MEETING

STATE OF CALIFORNIA

PUBLIC EMPLOYEES' RETIREMENT SYSTEM

BOARD OF ADMINISTRATION

INVESTMENT COMMITTEE

OPEN SESSION

ROBERT F. CARLSON AUDITORIUM

LINCOLN PLAZA NORTH

400 P STREET

SACRAMENTO, CALIFORNIA

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8:34 A.M.

JAMES F. PETERS, CSR
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A P P E A R A N C E S

COMMITTEE MEMBERS:

Mr. Rob Feckner, Chairperson

Ms. Theresa Taylor, Vice Chairperson

Ms. Margaret Brown

Mr. Henry Jones

Ms. Fiona Ma, represented by Mr. Matthew Saha

Ms. Lisa Middleton

Mr. David Miller

Ms. Stacie Olivares

Ms. Eraina Ortega

Ms. Mona Pasquil Rogers

Mr. Jason Perez

Mr. Ramon Rubalcava

Ms. Betty Yee

STAFF:

Ms. Marcie Frost, Chief Executive Officer

Mr. Matt Jacobs, General Counsel

Dr. Yu (Ben) Meng, Chief Investment Officer

Mr. Dan Bienvenue, Interim Chief Operating Investment Officer

Ms. Caitlin Jensen, Committee Secretary

Ms. Anne Simpson, Investment Director

A P P E A R A N C E S   C O N T I N U E D

ALSO PRESENT:

Mr. Dave Elder

Mr. John Griswold, Chartered Financial Analysts Institute

Mr. Hiromichi Mizuno, Government Pension Investment Fund, Japan

I N D E X

P R O C E E D I N G S

CHAIRPERSON FECKNER: If we could all please take our seats, we'd like to call the workshop to order.

First order of business will be to call the roll.

COMMITTEE SECRETARY JENSEN: Rob Feckner?

CHAIRPERSON FECKNER: Good morning.

COMMITTEE SECRETARY JENSEN: Theresa Taylor?

VICE CHAIRPERSON TAYLOR: Here.

COMMITTEE SECRETARY JENSEN: Margaret Brown?

COMMITTEE MEMBER BROWN: Present.

COMMITTEE SECRETARY JENSEN: Henry Jones?

COMMITTEE MEMBER JONES: Here.

COMMITTEE SECRETARY JENSEN: Fiona Ma represented by Matt Saha?

ACTING COMMITTEE MEMBER SAHA: Here.

COMMITTEE SECRETARY JENSEN: Lisa Middleton?

COMMITTEE MEMBER MIDDLETON: Present.

COMMITTEE SECRETARY JENSEN: David Miller?

COMMITTEE MEMBER MILLER: Here.

COMMITTEE SECRETARY JENSEN: Stacie Olivares?

COMMITTEE MEMBER OLIVARES: Here.

COMMITTEE SECRETARY JENSEN: Eraina Ortega?

COMMITTEE MEMBER ORTEGA: Here.

COMMITTEE SECRETARY JENSEN: Jason Perez?

COMMITTEE MEMBER PEREZ: Here.

COMMITTEE SECRETARY JENSEN: Mona Pasquil Rogers?

COMMITTEE MEMBER PASQUIL ROGERS: Here.

COMMITTEE SECRETARY JENSEN: Ramon Rubalcava?

COMMITTEE MEMBER RUBALCAVA: Here.

COMMITTEE SECRETARY JENSEN: Betty Yee?

COMMITTEE MEMBER YEE: Here.

CHAIRPERSON FECKNER: Thank you.

The next order of business will be to approve the Committee timed agenda. What's the pleasure of the Committee?

VICE CHAIRPERSON TAYLOR: Move approval.

COMMITTEE MEMBER MILLER: Second.

CHAIRPERSON FECKNER: Moved by Taylor, seconded by Miller.

Any discussion on the motion?

Seeing none.

All in favor say aye?

(Ayes.)

CHAIRPERSON FECKNER: Opposed, no?

Motion carries. Thank you.

Item 3, the Investment Education Workshop.

Mr. Meng.

(Thereupon an overhead presentation was presented as follows.)

CHIEF INVESTMENT OFFICER MENG: Thank you, Mr.

Chair. Good morning, members of the Investment Committee. So today, we continue with our Board education workshop. And we are actually honored to have two distinguished guest speakers with us today.

So first, we have -- I will introduce the first speaker and then my colleague Dan Bienvenue will introduce the second speaker.

So the first guest speaker we have is Mr. Hiro Mizuno, the Chief Managing Director and Chief Investment Officer of Japan -- the Government Pension Investment Fund of Japan, the GPIF, the largest pension fund in the world and one of the largest pool of assets in the world.

You have his bio in front of you. And I was trying -- I was hoping to find an abridged version of his bio on Google. And that was a mistake last night.

(Laughter.)

CHIEF INVESTMENT OFFICER MENG: It goes on pages after pages. It's sufficient to say that, you know, Mr. Mizuno joined GPIF in January 2015. And since then he has served as the Executive Managing Director and Chief Investment Officer. And prior to joining GPIF he was a partner of Coller Capital, a London-based private equity firm.

Later you will see that in his presentation, his experience working as a GP in the private equity industry has really benefited him and the GPIF in terms of designing their program. And also as you will learn later that GPIF managed almost all, if not all, the assets by external managers.

So the relationship between GPIF and the GP communities is of more critical importance to them. In contrast, we manage about 80 percent asset in-house, but still we have 20 percent asset manage externally so we can really learn a lot from Hiro's creative thinking in terms of designing long-term alignment in terms of economic interest with the GPs, and also in terms of applying ESG principles. And in the time horizon how to become a long-term investor when we engage external partners.

Before he joined the private equity firm, he worked at Sumitomo Trust Bank in Japan, Silicon Valley, and in New York. He's also a member of the Board and Asset Owner Advisory Committee of PRI, co-chair of the Milken Institute of Global Capital Markets Advisory Council. He's also the founding member of Climate Finance Leadership Initiative, the Global Investors for Sustainable Development, Alliance Member, and Global Business Coalition for Education Advisory Board Member, and also Asia Advisory Group Member of Climate Action 100+.

And as you see that these are the activities at

CalPERS. We have been actively engaging, and Hiro and GPIF has been a great partner with us on these important global initiatives. So for that, we want to thank him and GPIF for their great partnership working with us.

I could go on. You know there's a long list of his -- also participation with Japanese government at different levels, and also his involvement with the academic community. So it's suffice to say that his -- in addition to be one of the global leader, as a practitioner, he's also a global leader in academic, the thought leader as well.

So without further ado, I will turn over to Mr. Mizuno who will share with us on how to design a long-term relationship with GPs to align with the economic terms and our value.

So with that, please put a round of applause together.

(Applause.)

MR. MIZUNO: Good morning ladies and gentlemen. And it's my real privilege to be able to present GPIF and our strategy to world famous CalPERS Board. I cannot -- I cannot help calling you judges, because you are appear to be like judges to me. So it's a bit intimidating, but I try not to be intimidated and try to be open to share with you what we are trying to achieve at GPIF. And also as

Ben mentioned, we regard CalPERS as our most important strategic partner. And we also think we are most alike with each other, because they are -- when we talk about the business model of the public pension fund global asset owners, a lot of people try to compare GPIF with the other CPPIB, Canadian, or like Norges and some Scandinavians. But they're working in very different regulatory framework or environment.

So I always feel like CalPERS -- and also the -- I saw the other -- my friend from CalSTRS in the audience, but we -- I always feel like CalPERS and CalSTRS are our closest allies in terms of the environment we operating, and the -- sort of the significance in their and our capital markets. So I, first of all, want to express my gratitude for a continuous relationship and a partnership between GPIF and CalPERS.

So today, I really don't know exactly what interest the Board -- the CalPERS Board about what we have been doing. So let me start with the introduction of GPIF to you, who we are and how we operate. And I think there maybe interest -- is of interest of CalPERS Board how the Board should or would work with the investment team to optimize our performance.

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MR. MIZUNO: So let me start with a quick snapshot of us. We at the moment managing the 1.5 or 1.6 trillion U.S. dollar - we're also public - pension reserve fund. And our performance since we started our market investment has been like annualized return 3 percent. And we made, you know, roughly 621 billion U.S. dollar gain since we started.

And as you see the graph accumulating -- accumulated the gain, you can see there's a huge pick up over the last five years, which is because we changed our policy asset mix when I arrived at GPIF from 75 percent in the fixed income, and mostly in Japanese government bond, to 50 percent in global equities and 50 percent in global fixed income.

And we got approval to invest into the alternative assets up to 5 percent when we revised the policy asset mix. But unfortunately, at the moment, we are still -- have only less than 1 percent exposure to alternative asset classes. And I was actually on the other side when the GPIF decided and approved the -- our current policy asset mix.

And there's a big argument that the GPIF should have like a 20 percent exposure to private equity and real assets. And, you know, I spent 20 years of my professional career managing private equity. And before I was called back by Prime Minister to run this fund, I was a partner of the -- one of the private equity funds which CalPERS used to maybe still invest in. And then I knew how difficult to deploy a huge amount of money in a private market. That's why we agreed to have a -- not even have a 5 percent allocation, but a 5 percent cap.

And at the moment, we haven't even reached 1 percent, which is -- for us is not a small amount of money.

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MR. MIZUNO: So this has been what we have been operating. And as I just described, our policy asset mix now 50 percent in global equity, and 50 percent in global fixed income, and 35 percent we have to invest in Japanese domestic bond, which is mostly Japanese government bonds.

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MR. MIZUNO: And given this allocation and the -- our fund size, we usually say we own about 8 percent to 10 percent of Japanese listed companies, and we own about 1 percent of the major U.S. companies. So our exposure to U.S. economy is quite significant.

And in this context, I think CalPERS and GPIF are one of the biggest owner of the U.S. public equities, meaning we are owner of the U.S. economy. So it's very important for us that the U.S. economy continue to have the healthy growth. And I'm going to talk about it later, but our universal ownership approach meaning we are the biggest beneficiary of economic growth or healthy commercial activities. So that's why we need to contribute to make the whole system more sustainable.

And that's the concept that came from this asset allocation, which we ended up owning whole capital market.

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MR. MIZUNO: So just to give you a snapshot of who we are from different angle. We are the manager of the Japanese Public Pension Reserve Fund. Why we need a reserve? Japanese pension scheme -- public pension scheme that's actually -- actually designed as a pay-as-you-go scheme. But the problem is for the pay-as-you-go scheme pension scheme to be sustainable, we need to have younger generation to support retirees. But as you know, Japan is going through the huge aging, you know, transformation. And for the next, you know, 100 years, we're probably going to suffer from the other reverse age pyramid.

So we don't have enough young people to support the pay as you go system. So, you know, 15 years ago, I guess, like Japanese government came up with a very audacious experimental, the idea of, you know, the hybrid mechanism, which is -- basically is pay-as-you-go system.

But for the next 100 years, until the age pyramid go back to normal, they make the best use of the fund, all of the -- you know, the saved or contributed from the other -- the previous generation. So that's the fund GPIF is managing. So always make a return from this reserved fund to fill the gap, so that the -- our younger generation is not going to suffer from too much burden to support the older generation.

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MR. MIZUNO: So this is actually the graph trying to illustrate how important GPIF fund is. You can say that it's not as important or it's still very important. For the next 100 years, this -- the chart describes the -- how much money the public pension scheme have to pay out to retirees. And GPIF's fund is going to account -- be responsible about 10 percent of future liability of Japanese public pension scheme.

As you can imagine from our -- you know, the aging society, even last year, our public pension scheme paid out about $600 billion. And we are still at the entrance of aging society. So you can see the magnitude of the problem caused by aging society. And so the GPIF is meant to, you know, bridge the gap, so pay out the other 10 percent of the future liability. And we are designed to disappear in 100 year's time.

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MR. MIZUNO: So coming to back to the -- our governance structure, which I think may be interesting to the CalPERS Board. GPIF is under supervision of Ministry of Health Care, Labour and Welfare. Because historically, the pension was regarded as the labor welfare. So we are under supervision of Ministry of Health Care and Labour -- Labour and Welfare.

And we have a board of governors, which consists of 10 representatives, and which all appointed by the Minister of that -- the Ministry. And now we have 10 members. And today, I was impressed to see like, you know, gender diversity on the CalPERS Board. We only have the 20 percent of the female represented out of 10. But the -- naturally, women tend to live longer in Japan, so there probably is some time that we will lose one men representative, so...

(Laughter.)

MR. MIZUNO: But I think that the -- we are the supporting member of the Thirty Percent Coalition. I feel embarrassed every time we have only -- like I tell them, we have only 20 percent female representative on our board. But we have a board of governors, who make all the strategic and high level decisions, namely, policy asset mix. And we also need to get their approval when we start new investment style or new invest -- new asset class. And we have a clear, you know, separation of governance of execution. And I'm Executive Managing Director and the CIO responsible for the Investment Office.

And then we started this new governance structure about two years ago. Before, there's a huge criticism, like, you know, the GPIF is operating under political pressure, which was not really the case, because I never felt political pressure when I make an investment decision.

