorthand by me, James F. Peters, a Certified Shorthand Reporter of the State of California, and was thereafter transcribed, under my direction, by computer-assisted transcription;

I further certify that I am not of counsel or attorney for any of the parties to said meeting nor in any way interested in the outcome of said meeting.

IN WITNESS WHEREOF, I have hereunto set my hand this 26th day of September, 2022.

JAMES F. PETERS, CSR
Certified Shorthand Reporter
License No. 10063