But there's a perception among Japanese -- the public that, you know, the GPIF is under political pressure to make some particular investment. So because of those concerned, the Government came up with a new governance structure, which was put in place about two years ago and we are operating in that -- the governance framework.

I'd like to talk about the philosophy and, you know, strategy how to promote the long-termism. But I'm happy to take questions, if you want to ask me about our governance structure or, you know, about the GPIF, so that you'd probably be able to understand the -- my you, you know, remaining presentation better.

CHAIRPERSON FECKNER: Very good. Thank you.

Ms. Taylor.

VICE CHAIRPERSON TAYLOR: Thank you. See, I told you, we ask questions.

I was curious you said the -- you had some political pressure, the government --

MR. MIZUNO: No, I didn't.

VICE CHAIRPERSON TAYLOR: Not you, but I mean, the pension system. What was the structure as opposed to the new structure that was put in place?

MR. MIZUNO: Well, we used to have the -- what they called Investment Advisory Committee as the other -- the counsel to GPIF.

VICE CHAIRPERSON TAYLOR: Okay.

MR. MIZUNO: The other Board of Governors meant to divide us from the political leadership.

VICE CHAIRPERSON TAYLOR: Oh, I see. Okay.

MR. MIZUNO: That's the whole purpose of this, the new governance structure, so --

VICE CHAIRPERSON TAYLOR: Okay.

MR. MIZUNO: And I forgot to mention, but the ten representatives, two came from like, you know, finance or investment professional or academics, and two from the -- two are former central bankers, and one representing the other business federation, or like a Chamber of Commerce kind of things, and the one representing biggest labor union, and one representing -- I mean, one is a lawyer, the other is a CPA. So that's the sort of composition of our Board of Governors.

VICE CHAIRPERSON TAYLOR: And they're all appointed?

MR. MIZUNO: They are all appointed by Minister.

VICE CHAIRPERSON TAYLOR: By the Minister.

MR. MIZUNO: Yeah.

VICE CHAIRPERSON TAYLOR: Okay. And then I was -- what I'm seeing here is it looks like you -- what's your rate of return, is that the 3.3 percent?

VICE CHAIRPERSON TAYLOR: Yeah. Well, we are required to make 1.7 percent plus real wage increase with minimal risk. And I really don't think that's the best way to describe -- that is the best instruction to give to the investment team, but that's what the -- we are operating with.

So if we make the 1.7 percent over real wage increase, that should satisfy that 10 percent, you know, the responsible, you know, the 10 percent of the benefits.

VICE CHAIRPERSON TAYLOR: The reserve fund that you're talking about, that's what --

MR. MIZUNO Hmm?

VICE CHAIRPERSON TAYLOR: You're saying that should satisfy the reserve fund?

MR. MIZUNO: Yeah, that's right.

VICE CHAIRPERSON TAYLOR: Okay. So you guys are fully funded, is that what I'm assuming?

MR. MIZUNO: Yeah. Well, it's tricky to say fully funded, because it's a pay-as-you-go scheme.

VICE CHAIRPERSON TAYLOR: Right.

MR. MIZUNO: And as you see, the -- this graph -- you know, this government contribution is -- basically, it's a tax. So it's very difficult to describe whether we are fully funded or not, because the -- that actually take it into account, they will get a subsidy from the tax -- you know, the account. And then also the other annual pension premium paid by the other working generation, and then reserve fund.

VICE CHAIRPERSON TAYLOR: And we have -- and you have that discrepancy now between aging population and a much smaller population contributing into the fund.

That's what I was curious about, because it sounds to me like we have a similar -- kind of similar situation with our aging population. We don't have a pay-as-you-go scheme necessarily, because we have to hit a certain rate of return to make sure, and be fully funded to make sure that we pay our benefits.

MR. MIZUNO: Yeah, I think the -- I think the -- for the next 25 years, we have net inflow of the capital. And after that, we will be getting to the real serious like distribution more. And so I think that compared to Ben, one of very few privileges I have is I probably don't need to worry about the payout for the next 25 years, so we can just focus on more long-term investment.

CHIEF INVESTMENT OFFICER MENG: Yeah. So as Hiro said, there are a few key differences between us and GPIF. One is the current liability, as Hiro just said, at least for the next 25 years, they don't have projected current liability payout. Currently, we pay out more than $20 billion a year.

And the other thing that as Hiro just mentioned, GPIF is designed to go away in 100 years. So there's a termination date. CalPERS, our fund, we don't have a termination date. It's a perpetual. Supposed to be a perpetual fund. So these are the key differences.

And also, as you point out, our required rate of return is 7. It's much higher than their required rate of return. But that difference aside, there's still a lot of things we can learn and benefit from there.

VICE CHAIRPERSON TAYLOR: Oh, yeah. Yeah. I'm just trying act -- trying to help -- figure out the similarities, as well as I didn't realize -- I think I took it differently when you said there was 100-year date. So why would the pension system go away in 100 years. Have you guys --

MR. MIZUNO: No, the GPIF will go away, but the pension scheme will continue obviously.

CHIEF INVESTMENT OFFICER MENG: So the whole --

MR. MIZUNO: You know, the other -- now, we have the age pyramid, which is almost like a pillar.

VICE CHAIRPERSON TAYLOR: Oh, yeah.

MR. MIZUNO: And then going into the other eight -- the reverse age pyramid. And that then those generations will die and it go back into normal pyramid, right?

VICE CHAIRPERSON TAYLOR: Okay.

MR. MIZUNO: The Japanese government project it -- that transformation will take another probably next 100 years. And during that period, the burden on the younger generation is going to be unbearably heavy.

VICE CHAIRPERSON TAYLOR: Right.

MR. MIZUNO: So that's why they came up is the idea of the other -- using this reserve fund, which I'm managing to fill the gap --

VICE CHAIRPERSON TAYLOR: Got it.

MR. MIZUNO: -- so that the other younger generation wouldn't suffer outrageously the other pension burden to pay to the retired people.

VICE CHAIRPERSON TAYLOR: Okay.

CHIEF INVESTMENT OFFICER MENG: So basically the hope is that within 100 years, Japan will be able to reverse the aging trend.

VICE CHAIRPERSON TAYLOR: Right. Right. Okay.

MR. MIZUNO: Yeah. That's a bold assumption of them.

(Laughter.)

VICE CHAIRPERSON TAYLOR: Let's hope so.

MR. MIZUNO: I hope so, too.

VICE CHAIRPERSON TAYLOR: Thank you.

CHAIRPERSON FECKNER: Thank you.

Ms. Yee.

COMMITTEE MEMBER YEE: Thank you, Mr. Chairman.

And welcome, Hiro. It's really wonderful that you're here. I had a question. Since you're a national fund and you talked a little bit earlier in your introductory remarks about our -- the differences in our regulatory framework. So who regulates you?

MR. MIZUNO: The Ministry of Health, Labour, and Welfare.

COMMITTEE MEMBER YEE: Okay. And so -- and part of why I'm asking is that I know you really did some great work in terms of corporate governance improvements and reforms. And so are those policies advisory that come down from the government of Japan or are you self regulating? I'm just trying to get a sense of where those -- how you treat advice and mandates?

MR. MIZUNO: Yeah. Well, that's the -- that's a very good question, Betty. And I try to answer the question as effectively as possible.

When -- let's take the ESG as an example.

COMMITTEE MEMBER YEE: Yeah.

MR. MIZUNO: Four years ago, we started a campaign to integrate ESG into our investment strategy. And we started calling for the corporates to align their business with the -- all those ESG requirements. At that time, we received the criticism from some media, like I'm under pressure by the Abe administration, if we are trying to promote the corporate governance reform, and that's why I'm doing it.

And I keep refusing that argument, saying like, you know, I think taking ESG into the investment analysis make 100 percent financial sense and nothing to do with the Abe administration want to promote the corporate governance reform.

But, you know, that's the kind of the general perception which we struggle with. So to address that kind of misperception, government came up with that governance structure trying to make us look like as distant as possible from the other -- the policymakers.

But in reality, I never brought the policy agenda into my investment decision whatsoever. And ESG integration, ESG campaign for me, it just really makes sense for -- as a universal owner to protect our fund from the capital market volatility, or like a system risk, we are facing like climate change.

COMMITTEE MEMBER YEE: Yeah.

MR. MIZUNO: I think the story -- I couldn't sharply answer your question, but the -- it's nothing to do with the other Abe administration's policy that GPIF promote corporate governance reform of Japanese corporates.

COMMITTEE MEMBER YEE: Okay. Yeah, that's a good example.

And then with respect to your assets, how much of it is internally and externally managed?

MR. MIZUNO: We are regulated not to take any equity investment in-house. So the 100 percent of equity portfolio is managed by external money managers. And for the fixed income, we actually can manage all the fixed income in-house. But as -- we made a strategic decision to only manage domestic fixed income in-house. So 100 percent of the fixed income and 100 percent of global equity portfolio are managed by our external managers.

COMMITTEE MEMBER YEE: Okay. All right. Thank you.

MR. MIZUNO: Okay.

CHAIRPERSON FECKNER: Thank you.

Mr. Perez.

COMMITTEE MEMBER PEREZ: Mr. Mizuno, thank you for coming.

On one of your slides, I show three tiers for employees. Can you walk me through, please --

MR. MIZUNO: This one?

COMMITTEE MEMBER PEREZ: Yes, sir.

So if I'm a new employee, where does --

MR. MIZUNO: Okay. We are like the U.S. Social -- you know, Social Security. So it's a national pension, whether they are student, or whether they are working for the company, or they are self-employed, or they are -- they make -- you, know they are homemakers, regardless of their -- you know, their jobs, they are part of this national pension scheme. So literally every single Japanese are beneficiaries for this national pension scheme.

And on the top of national pension scheme, we have employee's pension, but this is mandatory. And GPIF manage the fund contributed by those national pension, as well as the mandatory employee's pension or corporate pension. And the big corporates, like Toyota and Nissan, those guys, they have their own -- the pension on the top. So they're -- that third layer is up to the person or the company you work for.

So not everybody has the luxury of having that start -- that layer. But every single Japanese has the other -- the first tier -- or first layer. And the people who work for the corporates also entitled for the mandatory. That's the second tier pension scheme.

COMMITTEE MEMBER PEREZ: And the national pension, that's the tax you referred to?

MR. MIZUNO: Hmm?

COMMITTEE MEMBER PEREZ: The national pension for everybody, the basic -- the basic pension --

MR. MIZUNO: Yeah, this is basic pension. This is Social Security.

COMMITTEE MEMBER PEREZ: The tax you referred to earlier?

MR. MIZUNO: Attach?

COMMITTEE MEMBER PEREZ: The tax.

MR. MIZUNO: Well, this is not tax, but they are collected together with tax. So, you know, those -- like that graph I showed that the subsidy came from -- the government came from the general tax account. And the middle layer, it was like directly contributed by the other taxpayers, but it's collected together with tax. So a lot of Japanese people think that the pension contributions is also money like a tax. Yeah.

COMMITTEE MEMBER PEREZ: And the employee's pension, is that the employee paid or is that --

MR. MIZUNO: It's half-half. Yeah. So the other -- basically, the corporate have to match the contribution but their employees.

COMMITTEE MEMBER PEREZ: Thank you.

And then what's your staff size and your operating budget?

MR. MIZUNO: That's a good question. We have only 135 people working. We don't have the administration side of CalPERS. So basically it's Investment Office we have 135. And our cost of operation is very low, but we paid about $500 million to the asset manager to manage our portfolios. So it's just -- you know, it's just a strategic decision and also regulatory preference for GPIF not to manage the equity in house. Because if you think about it, we own about 10 percent of Japanese corporates. And now our relationship with the Japanese corporate community is very, very, very positive.

But four years ago, when I was called by, you know, Japanese government to leave London private equity shop to run this fund, Japanese corporate was very skept -- very concerned about GPIF becomes like, you know, the private equity fund manager.

So the regulator made it clear GPIF is not going to manage the equity portfolio themselves. So that we're not going to be sort of like a dominant shareholder in a Japanese -- in the public -- private sector. So that's a background why we don't take any investment in-house.

COMMITTEE MEMBER PEREZ: Thank you very much.

MR. MIZUNO: Thank you.

CHAIRPERSON FECKNER: Thank you.

Mr. Jones.

COMMITTEE MEMBER JONES: Yeah. Thank you, Mr. Chair. Good to see you again, Hiro.

MR. MIZUNO: Good to see you.

COMMITTEE MEMBER JONES: Yeah. As you know, CalPERS has substantial investments in Japan. And maybe right before you came, I was with a group that had went to Japan to talk about corporate governance, because we were concerned about our investments in Japan.

So I know that you've implemented a strategy on the corporate governance now. So could you kind of give us an update where you are in that strategy?

MR. MIZUNO: Sure. It's probably -- it's probably makes sense for me to go through our ESG initiatives to address your question more clearly, because we never separate like a corporate governance issue from like the other issues, like social, and environmental issue, because we promote ESG investment altogether.

So for us, corporate governance is one of ESG issues, rather than a one specific issue. So let me -- if you run out of questions on the who GPIF is, I probably wanted to just move on to the other slide to address the Henry's question better.

COMMITTEE MEMBER JONES: Right. Okay. That's fine. That's fine. Okay.

MR. MIZUNO: Mr. Chair.

CHAIRPERSON FECKNER: You done, Mr. Jones?

COMMITTEE MEMBER JONES: Yeah. Oh, no, I do have another one. Go back to the chart that shows the governance structure. The audit committee, it says that the -- it's the same body of members that are part of the Board of Governors that's part of the audit committee. So what's your relationship to the audit committee and do you have an internal audit committee.

MR. MIZUNO: We do have an internal auditor as well, so -- but this is -- this is only one committee like board has. Like CalPERS gets, they have Investment Committee as well as the -- what's other one?

COMMITTEE MEMBER JONES: Health.

INVESTMENT DIRECTOR SIMPSON: Pension and Health.

MR. MIZUNO: Pension and Health, the committee. For GPIF it's only one committee the Board has is the audit committee, who works as sort of semi-external auditing board. And also one permanent board member is stationed in our office to report to that audit committee. So it's very rare for me to work directly with audit committee, but audit committee works as a bridge between investment team and board.

So I don't -- you know, GPIF meet with our board every month, but only for two hours. So it's not like CalPERS. I don't know how many days you meet every month, but we meet like --

INVESTMENT DIRECTOR SIMPSON: Three.

MR. MIZUNO: Yeah, three days. Our case, two hours or three hours. So this like audit committee function as the sort of liaison between the investment team and a board, so that we don't need to, you know, report everything in detail to our board.

COMMITTEE MEMBER JONES: Thank you.

MR. MIZUNO: Thank you.

CHAIRPERSON FECKNER: Mr. Miller.

COMMITTEE MEMBER MILLER: Yeah. Thank you for taking the time to spend with us, sir. Really appreciate it.

I'm kind of curious, you know, for us having kind of direct engagement with our beneficiaries and the members we serve is a big part of kind of the transparency, and accountability, and results equation for us, and things like this generational equity issues that are really important to them. So for you in your system, what's that relationship with the members, the beneficiaries like? Is that through the Board of Governors or through the voice of the customer via the government, or do you interact directly with them in some ways? Like you can see in our audience, we always have very active members and organizations to communicate with us.

MR. MIZUNO: Thank you. That's a very good question and very important question for us. And when we have been discussing -- we were discussing about this new governance structure, that was one of the topic this being discussed very heavily, because now it used to be GPIF investment team was also responsible policy asset mix. So the other investment team before this new governance structure felt full-heartedly responsible for the performance.

But now -- actually, they picked the -- pick up the CalPERS motto and the Governor -- Board of Governors decided policy asset mix. So to be fair, 80, 90 percent of performance was actually dictated by the Board decision.

INVESTMENT DIRECTOR SIMPSON: Yes.

MR. MIZUNO: But in reality and in real world, nobody hold that board accountable for the performance.

It's going to be investment executive. So nobody want to listen directly from our board about our investment, so it's got to be us who try to communicate with general public how we manage.

That's something I always feel unfair to be honest. But --

CHIEF INVESTMENT OFFICER MENG: You're not alone.

MR. MIZUNO: Yeah, we're not alone.

But the -- basically, board make those kind of very, very critical investment decision. But when GPIF tried to communicate with our stakeholder beneficiary, which is Japanese general public or -- and also, usually, we reach out to general public through media. Media only interested in our explanation how we are managing it. So we take the responsibility.

Given we don't have a target audience, it's always really difficult to communicate and/or convey the very clear message, because we have no idea who's listening. And at least the CalPERS beneficiary, in my opinion -- in my -- you know, the understanding, at least served for the public -- you know, the -- you know, for the local government. So the people seems to have the public mindset, I guess.

But we are serving every single Japanese person who has a totally different opinion from each other. So the communicating well with the general public is such an impossible job for us. So we created a lot of like a reports and we put everything on the Internet. We don't broadcast the board meeting like you guys do, but we put a lot of information on the -- on the homepage. But we always get criticized we are not transparent enough, which I think is impossible task to achieve.

And if you don't mind, I just wanted to just talk about the transparency. Over the last four years, we continue to increase our transparency. But as a result, we haven't been able to affect the people's perception or expectation of GPIF. So I concluded transparency itself wouldn't solve the problem.

Okay. And I always feel like, you know, the Board and the people, particularly people from the investment industry or finance industry is expect the investment team to outperform the market. But in reality, if you take the analogy of NBA, like, you know, the basketball team. CEO is like, you know, the head coach and all of our conversation of our game plan with our owner or executive has to be broadcasted.

Beating the market, managing a public pension fund is almost impossible job. That's one thing I wanted to just convey to the Board of CalPERS. You know, transparency sounds good, but in reality, it, you know, really make investment team play handicapped game.

So we started discussing which area we should be strategically transparent and which area which actually information we should be trans -- you know, strategically less transparent. I'm sure that the -- I understand that at the CalPERS Board now the private equity is one of the hot topic. I used to manage one of the biggest private equity fund.

And private equity fund delivers better return. Nobody argue about it. The reason why, because we are playing the game of not transparency, you know, with a lot of private information, right?

So on one hand, I think GPIF and CalPERS has to continue to make effort to have better communication with the stakeholders, but I would like to ask the -- our board as well as the CalPERS Board to be empathetic to the investment team who have to operate in that kind of handicapped environment. It's really hard.

You know, we need to tell them our asset allocation start. When we start discussing the new policy asset mix, we under pressure from general public we need to disclose it. It's very difficult to manage the fund in that kind of circumstances.

If you don't request us to outperform the market, it's fine. But all the board expect the investment team to outperform the market. And without, you know, the operating with that kind of transparency requirement, it's just impossible.

So I think the Board side -- Board and the investment team need to work together to improve the communication with the stakeholders. But increasing the transparency doesn't seem to deliver what we are talking about. So that's another reason I feel always empathetic to the CalPERS, because we are under very similar pressure by general public and also the media about what we are doing.

COMMITTEE MEMBER MILLER: Thank you for your insight, sir.

MR. MIZUNO: Thank you.

CHAIRPERSON FECKNER: Very refreshing to hear those comments, so thank you.

MR. MIZUNO: Thank you.

CHAIRPERSON FECKNER: Ms. Middleton.

COMMITTEE MEMBER MIDDLETON: Okay. Thank you, Mr. Chairman. And thank you, sir. It's a pleasure to hear your insight.

I'd like to shift gears a bit. You've got incredible experience in the global economy. As you look forward over the next few years, in the next 25 years, that what are the most significant concerns that you have that would cause major disruption to the global market economy?

MR. MIZUNO: Thank you. That's a very good question. And several issues I'm very concerned about. You know, I think that -- Ben probably the same, but every time I'm the panel at the conference, the moderator try to ask me what may -- you know keeps me up at night? And I always answer that it's Netflix --

(Laughter.)

MR. MIZUNO: -- and YouTube, but --

(Laughter.)

MR. MIZUNO: I watch the CalPERS Board media on my way into the conference. It totally kept me awake 11 hours.

But the one is the aging society in a developed market -- developed economy. You know, Japan has been trying everything to get out of deflation over the last two decades. We still haven't been successful. You know, how much money Japan has got -- you know Bank of Japan printed and how much stimulus Japanese government implemented still we cannot get out of the deflation. And it has to do -- it obviously has to do with the aging society.

And the globalization of the economy and the basically just made the other manufacturer's job impossible to -- you know, transfer the cost into the final -- you know, the final, you know, consumer pricing. So there's a huge pressure to keep the other -- you know, the price down and inflation down.

And GPIF is now allocated 50 percent of our portfolio to fixed income hoping fixed income portfolio provide hedge for the other -- you know, the drawdown on the equity portfolio. But last 4th quarter of 2018, GPIF reported the -- it's only mark to market -- it's not real loss. But the mark to market loss of $150 billion just over three months.

You know why? I have been in this industry for throughout my career. I look young, but I'm 53, so I have significant experience in investment, okay? I have a young looking gene.

(Laughter.)

CHIEF INVESTMENT OFFICER MENG: Keep working at GPIF and you'll --

(Laughter.)

MR. MIZUNO: I never had gray hair before I joined GPIF.

(Laughter.)

MR. MIZUNO: But working for the public pension fund, started growing -- I started growing gray hair.

(Laughter.)

CHIEF INVESTMENT OFFICER MENG: Very try with me. My mom just came to visit me a couple weeks ago. She noticed you got white hair now.

(Laughter.)

MR. MIZUNO: I know. I know.

So what was I going to say?

Oh, the reason that we had to report the $150 billion loss over three months, I lost -- we lost as much as the -- not as big as CalPERS, but the major U.S. public pension fund has only $100 billion. So we lost as much as major U.S. pension fund over three months.

The reason why was I never seen in my whole career, as an investment professional, every single asset class we lost money. Okay. Because conventional wisdom of the portfolio diversification is like when we lose money in equity, we make profit in fixed income, right? But we lost in every single asset classes. And we also lost in currency translation as well. It never happened in the past.

So I think it has something to do with the mandatory easing, all those kind of things, which we actually created over the last decade and we are now, you know, facing the situation global market is so linked. You know, when we woke -- wake up and find out the New York Stock Market, the -- you know, the plant, we --

everybody expect the Tokyo market will go down as well, right?

It used to create a global diversification. So when the New York goes down, the Tokyo used to go up. But now, every market move in the same direction. So this is actually it's really concerning to me. You know, the -- whether the conventional wisdom of the portfolio diversification really save us? And no wonder why everybody trying to increase the private -- you know, the asset or like a private investment, because obviously, it's not correlated to the public market. But that's another thing.

And the third one is I still don't know whether it's going to be a, you know, net positive or negative. But the AI going to replace a lot of jobs, you know. But when the car replaced the horses, I think a lot of horse owners very concerned about it. But in the end, we benefited from the car.

(Laughter.)

MR. MIZUNO: So I don't know, we may benefit from -- like from AI. But for the time being we will see the difference in some people win it -- you know, win with that, and the other people will lose with it.

And -- but this impact of AI in the business is going to be more significant than people think. So that's why one of the initiatives we are making is that work with the Sony computer science laboratory to use AI to monitor our asset management behavior.

So there's a lot of room for the -- our industry to use AI. But, you know, if you think about it, this is an industry where there are, you know, thousand of million dollar bonus paid people. I really don't think that all of them will managed to keep that kind of high remuneration.

But to conclude my answer to your question, I think the other -- how the AI will affect the industry landscape is going to be the big topic, whether it's going to be negative or positive. At the moment, I cannot judge.

COMMITTEE MEMBER MIDDLETON: Okay. Thank you.

CHAIRPERSON FECKNER: Thank you. And I feel your pain, Ben. When I started here, I had hair and this wasn't white, so...

(Laughter.)

CHAIRPERSON FECKNER: Ms. Olivares.

MR. MIZUNO: Okay. So --

INVESTMENT DIRECTOR SIMPSON: There's one more.

CHAIRPERSON FECKNER: Wait just a second.

Ms. Olivares.

COMMITTEE MEMBER OLIVARES: Hi. Thank you, Mr.

Chair.

I wanted to understand better your performance based fee structure. It's a little different. I find it quite interesting.

MR. MIZUNO: You mean for the asset managers?

COMMITTEE MEMBER OLIVARES: Yes.

MR. MIZUNO: Okay.

COMMITTEE MEMBER OLIVARES: So if I understand correctly, if an invest -- or an asset manager doesn't perform in terms of reaching alpha, then they're paid based on a passive index, is that correct?

MR. MIZUNO: Yeah. I think the -- our new fee structure is -- has been very controversial, because basically we challenge the industry saying like, you know, active manager seems to be remunerated much better than they should be. Not about the absolute level, but also the fee structure is not really, you know, the -- align our interest with asset managers.

So as you know, the active manager's performance is conventionally measured their performance relative to benchmark.

COMMITTEE MEMBER OLIVARES: Um-hmm.

MR. MIZUNO: And there is also the big debate in the finance academics that the -- whether active management will deliver any value or not. Because on average, you know, the -- as you know, the active management has never beaten the other -- you know, passive management, while they charge much higher fees.

COMMITTEE MEMBER OLIVARES: Right.

MR. MIZUNO: So through our GPIF's own experience, you know, 80 percent of our investment team resource was used to select the asset managers and monitor them, et cetera. I mean, active managers. But in reality, net of fees, historically our alpha net of fee was zero. So that means we wasted our resource spending energy on selecting active managers.

So -- but the conventional reaction to that was you are not good at selecting good managers, right? So it's your fault you selected bad ones. But in reality, if you look at the statistic, active never, you know, beat the market net of fees. So that's why we thought we need to change the game, rule of the game, to make it possible for us to win.

And the game -- the new rule of the game we implemented was active managers should be only paid as much as passive manager being paid, if they don't deliver extra return. It's very simple.

(Applause.)

VICE CHAIRPERSON TAYLOR: Yeah.

MR. MIZUNO: Yeah, it's very simple. And then unfortunately, last year, GPIF managed to save $200 million in active management fee, because majority of active managers failed to deliver target alpha, but it will give us much better chance. When the market is better, right, the -- we'll probably be able to get the alpha out of the active management. And then when you look at the long-term performance of our active portfolio, we pay very little when the performance is low and we pay higher when they make the other actual returns.

So the probability of GPIF winning from active portfolio is now much better and also it makes a lot of sense as you give me some, like applause, they shouldn't be paid if they don't deliver something, which they promised, right?

(Applause.)

COMMITTEE MEMBER BROWN: I agree.

MR. MIZUNO: Because unfortunately, I'm -- you know, I would recommend you to read some of the white paper about the fee proposal on our website. And it illustrate what the discussion we had with the asset managers, because at the beginning, all the asset managers are trying to refuse it. They argued it's not fair. And GPIF now is again trying to use our power to hammer the fees.

But what we said was, first of all, if you don't deliver alpha, you are just as good as passive, right, so you should be paid as -- you know, as good as passive. And we designed the participation ratio to break even at their target alpha, right? So if they deliver the alpha what they proposed us, they should be paid as well, right?

So they are -- I told the asset managers it doesn't make any sense you complain that we are trying to hammer the fee, because if you deliver what you're proposing, you're receiving exactly the same amount of fees.

But throughout the GPIF's, you know, the history, only 18 percent of our active managers ever deliver target alpha. You know, when you select asset managers, and you saw -- when you agree with your investment team, you ask them, you know, how much alpha you are trying to achieve by taking this risk, right? So that's called the target alpha.

And suddenly throughout the GPIF's experience, only 18 percent of our active manager ever deliver the target alpha. So I said, this industry should be gone, because, you know, the -- if this industry, only less than 20 percent of product performs as, you know, what it says on the product box. That industry should be either eliminated or underperformers should get out of the competition.

But we manage to -- you know, they manage to keep the industry intact, while academics argue active management don't deliver anything. I still believe human can add value and active management can still add value, but we needed to change the game -- the rule of the game, so that we have better chance of winning and delivering alpha. So that's the whole basic idea behind the other fee structure.

COMMITTEE MEMBER OLIVARES: Can you show slide 28, which illustrates your point?

MR. MIZUNO: Yeah.

CHIEF INVESTMENT OFFICER MENG: So if I may add something to Ms. Olivares question. So this is just one of the many examples Hiro and GPIF has been the thought leader in the industry. So this creative fee structure. Once GPIF designed it, not only they use it to their own benefit, they also put it out on their website as a white paper.

And at that time, I was still working at SAFE. So my senior emitted for me a copy of the paper, asked me and the team to study. So that's go to say again that, you know, Hiro and GPIF's commitment to the entire industry, not to GPIF, to get better alignment for long-term investors, such as GPIF and CalPERS.

Yeah. So the paper -- all the detail methodology is on its website.

COMMITTEE MEMBER OLIVARES: Thank you.

MR. MIZUNO: So this is the slide you want to put on?

COMMITTEE MEMBER OLIVARES: Yes.

MR. MIZUNO: So actually this is the one of very -- you know, the many initiative I -- we started. And -- but the fee structure, which has been quite controversial, but now -- actually, 43 out of 46 are asset managers in the end agree to this. And three manager who walked away, I directly discussed with their executive why they don't accept this.

And one manager says, they have -- they don't believe that they can ever deliver target alpha. And I said why didn't you tell us two years ago, okay?

(Laughter.)

MR. MIZUNO: And then the other asset manager says, you know, we agree with this concept, but we have much easier money, right? Some of the other customers willing to pay fixed fee. Why would they have to take the GPIF?

So I think this type of initiative, as Ben mentioned, I really call for the collaboration among asset owner to make it as a -- like a more industry like a practice.

Another good example -- sorry, I just sort of jump onto other issues, which is again transparency. When I was a GP, we used to hate CalPERS, because CalPERS disclosed everything.

And, you know, we used to say the private equity market, like CalPERS is not the other -- you know, the ideal customer, because once we partner -- we get the CalPERS money, all the information will be disclosed. And now, I mean, GPIF, I'm telling our GP, we are going to disclose everything, because the point is when CalPERS is only one, it will work against you guys. But if we join, and if other people will join, it will become market standard.

So some of those things, as I mentioned, we have to be more strategic about the transparency argument. But the -- there is something if GPIF, and CalPERS, and some big asset owner decide to work together, we can affect the market. That's the reason we posted this in a public domain. Because when I started negotiating with the asset manager, first thing they told me was -- ask me was are you going to disclose this fee to the public?

And I knew my job would have been much easier if we -- I had told them we are going to keep it secret to negotiate a fee. But we told them, we are going to disclose this, because we have a very strong, you know, the commitment to change the market practice.

So, you know, if the one party does it, it goes against -- it works against them, but it will become the industry practice -- you know, it will change the things for the better -- for the better of everybody.

CHIEF INVESTMENT OFFICER MENG: Yeah. So this is one example where Hiro mentioned early on strategic transparency. So what we should be more transparent, what -- where we should be less transparent, how to best serve our fiduciary duty. So this is one example of strategic transparency to the benefit of our beneficiaries.

MR. MIZUNO: Yeah. So CalPERS is not going to be alone to disclose the fee on the private equity, because we are joining. But fee is okay, but the other things, I mean, some transparency requirement which I used to hear from some of the public pension fund including CalPERS, which really affect the private equity money's ability to deliver, you know, the outperformance.

And so in some of those areas, I think the other -- the public pension fund board, I know, executive team has to be more strategic.

But, you know, it's not about hiding, but some other things that we probably be able to just come up with more strategic approaches.

So can I just go through some of the other -- you know, the other initiatives we have been implementing, so that I can -- you know, the -- invite some other questions?

CHAIRPERSON FECKNER: Sure.

--o0o--

MR. MIZUNO: So this is a snapshot of our ESG investment. You know, the first thing I did when I came into this position is to analyze who we are? And we are trying to find the best role model of the -- you know, the asset owner business model. And after three or four month search -- or research, I concluded we need to come up with a new theory or like a new business model, because nobody actually, you know, give me the impression that, yeah, this is going to be role model for us to mimic.

So the first thing we did was we're actually trying to characterize who we are. And we concluded those two key words should describe GPIF the best. One is universal owner. The other is cross-generational investor.

Universal owner is actually, you know, appeared in classic finance textbook many years ago. But I was told by Harvard Business School professor, GPIF probably the first one to take that out into the -- out of textbook into practice.

So we basically own the wide universe of the capital market. So, you know, the conventional wisdom of the asset management we did how to beat the benchmark, how to beat the market is not suitable for our -- you know, for GPIF or CalPERS. We are a universal owner. Because given our size, we won't be able to select, you know, only the good performer or when we look at the ESG, you know, E is a good example, climate. I'm against the idea of divestment. The reason why is when we divest, ownership of those programmatic company will be shift from the responsible owner to irresponsible owner.

So it doesn't make any difference, because even that business is outside of our portfolio. If they continue to pollute the environment, we need to suffer, right? So the universal owner should pay more attention how to make the whole capital market a whole business, or whole society more sustainable. That's going to -- because that's going to affect our portfolio somehow, some day.

So that's the one the characteristics of the universal ownership. And when I spoke at the Harvard Business School, some student asked me, well, GPIF, it's easy to understand you are universal owner given your size. But what if I'm a CIO of like a small -- you know, the endowment of pension fund, should we act like other universal owner or not?

My argument was, as a community, we are universal owner, regardless of your size, because you may be able to outperform the market for the short period of time, but the long period of time, you are basically owning the global economy. So the universal ownership is a really, really important key characteristic of GPIF. And also, I think it should be suitable for the other asset owners. And CalPERS, no doubt you are universal owner.

And the other one is a cross-generational investor. We used to call ourselves long-term investor. But when I was making a speech at the CFA Institute annual meeting in Hong Kong, I asked the other panelists and also audience what's your definition of long-term investment?

Yeah, well, the most common one is three years.

(Laughter.)

MR. MIZUNO: And the one young guy told me, I was told by my boss that anything longer three days you should take it as a long term.

(Laughter.)

MR. MIZUNO: Right? Because they are like hedge fund. Okay. So I came to realize long term is so subjective. And everybody seems to have a totally different time frame when we say -- we say long term.

And then I started using super long term. And one person said, oh, for me super long time is three months. Okay. I gave up on the long term.

(Laughter.)

MR. MIZUNO: So that's why -- and then we started using a cross-generational investment, because are managing money not for the first people who already retired. We are managing money for the people who are not born yet, right?

So that we are cross-generational investors. And when we ae cross generational investors toss, everybody is started thinking we are talking about a third 20, 30 years minimum time frame.

And GPIF's poly asset mix designed to optimize our performance over 25 years. And we are definitely at a cross-generational investors so

So for the universal ownership characteristics and for the cross-generational investor characteristics, we concluded GPIF should pay much more attention to how to make the capital -- whole capital market more sustainable.

So that's the other sort of backdrop of the -- all of our ESG initiative. And we have been asked whether taking ESG into account is against a fiduciary duty? And I said fiduciary duty meaning, you should be loyal to your beneficiaries.

And if we think we are universal owner,

cross-generational investor, I cannot think of like, you know, taking ESG information into our investment decisions against our fiduciary duty. So we actually made that statement very clear to our asset managers.

And funny thing is when I discussed with the asset manager individually, everybody tells me ESG is going to be -- it probably is already, but is going to be the most important critical financial investment information for their portfolio management.

And then argument is then practice it, because if they think that transformation is going to happen over the time, we want to be the first one to do that, right? That's how we can make the better return.

So the GPIF is really committed to become the ultimate ESG investor to make sure our whole capital market is going to be sustainable. And the inconvenient truth of the asset management is, you know, as I said, we spend 80 percent of our resource trying to select the active managers. And we made a huge effort to build the -- you know, the alpha, or accumulate extra return. But I don't know about the CalPERS, but my study is showing all the asset owners effort to make extra return every 10 years wiped out by financial crisis. That means the beta is so important.

INVESTMENT DIRECTOR SIMPSON: Thanks very much, Hiro. I just wanted to flag a really practical example of how GPIF and CalPERS are putting these ideas into practice. And it's through tackling climate change, which is systemic risk, also presents opportunity. But what we've done is team up together and form a network of what's now $34 trillion in investors that stretch from Asia, Europe, North America. And what we're doing is focusing on just over 100 companies where - again, we love data just like you - when we did the analysis, Divya Mankikar did this important work, we found that these 100 companies are responsible for the vast majority of the emissions.

So in other words, we can focus our attention and start to work with these companies. And our goal is a transition to get to 2050, to get to net zero globally. But we are confident that we can do this as long as we work in partnership, as long as we're focused, as long as we're long term. And we're already getting some big results at huge oil companies like Shell, which has a written agreement with us, and many others as well.

So I think what we're finding is that we can take this idea that GPIF has, that we fix the market through partnership and through engagement. If we walk away, we don't get the chance to change things. You know, we just have to go and hide in a corner and hope it all works out, but actually we need to fix it. And that's really what fiduciary duty is it's getting things fixed.

So I just want to thank Hiro for his personal commitment, because his role through our Asia Advisory Group, which Hiro and I both sit on, is actually now leading us to start looking at strategy for China based on the success that you've led in Japan. I think it's a very, very practical and a very, very fruitful way of working together.

MR. MIZUNO: Yeah.

CHIEF INVESTMENT OFFICER MENG: And on the note of ESG investing, as Hiro just mentioned, that it's critical for us to catch the moment. But also with the invention, we have to be mindful that in the Investment Office is shared with a team and we're actively researching this topic, when it's right. So I use the surfing analogy, right? We definitely would like to catch the wave, but you don't want to be too early in terms of deploying capital.

If you're too early, you'll be, as Howard Marx once said famously that, you know, if you're too much ahead of your it's distinguishable from being wrong. But we need to capture the wave. And if you're too early -- if too late, we miss the wave. We may be crushed by the wave. If we're too early, we have to take on too much risk -- tracking error risk and sometimes cost getting the market ready.

But what we can do together -- and also ESG topic is so broad. Some strategies may be ready for deploying capital. Some strategies probably stay -- still warrants monitoring, and research, and getting data. But we should closely monitor when the wave is forming. And if the wave is forming, we want to surf on top of that wave. And that what we can do form together at the partnership continue -- continue to be the advocates of these topics. Educate the market the risk, so that we can create the wave together. And so also we can surf together to benefit from the moment and the benefits of our members.

So we just be a little bit cautious. ESG topic is so broad and they're so different. So we had to apply, depending on which topic we are talking about, which stage? Are we in the stage of research, in the stage of monitoring, or in the stage of actually deploying small amount of capital. But regardless, we need to join together to advocate these key long-term initiatives.

MR. MIZUNO: Can I say one thing about ESG investment? I think the -- when I started advocating internally about the ESG investment, there are a lot of skeptics inside of my team. And I analyzed why they are concerned or skeptical about ESG investment.

And one reason I wound out was a lot of people think delivering extra return is only way to satisfy fiduciary duty. So the other -- whenever they discuss about ESG, they try to, you know, address whether taking ESG into the investment decision will deliver extra return over the market.

All right. So we now pay a lot of attention to index provider and quality of index, because, you know, we use a lot of passive management like the CalPERS. Passive management -- if you discompose the passive management, it's -- basically, it's the index tracking and engagement with a company, because they are actually the bigger owner of the company, right? So that we demand over passive management that actively engage with their portfolio companies.

But basically, the passive management is a composition of their index tracking and engagement. We now urge our passive managers to engage more proactively with the asset -- the portfolio companies, which CalPERS do directly.

But this index tracking, I think historically, we paid too little attention to index selection, because we basic -- used to pick the -- whatever is the most popular index as the policy index. But in reality, index provider dictate what we ended up holding. So we started engaging directly with the index providers. And we tested several ESG-themed weighted indices. And again, some people are skeptical whether this will fix -- satisfy fiduciary duty if we underperform the benchmark.

So we designed the benchmark to carry the same return and the same risk level trying to, you know, prove we are making the -- bringing all our financial expertise to select the index, which is not going to lose to the market, but obviously some index, as I show -- showed in a slide underperform and the other overperformed.

But we keep sending a message to Japanese public, GPIF, the ultimate goal of ESG index investment is to make Japanese capital market more sustainable.

And because index has much more powerful effect over the industry -- because active manager has a dilemma, if they think this company is good because of the -- for their ESG the qualification, and when the price goes up, they need to sell it to realize the extra return. But the passive manager, they tend to hold almost perpetually. So they should be the biggest beneficiary of their long-term sustainability of the businesses.

So that's why we have been very successful communicating with Japanese general public. And last year, there more than 4,000 newspaper article talking about the GPIF ESG investment.

CHIEF INVESTMENT OFFICER MENG: 4,000?

MR. MIZUNO: 400. 400. And almost every single article were very supportive, because they like the idea of GPIF trying to contribute to make the capital market and Japanese -- the business as a whole more sustainable. Okay. So that's the reason why we have to show some negative performance relative to benchmark with the FTSE Blossom Japan ESG Index. But that we didn't get much criticism.

And the other thing I want to mention is like fiduciary duty is one thing, but these days, as an investor and a shareholder, we expect the corporate executive to deliver a lot of different things. When I faced the other asset managers who are skeptical about the ESG 4 years ago, I asked them the question, what if your portfolio company CEO tells you my job is pay you the dividend, anything else I don't care? I'm a CEO of this business. My job is to give you the shareholder return. I don't care about the corporate -- the worker's welfare. I don't care about the environmental impact. I don't care about the gender diversity or social impact. How would you react?

Every single asset managers of GPIF told me, they cannot accept it. And if they cannot accept it, why they think it's acceptable to ourselves?

So I think the investor has a responsibility, but it's not going to be mutually exclusive. We deliver financial return, but we pay attention to those risks. We achieve both. And we now expect the corporate executive to achieve both. Of course, we should expect ourself to achieve both.

So that's the other different way to take a look at the ESG. But it makes 100 percent financial sense. But I think beyond the financial, you know, justification, we are demanding corporate executive do the same. And we are going to demand ourself to deliver both. So that's the other -- the highest level concept we're actually trying to convey.

And sorry, Henry, I just forgot your question, the corporate governance.

COMMITTEE MEMBER JONES: Yeah.

MR. MIZUNO: So the corporate governance we regard as one of the major topics in the ESG. Every year, we ask our asset managers which ESG topic you think are critical and you are going to discuss or engage with their portfolio company on those issues. So they give us a list of the different like ESG issues.

And generally speaking, the list of the tops are usually climate and gender diversity, those kind of things. But as far as the our Japanese equity managers are concerned, the top lists are made of all the corporate governance issues. So I think the -- a lot of the -- for a lot of investors, one of the biggest weakness of Japanese businesses are the weak corporate governance. So that's actually where the Abe administration decided to make a reform. But also the investor thinks that the Japanese corporate governance is not as -- not very strong.

So I think all our asset managers promise with us, because we made -- make it very explicit in our strategy principle, our asset managers should engage with the portfolio company on critical ESG issues of their choosing, right?

So if they choose for the Japanese companies, corporate governance is the critical issue, they are required to engage with that Japanese company on that issue.

And one good observation to share with you was we actually disclose this as well, but the -- now, we use three different index provider of ESG indices FTSE and MSCI and S&P. And we monitor the correlation between the other -- the ESG rating by different index provider on the same company. And for Japanese corporate, you know, they -- well, you can see that on our website, we actually disclose a scatter map. And the correlation between the different -- the ESG rating agency on the change up in these companies are very little, meaning the ESG rating has not been converged yet.

And there are two possible explanations why. One, the sophistication of rating agencies still not there --

INVESTMENT DIRECTOR SIMPSON: Yeah.

MR. MIZUNO: -- or data is not comprehensive.

INVESTMENT DIRECTOR SIMPSON: Both.

MR. MIZUNO: You know -- both. Probably both.

So we decided to promote and actually disclose those -- the other, you know, discrepancy to promote the more convergence. And over the last 3 years, we see much more convergence in the E rating. So I think the asset manager's view be on the environmental climate impact on their portfolio has started merging.

S it seems impossible, because they -- we -- when we ask them what kind of the topic they are actually evaluating in the S area, you know, they actually evaluate different things. It's actually more difficult to converge.

G is -- also is not converging, because I think the -- even if they have the same governance structure, the effect of the governance is very different from one company to another or one market to another market. So it's much more requires the other, you know, tailor made, you know, approaches on the corporate governance.

So corporate governance is not only about the formality, but also requires the other real reflection of the corporate culture, and also the other sort of market they are operating. But we think the corporate governance is a very critical issue for Japanese company. That's what the -- our manager tend to agree.

Okay. Thank you.

Any other questions?

CHAIRPERSON FECKNER: We do have a few others.

Mr. Perez.

COMMITTEE MEMBER PEREZ: Thank you, again.

This is probably more for Ben. Can we migrate to something similar to them as far as the fee structure for our managers?

(Laughter.)

CHIEF INVESTMENT OFFICER MENG: Not only if -- can we, we have been. We have been benefiting from our team, as you know, that -- even before I came, CalPERS has been always driving the alignment fee interest with our external managers and trying to cut down fees, improve transparency. So we are very proud to say that we are one of the global leaders together with GPIF and a few other asset owners.

But also, we need also the balance -- to balance. Current, the market -- as Hiro will tell you, the market is really hot. And Hiro already shared with you that the GP community quote/unquote hate CalPERS, because of our drive for lower fees, better align of interests, and transparency.

And we keep on saying that, you know, we conduct ourselves very professionally, respectfully, but with the GP community, you know, we're also friendly, but not really friends, because underlying we are still not on the same side of the table.

So again, back to your question, not only can we, we have been. And we have been very positive and we have been a global leader in this field.

COMMITTEE MEMBER PEREZ: And I think, yes, we ask for more transparency, but I think we're painted into a box because of the law here.

Sir, there's been a lot of mention of fiduciary duty, but we're painted in even a stricter sense in that. We're in even in a smaller box than fiduciary duty, according to the California Constitution. So how would you -- I'll read you a brief sentence of what the law says and then how would you reconcile that with the idea of accepted fiduciary duty?

CHIEF INVESTMENT OFFICER MENG: So Hiro may or may not know the law you're referring to. I assume the open meeting law?

COMMITTEE MEMBER PEREZ: No.

CHIEF INVESTMENT OFFICER MENG: No. Okay. You may want to tell Hiro -- give Hiro a little bit of background what law you're referring to, the context.

COMMITTEE MEMBER PEREZ: Yes, sir.

CHIEF INVESTMENT OFFICER MENG: Thank you.

COMMITTEE MEMBER PEREZ: It says the members of the retirement board shall discharge their duties with respect to the system solely, in the interest of, and for the exclusive purposes of providing benefits to participants and the beneficiary.

MR. MIZUNO: That's the same as we have the -- what we have. The fiduciary duty is very interesting concept. That started in the UK and spread globally. But no constitution really has a very specific definition, anything better than what's the -- you just described.

And then my interpretation is, basically, what they are saying is we will work solely for the benefit of our beneficiaries, right? And on the other hand -- if you look it from different perspective, that fiduciary duty concept started in the UK, because it used to be a lot of political intervention into asset management. And also there are a lot of the investment professional who try to make money for himself with ourselves at the expense of beneficiary. That's why they came up with the concept of fiduciary duty. Okay.

Now, we have more than enough transparency that the -- our investment team has no way to benefit their own -- you know, the purse, or their own -- you know, make an investment for their own benefit. And also, I understand CalPERS and GPIF operating under the most stringent policy in terms of the sort of corporate entity, et cetera. So basically, I have no concern that the other investment team will get some personal benefit.

So the first one, political intervention over some non-financial information get into the investment, right? That's actually usually came through board, not from the investment team, to be very honest with you, because board is representing a lot of different stakeholders. It's usually non-financial discussions comes from our board, too.

Okay. Because investment team is very busy trying to make money. And we believe -- you know, I believe that all the ESG factor has become a relevant factor for the investment. When I spoke on the Milken Board -- Milken Institute conference, Henry Fernandez, CEO of MSCI told me in 10 year's time there will be no difference between ESG index and a market-weighted index, meaning -- because every single asset manager we hire tells me they integrate ESG information into their investment decision, meaning over the time, the market will price that in. And so the other ESG index will become the same as the market index.

But that thing I think is really necessary for us to satisfy fiduciary duty, knowing those information will be priced in over the next 10 years, we should take that into account now.

So, sorry, if I sound like, you know, the -- offensive to the Board. But I think the Board represent a lot of different stakeholders and different interest. But investment team usually only concerned about how to make investment. So the older sort of the input, which I think is against my fiduciary duty, usually come either through or government or through our board. And I think it is the whole reason why CalPERS, I think -- and GPIF is a multi-stakeholder board. California case, their board is all investment financial professional. So they are -- they are technician or the expert board. So they actually discuss investment like the investment team, you know, discuss.

But our board, and CalPERS, I guess -- sorry, I'm talking with very limited knowledge, but you are representing all the stakeholders. So sometimes even if we think it makes sense financially, I don't mind our board tells me it doesn't make sense from their -- you know, their -- the stakeholder perspective.

But the investment team only focusing on what's -- how to make the best investment. And I feel very upset when our board -- our regulator tells me when I talk about ESG, I actually did not, you know, bring in some non-financial information into my job. No. I'm okay actually using it, because we think it's irrelevant financially. So I actually see no conflict between the other -- you know, how to satisfy fiduciary duty and how to take these into analysis.

And thank you for the talking about the fee structure. I mean, that's actually -- you know, no asset owner pays enough attention to. Although, I think, it was against our fiduciary duty to keep paying the fixed fee knowing their active manager never performed as they promised, right?

So I think the -- I actually, you know, asked the CalPERS Board -- and I actually, you know, hope that our Board is listening to the presentation. You know, you have to be a little bit creative and flexible, because I think conventional wisdom of the other portfolio management is no longer perfect. And we need to think about other things.

And you are representing younger generation started working at the police office. And they really care about the global environment. Of course, they should. And I'll be very embarrassed -- you know, two days ago, we released our new ESG activity report, where we disclosed our current portfolio aligned with like a 3d plus, so it's not meeting Paris Agreement.

And an easier solution for us is if we divest some of the other, you know, the fossil fuel industry, we can improve the portfolio analysis. But, you know, I think as a universal owner, we only should be satisfied -- we should sleep well when the whole market becomes sustainable. Because it doesn't make any sense. Even if we sell some shares, somebody own the share at the lower valuation. So they actually make financial benefit as well as the -- they will continue to affect whole our system.

So, sorry, it takes too long for me to address your question, but this is very, very center of our work. You need to have a clear understanding what the fiduciary duty means. And it should be creative, because now we need to take a lot of more information into that discussion.

COMMITTEE MEMBER PEREZ: As you said, I'm a police officer, so I read the law, and that's the way I interpret it. And the way I interpret this specifically when it says, "for the exclusive purposes of providing benefits". It's not their well-being. It's not anything else. It's just -- so, to me, that means making money for the benefits.

MR. MIZUNO: Yeah. But we need to make money for long term. That's the point. It's very easy to make short-term performance, if we don't care about those kind of things. But if we're talking about like a 30 year's time, you know, 30 year's time, the people who are born here, born today will start working as a police officer. And we cannot leave a society which is not, you know, feasible for those generations.

And I'm not philanthropist. I'm not the environmental activist. But, you know, I actually show that the GPIF was featured in Harvard Business School case study. And I was surprised when I was invited to speak to these students, 400 students attended the classes. They want to discuss how we should make the capital market more sustainable and more inclusive.

You know, there are -- those 25 year's old Harvard Business School students think, they don't want -- they don't think the other -- the conventional capital market or like, you know, the capitalism will not -- will survive. So I think if you are running the business, you have to concern about how to recruit from those kind of students body. And everybody is asking questions, like, whether working for this business is going to contribute to make the society better or actually damaging the society.

You know, I definitely recommend everybody to talk to younger generation. My daughter just graduated from UK college and finally found a job. But she always asked the question in the interview how can I contribute to the world by working -- you know, working here?

That's the question I never thought of when we were young. And, you know, the employer has to address that now. And the reason why we call it this kind of thing holistic approach is it's very difficult to prove our ESG initiative is adding value to our portfolio over the next month or so. Maybe over the next 3 years is going to be difficult. But I believe in 30 year's time, these kind of thing will make a huge impact.

And, you know, GPIF, CalPERS, what -- regardless of what we do with our portfolio, we are going to -- we are going to have exposure to the general economy. And if the general economy failed to be sustainable, we will fail to be sustainable.

So I actually think that's going to address your question. You know, the -- by incorporating ESG, we are going to secure the future benefit. And how long is it going to take to materialize? Probably 10 years as the MSCI CEO tell us. But I won't be surprised if it actually started materially in 5 year's time.

CHIEF INVESTMENT OFFICER MENG: Yeah. And if I may add, additional challenge we face at CalPERS than GPIF in terms of being a long-term investor, as Hiro just mentioned that at least in the next 25 years, there are no forecasted payout. But we pay out more than $20 billion a year. So why to ensure that we can survive the short-term, so that we can thrive in the long term. So that's an additional challenge we have to face.

And the other one is again, as you mentioned, that the plan is for the fund to run down in 100 years. So the period, you're tl sell off the asset to pay the benefit, then you're done. You've served the mission -- the historical mission.

But CalPERS is perpetual. We don't have a timeline or plan to sell down asset and terminate the program. So there's another additional layer of challenge that we have to face at CalPERS.

COMMITTEE MEMBER PEREZ: And I think another -- another aspect is that we're hovering at 70 percent funded.

CHIEF INVESTMENT OFFICER MENG: Correct.

INVESTMENT DIRECTOR SIMPSON: Right.

COMMITTEE MEMBER PEREZ: So I mean, I'd have a little less heartburn, if we were over 100 percent. But since we're struggling to -- not struggling. Since we're trying to get that -- hit that discount rate and raise our funded status, I think we need to make money today.

CHIEF INVESTMENT OFFICER MENG: So there will be a balancing act. So it's a little bit different that GPIF.

MR. MIZUNO: They're our chief boss, of course. I mean, if we don't deliver the performance, we should be out of our job anyway, right?

So that's what I always struggle. Like, you know, taking these into investment decision making, I think it makes 100 percent of the investment financial sense. But even the people who are argue, it doesn't, we'll have to achieve both. Like, what we -- that's exactly what we demand from corporate executive, right? We expect the corporate executive to deliver a lot of different things. And we should be -- we should be required or, you know, we should be expected to deliver a lot of things together.

So that's why we spend 1 year designing those ESG indices to perform in line with the other -- you know, the original benchmark, still achieving better ESG performance. So that's where those like prudent expertise should kick in. You know, we are financial expert. We know how to design index. And we spend hours and hours to design ESG index to satisfy the goal you mentioned. So all our index is designed very carefully not to underperform. Of course, sometimes up underperform, but still that achieve the other goals at the same time.

So unfortunately, we are living in the world. You know, there are several like surveys the Baby Boomer they think during the other working, they only focus on making money. And after retirement, they should make some donation.

But the younger generation think they should do them both at the same time. And that's not only generation, but I think the world is changing. And that's exactly what we expect from our portfolio -- you know, portfolio company executives, and we should try to deliver the same.

So if me or, you know, Ben don't deliver the other -- the financial performance, I have no question we should be fired, but --

COMMITTEE MEMBER PEREZ: I'm proud of the work the investment team has done. I want to make that clear. And Beth does a fantastic job in this area also. The only glaring example that comes to mind is our divestment from tobacco.

MR. MIZUNO: We actually don't divest from tobacco. I mean, I don't want to create the controversy here, but --

(Laughter.)

CHAIRPERSON FECKNER: Too late.

COMMITTEE MEMBER PEREZ: It's supposed to be education and dialogue, right?

(Laughter.)

MR. MIZUNO: Okay. Well -- Okay. I tell you. GPIF's ESG index is only one index in the world which include the tobacco industry, because generally speaking, ESG investor don't like tobacco. So the older existing already available ESG indices exclude tobacco as the first negative screening.

And GPIF made it clear at the beginning of our, you know, selection of ESG indices that we don't accept any industry-by-industry divestment. So we demanded MSCI to actually score Japan tobacco using same the ESG, like, you know, their scoring model. And we told them if they turn out to be very high ESG score company, we include it. And as a matter of fact, it was included.

So we are very popular with the Japan tobacco and tobacco industry, so -- but again, I think it's the -- also, the Board decision, because as I said, Board is making decision not only financially, because that's the reason why the Board has the multi-stakeholders. So if you decided to -- you know, if the GPIF board decided we should divest from tobacco, I would divest.

But simply, we are -- when we ask to make a financial decision, we keep it. And also, I feel uncomfortable, because I don't know about California, but in Japan JTI is owned by Japanese government. So I just thought it's a little bit of self-contradictory. Like, you know, the government pension fund divest from the company who owns by Japanese government. So this another sensitively.

But I think this should be the clear distinction. Like, investment team make a financial decision, but sometimes board make non-financial decision. And if you ask us to make a financial decision, tobacco, you know, performed very well. But, you know, I have no objection, if our board tells me to divest from tobacco for the different purposes or different reasons.

You know, that's a difference between the board which representing the -- you know, the other multiple interests -- stakeholder interest or general interest. Our job is just to make the good investment, so...

COMMITTEE MEMBER PEREZ: Thank you.

CHAIRPERSON FECKNER: Ms. Olivares.

COMMITTEE MEMBER OLIVARES: Thank you. This is fascinating to me. I'd like to go back to page 20 of your deck and take a look at the alpha, particularly under your MSCI Japan Empowering Women Index --

MR. MIZUNO: Yeah.

COMMITTEE MEMBER OLIVARES: -- 0.65 percent, right? Can you explain to me what that index holds? I don't want to get into individual investments too much, but I find that alpha intriguing.

MR. MIZUNO: Well, I'm very happy to see like, you know, this women empowerment index overperformed, because I was most concerned about this index, which may -- you know, is likely to underperform. And it was actually recommended by some of our team member like, you know, it's safer -- reputationally safer for us to go for the general ESG indices, because it's not very clear where we underperform or, you know, they overperform.

But when we selected the -- this women empowerment index, everybody knows that we are kind of betting on gender diversity's effect on the other stock performance, right?

And there are several academic researches that the company a has better -- you know, gender diversity seems to overperform. But to be honest, I'm not sure, because it may be like, you know, the company who has the more gender diversity meaning, that company's culture itself is better, right? So it's kind of like which is cause and which is result, which is not very clear.

So we actually made a strategic judgment. You know, when people talk about Japanese corporations, there are two obvious weaknesses the global investor always criticize about what. One is corporate governance, which Henry mentioned. The second is gender diversity of women participating in the workplace.

So that's why we decided to address it. By GPIF, the biggest owner of Japanese equity market, shows our belief in gender diversity. We'll promote the more gender diversity across Japanese industry. And that's again the -- our concept is we will contribute to make the -- our economy more sustainable.

So if you think that gender diversity contribute to the sustainability of the business, I think CalPERS should invest into these indices. And our index is open for everybody, so I welcome CalPERS to join.

But I think, you know, the -- for the U.S., you already have the much better gender diversity. But in Japan, we are catching up. So probably, while we are catching up, we probably easier to make the other -- the shorter improvement. And you may if -- even if you may create the same index using the U.S. companies, you may struggle to overperform.

But again, you know, it's not about overperform -- overperformance, these ESG index trying to send a signal throughout the system. You know, the active managers, as I mentioned -- because from the company's perspective, this guy may sell my stock tomorrow, right, but the index, they know -- they invest -- they will continue to hold the stock for ages, right? So that's why it has much stronger impact on the whole industry.

So it is a strategic decision. I'm very glad I saw the overperformance, because I was concerned about if it didn't, I mean, it would actually send a negative signal to the market that gender diversity does not contribute to the corporate performance. So I'm really glad at the moment.

And when I presented to -- this to Japanese Business Roundtable at their Gender Diversity Committee, they ask me whether I think this index will overperform or not? And I responded saying if you -- women work well, it should over perform. Because we only believe -- we -- all we can do is we believe in the company has the better gender diversity will have a robust performance, but it's not us to prove it. It's them to prove.

So please ask the other -- your investment to join us to support those kind of gender diversity index, because this is not where the biggest gender diversity index in the world.

COMMITTEE MEMBER OLIVARES: Thank you.

CHAIRPERSON FECKNER: Thank you.

Ms. Middleton.

COMMITTEE MEMBER MIDDLETON: Okay. I think some of what I was going to ask has already been asked. But to put it in very simple terms, it seems to me the case you are making is that ESG contributes to the long-term stability and sustainability of our markets, and that all of us have a vital vested interest in achieving that.

MR. MIZUNO: Um-hmm.

COMMITTEE MEMBER MIDDLETON: And I think that is in part the answer to the question of should we be making short-term decisions that may have greater profitability for -- in the very short-term.

MR. MIZUNO: Thank you. That's the sort of fundamental and the question we have to address. And again, you know, I always tell my team, like, we need to achieve both, right? Because that's exactly what we expect from the corporate executives. You know, they never ask investors do you want the short-term performance or do you want the long-term performance. They never ask, because investor demand them to deliver both, right.

And I don't -- I think I would say why we are different. So the other -- we have to deliver both. But there are certain cases we find is a bit conflicting, short-term return and long-term sustainable performance. And I think it should be reflected in your investment belief and the other characteristics of your fund. GPIF is that we are literally a universal owner and cross-generational investors. I think when we face that kind of conflict, we should prioritize longer term sustainable performance.

But, you know, again, coming back to fiduciary duty debate, I always find it's very strange, because when you dis -- you know, people discuss this is against or for -- pro fiduciary duty, they don't talk about the -- what kind of the customer they are serving, right?

Because if my customer ask me to give them -- give their money back next month, of course, I don't take the ESG into my account, my investment. It totally irrelevant, right?

But if we are talking about 20, 30 years, I'm convinced all those ESG issues are relevant, the factors. And the other thing I want to mention is like, I'm on the board of PRI, where they are -- they try to, you know, make advocacy of the ESG. And there's some difference in the opinion. Some people think ESG should be a source of return. The other people think ESGs are potential risks.

And my observation is it's almost unanimously agreed within the investment community, ESGs are contingent risks to portfolio. So if you have a trouble to justify or convince yourself that ESG is a contributor to performance, just use that as risk factors. Because if you reduce the risk factors, your risk-adjusted return will improve anyway, right?

So I think the other -- you have to decide. As far as GPIF is concerned, so far, we have been using ESG as risks rather than opportunity. We use SDGs when we are trying to convey some future opportunities for the -- when we talk with the business -- you know, the business executives. But ESG we basically use as a risk, rather than opportunities.

But even if it's risks, it will improve the performance, because risk-adjusted return is actually the real return you should get from the investment.

Did I answer your question?

COMMITTEE MEMBER MIDDLETON: Very well. Thank you.

CHAIRPERSON FECKNER: Thank you.

Mr. Miller.

COMMITTEE MEMBER MILLER: Thank you. One of the things that kind of struck me and it's very refreshing is this idea of challenging the conventional wisdom that is widely held not just by the public, but especially by the financial services industry, and people in this business. And it kind of struck me, yesterday, we were talking a little bit about the new normal when it comes to thinking about buydowns and recessions that the conventional wisdom of 30 years ago just doesn't seem to apply.

And the conventional wisdom of, you know, modern investment management theory from 80 years ago, ideas about market knowledge, and valuation, and efficient frontiers, and all this and that, a lot of it doesn't seem to work anymore.

And when you would talk about the fees, this concept of, you know, pay and performance seems to leave out kind of the concept of Deming's Bed Beads experiment, that you've got this big circle of luck or chance, and this smaller circle of skill or competence, the minimum -- and this little intersection that you're trying to reward, and we so often end up rewarding or punishing chance and basically wasting our money. That whole active/passive thing.

So my question to you is are there other areas kind of the conventional wisdom, which often seems to really serve the interests of the financial services industry more than us that you see there's a new normal? That the conventional wisdom just doesn't really work anymore and we need to kind of break out of those kind of mental models or mindsets?

MR. MIZUNO: That's a -- that's a tough question, because -- to answer, because it's a really good question?

(Laughter.)

MR. MIZUNO: For example, the benchmarking -- the concept of benchmarking is created because customer didn't want to pay for luck, right? And also, the asset managers don't want to be penalized for -- possible for something out of their control. And the Board's priorities is like a needs much and it created the conventional system of active managers evaluated relative to benchmark.

But if you are running a business as a corporate executive, you cannot tell your shareholders like, you know, we lost money, because the market shrunk last year. It's not my fault. They wouldn't accept it, right?

So in real life, the people are evaluated both for their skills as well as lucks. And, you know, our -- recently, our core research program with the Sony Computer Science Laboratory, AI came up with what they called distiller to actually judge when the performance delivered by active manager, whether it was their intentional success or luck. And we came to realize some people has been consistently lucky.

(Laughter.)

MR. MIZUNO: But, you know, it may change our perception. Because, you know, we used to think we need to segregate the luck from the skill. And we only should back the manager who has skills. But if we realize, some person has been consistently lucky and being able to deliver the performance to us, we maybe should pick that one, right?

So there's a lot of, you know, new perspective we are bringing to our business. So even for the area of the asset management of the way we analyze their performance, I think the conventional wisdom probably being destroyed or being challenged.

But more broadly to answer your question, I think we are facing the situation like nobody knows when this mandatory easing contract, you know, the close -- finishes. You probably don't remember, but it was Japan -- Bank of Japan who started -- who did the first quantitative easing in history of mankind. And most of U.S. prominent economists criticized the Bank of Japan saying they are some -- doing something really stupid.

But when a demand crisis hit the market, everybody actually copied what the Bank of Japan did. And so, you know, that was totally unconventional 20 years ago. Japan had the guts to experiment it, and now everybody copied. The problem is nobody has the guts to experiment -- experiment how to get out of it.

And I was hopeful Fed will do it, but now is going into different direction. So we are now operating in a very, very sort of uncharted like environment, where every single major -- you know, the central banks printed tons of money over the last 10 years and nobody knows how to close that.

And I've been very surprised the market has been -- not now, but if you remember one year ago, everybody thought the Fed will be able to maneuver or navigate the other -- how to exit from quantitative easing well. I was skeptical, because nobody tried it. First trial is going to be bumpy all the time.

So I really cannot specifically answer your question. But there's a lot of things which never happened in the past, and when we do it for the first time, it's going to be very bumpy. Yeah.

COMMITTEE MEMBER MILLER: Thank you.

CHIEF INVESTMENT OFFICER MENG: Yeah. That's something mentioned a couple times your colleagues about as well, the new normal. So what is the new normal? But definitely this is the conventional wisdom doesn't work in today's environment anymore.

As a recent example, a few weeks ago, PIMCO put out a paper they called the negative nominal interest rate will become the new normal. And that's what we talk about yesterday, I highlighted. That's one of the scenarios we stress test our portfolio, what if that became reality? Are we ready for that? And also I talk about how would capitalism work when capital is free or when capital is -- carry a negative interest rate?

So that is uncharted territory. And if you extend that line of argument, one of the scenarios could be when people say, what's the future of Europe? Look at Japan. What's the future of Europe? What's the future of us? Look at Europe. That's the future of us, right?

So in Europe now, again, the 30-year German bond nominal yield is negative already. And Japan's like the deflation and then disinflation. And Europe and we are in kind of a disinflation environment. So that can be one of the potential scenarios in the future.

So back to your question you mentioned the new normal, the convectional wisdom does -- may not work in today's market environment. So we all have to very mindful and keep on -- keep thinking outside the box, instead of limit ourself to the conventional wisdom. And that's why dialogue like this is very helpful.

COMMITTEE MEMBER MILLER: Thank you.

CHAIRPERSON FECKNER: Thank you.

Ms. Yee.

COMMITTEE MEMBER YEE: Thank you, Mr. Chairman.

A couple thoughts. One, I need to just add my thanks to you, Hiro, for your leadership, particularly through your participation and involvement in Climate Action 100+, which really I think just brought about the entire Asian community -- the continent of Asia to the table, which is so key, in terms of where we need to move.

And perhaps this is a bit of synergy, but I'd like to think without as much skepticism as I currently have, but our own business roundtable just yesterday has also kind of declared a different way of thinking about how to bring about value, and, you know, made declarations that generating shareholder value is not going to be their main objective and understanding now.

And I believe a lot of this is because of the engagement that we've had with them globally and understanding that the world is changing around them. But that value really needs to be about how they value their employees, their suppliers, the communities in which they have a presence. And, you know, I think all of this is just really additive in terms of how we're going to look at all these issues in the long term, but I think it's additive with respect to how we're going to sustain our markets going forward as well.

So I just wanted to make that statement, because obviously this is top of mind for just -- not just the pension funds, but just in terms of how we just kind of do business in this, you know, kind of commonplace now around the world. I think there's a lot of thought that's evolving, which seems to me at least going in the right direction, similar direction.

MR. MIZUNO: Thank you. I think the -- yesterday's like the Business Roundtable like Jamie Dimon's like statement about the shareholder's values no longer the primary purpose of the business, which we should argue that he should have said like the shareholder value is not only primary goal of the corporate businesses, right?

I mean, this is again -- like, it's not going to be ESG or financial return argument. They should achieve both. So I think the other -- as we are steward of our beneficiaries. We need to make it clear they cannot use it as excuse not to deliver shareholder value, but -- which I think is important.

But I think that's another evidence, you know, the people like him started thinking differently. And now they feel the pressure that they need -- it need to serve the other stakeholder to remain a business.

And one other things we -- that he -- they talked about was like the pay gap -- gender pay gap or the income inequality. That's the S issue. But it's going to create a lot of social issues. And, you know, we are not safe -- or we are not distant from what's happening in society.

You know, the other -- what your democracy of United States brought up to the world actually affecting a lot of our investment, right? So the political decision affect the performance of our portfolio as well.

So I think that conventionally industry -- investment professional you spend the day looking into Bloomberg chart. Now, I think we should pay more attention to what's happening in the world from the broad perspective, and what happening to the society, how angry the young people and several, like some working classes is going to affect our portfolio. It's only affecting.

I was involved in a G20 meeting, and, you know, the -- some of the sustainability agenda was vetoed by American -- U.S. federal government. And so there's no discussion on those topics. And that's actually the consequence of the other -- your democratic choices.

So, sorry, I have no personal opinion on that. But, you know, I'm just trying to convey, you know, the time the investment professional use to spend the whole day watching the Bloomberg TV screen has ended.

CHAIRPERSON FECKNER: Thank you.

No other requests to speak.

Anything else, Mr. Meng?

CHIEF INVESTMENT OFFICER MENG: I think just in conclusion, I really want to thank Hiro for this thought-provoking talk with the dialogue with you. And I want to thank him for making this special effort to come to us. He flew in from Tokyo last night just to give us -- to talk to us. And then he will be on his way to London to seek his daughter. So he's really making this a very special trip for us. So thank you.

CHAIRPERSON FECKNER: We're very honored to have you be here. Thank you.

(Applause.)

MR. MIZUNO: Well, just to give you my last word, thanks again for inviting me. It's my honor to present, you know, the GPIF initiative and also my own thought to the CalPERS Board.

And as I put in my final slide, I think asset owner should work together to achieve a lot of things. And even just the fee for the asset managers, we can work together and to make our business more sustainable and more aligned for the benefit of fiduciary.

And thank you very much. We always regard CalPERS our closest -- the sister or like the partner. So thank you very much for inviting me today. Thank you.

CHIEF INVESTMENT OFFICER MENG: Thank you.

CHAIRPERSON FECKNER: Well, it's been our pleasure and honor to have you here, so thank you.

(Applause.).

CHAIRPERSON FECKNER: With that, we're going to take a 10-minute break -- make it 11. We'll reconvene at 10:45.

(Off record: 10:34 a.m.)

(Thereupon a recess was taken.)

(On record: 10:45 a.m.)

CHAIRPERSON FECKNER: Can we please take our seats. We'd like to begin again. We still have quite a bit on our agenda.

Mr. Meng.

Not yet. Not yet.

There you go.

CHIEF INVESTMENT OFFICER MENG: Thank you, Mr. Chair. So now we continue the second half of the Board education program this morning. This is on global equities. With that, I will turn it over to Dan Bienvenue, the Managing Investment Director of Global Equity to introduce our distinguished guest.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Thanks, Ben. Dan Bienvenue, MID of Global Equity.

This morning, we're moving on to our second asset class overview. If you recall, this is part of your series -- you know, the educational series as part of the Board workstreams. This is the second asset class we're covering. We covered fixed income in June, after covering in May, I believe it was, asset classes, risk and return. This recall is work in partnership with the CFA Institute and the Council of Institutional Investors to build this curriculum over the past couple and the next several months.

Today, it's my pleasure to introduce John Griswold who is part of the CFA Institute senior faculty, and has extensive experience teaching investment programs to pension fund boards around the country. So he has the unenviable task of following Hiro. But believe me that John is here to really walk us through global equity and take a deep dive. And we are really fortunate to have him here as well.

(Thereupon an overhead presentation was Presented as follows.)

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: You have his full bio alongside with his slides, so I won't repeat what have you there. But needless to say, John is a highly respected leader in the field of Board education on investments. We're very grateful for him making the time also to come out and spend time with us and dig into the global equity asset class.

Once again, we're hoping for a good lively discussion. We think that, you know, it works better when it's done that way. So John and I also will be looking forward to questions and comments as we go through.

And with that, I'll turn it over to Anne to kick us off.

INVESTMENT DIRECTOR SIMPSON: Thank you very much, Dan, and Ben, and, of course, John for being here with us. My job is quite simple. It's just to recap where we are in this series of board education.

Your recall when the Board went through its self-evaluation last year, improving education for each of the committees was one of the findings. And as Dan said, we are delighted to be working in partnership with the CFA Institute and with the Council of Institutional Investors.

And we're working our way through the key topics in investment. And following Hiro, I think has given us a case study, an example from a sister fund looking at these issues from a global point of view, we'll be looking at specific asset classes this morning.

The other thing I want to just recap is what is the role of the Investment Committee? It's a Committee of the Board in relation to investments. This is the day job of management. It's the role of consultants. But the Board has a very particular responsibility.

As Dan said, this is workshop number 3, part 2. We've covered risk and return basics. We then covered global fixed income. And today, we're going to be looking at global equity.

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INVESTMENT DIRECTOR SIMPSON: So this is our favorite slide to show, whenever we're talking about investment. It's the one thing that keeps us all absolutely focused on the job of generating sustainable returns for the pension fund. We pay pensions in dollars. And this is the CalPERS Pension Buck. And it reminds us that for every dollar for the, as Ben said, more than $20 billion that are paid out every year, $0.59 come from investments.

So getting it as right as we can, getting as much luck on our side as well as skill is going to be vitally important. And the role of the Board in that is critical. And that's really what this education program is intended to do, help you fulfill your responsibilities more effectively.

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INVESTMENT DIRECTOR SIMPSON: And so what are those? So in the formalities of the CalPERS system, of course, the Board divides up the job of overseeing the organization through a series of committees. And the way these responsibilities are set out is through what's called a delegation.

And for the Investment Committee, there are important responsibilities. Conducting strategic asset allocation. As Hiro said earlier, this is where the vast majority of returns come from getting those decisions right. And the Board also has responsibility for selecting and overseeing performance of the Board consultants.

So what is the Investment Committee charged with overseeing? This is really the monitoring function that the Investment Committee has. Of course, investment performance, that goes without saying. But also a component of this is find liquidity; the selection and performance of partners, managers, and consultants; cost effectiveness; risk assessment; Environmental, Social, and Governance Program; and the management of risks.

So the critical word here is oversee. This is actually work that's done by management. And the role of the Board is to oversee and hold accountable.

So with that in mind, just as background, let me now turn over to John who's going to take you through how to think about global equity and the role that it plays in our portfolio.

So, John. Thank you.

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MR. GRISWOLD: Thank you, Anne. And thank you for allowing me to come and talk with you this morning. As Dan said, I've been doing work in helping investors do a better job for their institutions for a very long time. I've worked for -- I've been a trustee of many boards going back longer than I would care to admit, and on many of investment committees, when I came early -- early on fascinated with how the process of governance and of also managing funds affected the sustainability of the organizations and really increased their ability to achieve their missions.

I've worked in the nonprofit arena for most of my career of investing. I worked for 25 years plus at Commonfund, which was started by the Ford Foundation in 1971 as a nonprofit investment management company for endowments in the education field, mostly higher ed independent schools. We did a lot of research over the years. We wrote a lot of white papers and even some books, and did a lot of investor education.

Along the way, of course, meeting a lot of folks who were leaders in the industry, nonprofit industry, including pension funds, has been a real education for me.

That continues. A lot of my friends who have been friends for many, many years are still engaged in this work and there is sort of a calling to it. It is hard to follow -- follow a guy like Hiro, because, in fact, he embodies so much of what is being done today to continue the mission of these organizations that are vital to the future of their beneficiaries, whether they be the student health care patient, a pensioner, or any other charitable recipient of any service or financial benefit.

So it's a remarkable industry, if you will. There's some wonderful statistics the Urban Institute puts out that non-profits actually contribute a bit over 10 percent of the wages and salaries in this country, accommodate -- it's responsible for over 5 percent of GDP. The assets are 3 plus trillion dollars at last count, probably a bit more than that. But Americans give well over -- almost -- I think over $400 billion to charities every year. So it's a very large industry. It's a very large -- it's a large activity providing the safety net in this country.

So clearly, congratulations to you for the time you spend, the dedication you show to helping CalPERS do its part in benefiting its pension -- pension recipients, its beneficiaries.

Let me start with a few things -- by the way, I'd like, with Dan and Ben's permission, to ask that you ask questions along the way. I started as a teacher actually in Connecticut right out of college. And I always -- I learned very early that I wanted to know what the -- what my audience was thinking. And the only way you do that is to get them to ask questions. So please ask questions. We can try to answer them. I've got some extraordinary depth of knowledge here about CalPERS. I'll try to add a little overview as Dan and Ben know on the principles involved in global equity.

Global equity, of course, is the largest single asset allocation within your policy portfolio.

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MR. GRISWOLD: And we might as well go back to real basics and ask what is equity? Equity is actually a piece of the corporate financial structure in companies. It is -- they are -- it is common stock or different kinds of stock. It could be preferred. It could be warrants. It could be depository receipts for those foreign investors.

But it is really issued to raise capital for the operation of the company, so that they can grow their business, expand their share.

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MR. GRISWOLD: There is -- as I say, there are many types of shares, but they do allow the holder to vote, unlike the holders of debt. Some of you may remember my colleague from CFA Institute, Jeff Bailey who was here I think a month ago approximately talking about fixed income. And we'll make some comparisons between equity and fixed again to remind you of that.

But, in fact, common stock is one the lowest in the ranking of the capital structure, but it's a very important piece, because it raises the most money, in most cases. Issuing stock is obviously ownership in the company. You are participating in the growth of the company, unlike fixed income holders, and you're, by extension participating in the growth of the economy. As the company grows, it's part of a growing economy.

And that's true globally. That's why there is an -- there is an allocation to global equity in most large institutional funds, because they wish to participate in the growth of the global economy. And that has happened over many, many years. There will be some other slides where I'll talk a little bit more about that.

One of the things that, of course, you get to do as a common stockholder, other stockholders to some extent, is to participate in the voting about corporate issues, corporate concerns.

And that's when it comes to ESG or any other issues, compensation - you can think of a lot of them - there are tremendous opportunities for shareholders to influence that. And in this country, of course, we've seen a continual concern. When I work with the CFA institute, which I think most of you are familiar with. If your're not, please ask a question about it.

But I am not a CFA charter holder myself. I'm a member of a committee, which is called the U.S. Advocacy Advisory Committee, USAAC. And it's one of several committees around the world that the CFA Institute has developed and has put in place to pick up issues from the local countries/regions and bubble them up to the senior staff and to other important people working with CFA Institute to do advocacy to the regulatory authorities, SEC, FINRA, et cetera, Labor Department, and to promote best practice, and ethical behaviors, and good behaviors basically for the investment industry and for generally asset owners as well.

So a lot of the work we do -- we have meetings and discussions during the year. We meet once a year for sort of a plenary retreat meeting in Washington. And a lot of the members, most of them are CFAs, except for me. I do feel honored to be a part of that. But in fact, those society -- local society members bring their issues to the table at those retreat meetings. And then the senior staff and other important advocates for changing some of the regulations, some of the laws, some of the practices do their work on the Hill or with the SEC. We have the SEC come in and talk to us about what they're doing.

And, in fact, I think it's an opportunity for -- as Hiro said in the earlier session, there is an opportunity to be heard. And particularly if you're a large asset owner, of course, there is, because people tend to listen to those. But even as a local CFA person who is working in a local advisory form, or a bank, any number of different types of jobs, they could be heard through the work of the Advocacy Committee. Very important, I think, for the benefit of the asset recipients, eventually the beneficiaries.

A lot of the work we do has to do with things -- with issues such as --

INVESTMENT DIRECTOR SIMPSON: I think we should move on.

MR. GRISWOLD: Move on. Yeah.

Well, a lot of the work we do is talking about the very things that Hiro was talking about earlier, how to integrate ESG into portfolios and how to get -- how to get more value out of the management of funds. And he's a good -- as I say, he's a good embodiment of some of the things that we talk about in that meeting.

Let me move on, as suggested. I get a little windy sometimes.

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MR. GRISWOLD: This is a chart that shows the U.S. share of GDP. And really what we're talking about here is the rationale for going global in your equity allocation. U.S. share in the 80s was over 35 percent. Now, it's under 25 percent.

What does that suggest?

Well, clearly, if you're only invested in your home market -- and there's a feature in most portfolios called home bias. Investors traditionally, going back many, many decades, have invested traditionally mostly in their home market, because they felt more comfortable and they understood the co-market, but also because they were little -- perhaps a little risk averse, they may have been a little fearful of going abroad.

And, in fact, up until just the last few decades, really starting in the 50s and 60s, investing abroad was difficult. It was much more expensive. And the results were sometimes uncertain, partly because the regulations in the company -- in the countries abroad were not clearly understood, where they averse to investors from outside their own countries. So that has changed enormously.

CHIEF INVESTMENT OFFICER MENG: Yeah. I would like to add one comment here. So in addition to the percentage of GDP -- global GDP, there's another layer to it. It is also the -- how deep the capital market is, because the depths of capital market is not always correlated -- positively correlated with the GDP share.

So, for example, China's GDP is second largest economy. But the capital market adapts -- capital market is not the second deepest in global capital market. So just -- we always have to keep that in mind.

MR. GRISWOLD: Yes. The U.S. share of the capital markets actually is 55 percent now approximately. So our market is very deep. It's very large relative to any other market in the world. And in a way, you almost hope that shrinks over time, because, in fact, then you will -- it will be a by-product of those markets that are large, now getting large. But perhaps the depth and breadth of those markets will cause those markets to be more acceptable to investors around the world, and including Hiro's fund and, of course, funds across Europe and others in Asia that are beginning to really grow enormously, sovereign wealth funds included.

So let's move on here.

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MR. GRISWOLD: Global equity allocation is really the ability to invest anywhere in the world. It isn't that you're in your home market and then you add an international component. A global investor is able to go anywhere, invest anywhere. And typically, they are broken down into three components, U.S. investment of course for a U.S. investors, plus international developed market stocks, and emerging market stocks.

This is a sort of the three-legged stool of global investing. And, of course, those categories will change over time as markets develop, countries become larger because of their own internal business development, and the size of their capital markets.

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MR. GRISWOLD: This is a chart that was developed by actually a friend of mine Elroy Dimson when he was at London Business School with two other academics. And it was a book that called *Triumph of the Optimists*. It was published in 2000. It was a fascinating book.

But basically, the idea was that the optimists who invested in equities won over investors in other asset classes, basically over fixed income, or anything, real estate, what have you. And that was because of the growth of the economies, the growth of these stock markets, the growth of the companies they invested in.

And so over a period from 1900 until 2000 when the book was published, they looked at I believe it was 19 markets originally. Now, it's, I think, 23. And they scoured the world for markets where you had a very long history, a very long data set of equity returns that they could produce these numbers from.

So this shows you going back in many countries, most of them developed countries. There's most of Europe there. Some outside, New Zealand, Canada, and obviously the United States. But this is 100 now -- almost 120 years of data on how equities have beaten fixed income. And, in fact, it is a great example of what we're talking about and why you invest in global equities.

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MR. GRISWOLD: So the traditional rationale is several-fold for investing in this asset class. Obviously, we all probably know that diversification, multiple asset classes, low correlations hopefully between the various asset classes and strategies does provide a lower portfolio risk overall.

If you think to the traditional rationale for investing in private equity or private capital generally, venture capital, other things, is that you're lowering your portfolio risk, even though you're putting individually risky asset classes or strategies together.

So global equity is the same thing, but in a slightly different way. Diversification regionally, geographically is really lowering your portfolio risk. You're capitalizing, as I said, on global economic growth. You're increasing your breadth of opportunities for the portfolio manager, including looking for market inefficiencies. The Holy Grail is to find dislocations and inefficiencies. That's Ben and his staff's job. And they are -- they -- that consumes them all the time, where can we find inefficiencies that we can exploit?

And, of course, you're taking advantage of market cycles. You can vary your portfolio weights depending on the region, or the individual country, or even a sector of the industries that you're looking at from the investment standpoint.

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MR. GRISWOLD: This, on the other hand, shows you a long-term look at when the U.S. has beaten international. So if you take the global equity universe, you break it down between U.S. and non-U.S., this is what you see over a long period of time. This goes back to the 1970s. It shows you those cycles. And more recently, of course, the U.S. has outperformed international for the last 10 years. We heard that from Hiro and from others.

But you've had times when valuation of a particular -- of like either the U.S. or the international got up to a point where it was apparently too high, people felt there was not much value to be gained in continuing. So they shifted back to the other group of investment markets, and, in fact, so you have a swing.

We're wondering right now, because the U.S., by many measures, is fully valued or even overvalued, depending on which measure you're looking at. The cyclical Case-Shiller measure -- index being one, where the ratio being one measure. A lot of people saying the U.S. is overvalued versus international, and international thus is undervalued versus the U.S. So will there be a shift? We don't know. Nobody has a crystal ball. It's existed longer than we know.

I was fascinated by Hiro's statement that the end of last year was the first time in his experience that everything went down. So perhaps something has changed and we aren't going to see quite the rational shift that most of these changes between the U.S. and international would illustrate. That people see overvalue, they get out that asset class, and they go into a different one.

Questions on any of this so far? This is fairly basic stuff, I know. But I think it's good to take a step back sometimes and look at your allocations and what are the qualities of what you're looking for. And you as a Committee, as a Board, as Anne said, have the responsibility for monitoring your staff, but also just asking good questions, tough questions of anybody who's talking about this.

CHAIRPERSON FECKNER: No requests so -- oh, just as I say that.

Ms. Yee.

MR. GRISWOLD: You knew that when you said that

CHAIRPERSON FECKNER: Every time.

(Laughter.)

COMMITTEE MEMBER YEE: Thank you, Mr. Chairman.

So I wanted to just get your perspective about whether there may be an opportunity for like this heightened on emerging markets, given obviously the volatility that we're seeing with respect to the other buckets and -- or has it just -- has there just not been enough progress with respect to, you know, those countries, and certainly those opportunities with respect to expecting that we could get outperformance in the near term?

MR. GRISWOLD: I think as a group, emerging markets is very varied, first of all --

COMMITTEE MEMBER YEE: Yes.

MR. GRISWOLD: -- so there's no one answer.

Emerging markets contains China, which a lot of people find quite odd, because China is now the second largest economy in the world. Some think it on a purchasing power probably it's the largest. But, in fact, it is -- in general, emerging markets have always been more volatile, partly because they go through a much more, if you will, dramatic economic cycle. And that affects their security prices.

They're also subject, in many cases, to the trade imbalances or trade hiccups that go on. The old expression, the -- you know, the U.S. sneezes and everybody gets a cold in the rest of the world, but that's particularly true -- been true of the emerging markets that are very dependent on trade, and partly because they're very dependent on the commodities that they produce.

They are -- they're smaller markets in many cases, so they don't have the clout to -- or the consistency. And many of their markets are very thin from an equity standpoint.

Ben, do you want to comment further on that? I'm sure you have some good insight.

CHIEF INVESTMENT OFFICER MENG: Yes. So exactly like John has said that the definition of emerging markets is very broad. As John mentioned, China is considered an emerging market, so is Singapore and South Korea, and then compared to other emerging market countries. And then in emerging market investment, we deal with additional layer of risks such as the instability of the political system, regulatory bodies, currency. As you know, the currency has been very volatile market.

So these we all have to take into account when we look emerging market investment opportunities in emerging markets.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: And I think the only thing that I would add to that is just that when you look at this cycle of outperformance, if you put up your international X -- or I should -- like emerging markets, so international X emerging markets, the outperformance of the U.S. is even more pronounced. And largely, that's due to the dollar.

COMMITTEE MEMBER YEE: Yeah.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Now, the other side of that, and remember that we're not looking in the rear-view mirror, we're looking forward and trying to think about our allocation, the reality is that emerging markets are cheap.

COMMITTEE MEMBER YEE: Yes.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Now, are they cheap and getting cheaper from valuation standpoint? That's -- you know, as John said, if we had a crystal ball, that would be really helpful, but we don't. But it is the case from an valuation standpoint, their valuations are relatively low and certainly they are a portion of our benchmark.

COMMITTEE MEMBER YEE: Right.

CHIEF INVESTMENT OFFICER MENG: And also, when we look at emerging market, we also had to be mindful, some people can break down emerging markets by commodity, either importer -- net importer or net exporter, then the -- or the super commodity cycle plays a bigger role.

For example, Brazil is a commodity exporter. India and China mainly a commodity importer.

COMMITTEE MEMBER YEE: Importer, right.

CHIEF INVESTMENT OFFICER MENG: So depending on which part of the commodity -- so commodity is one way. And overall, are you net importer or exporter. So emerging markets tend to be net exporter. So they are exposed to the global economy, the volatility of the currency, economic -- the commodity cycles, the instability of the political system. So there's a number of additional layers we need to consider. And that's why, as John mentioned, tend to be more volatile than developed countries.

MR. GRISWOLD: Very often, you're looking at the risk side rather than the return side, when you're looking at emerging markets, because the risks, as Ben said, can be multi-faceted, much more so than a much more developed settled market. And so that contributes to the volatility, because those people -- there's a bit more emotion in there, if there's any fear -- fear and greed will work against each more violently. If any worldwide event happens, like '08, '09, and so you see tremendous volatility.

Just an anecdote, when we were starting an emerging markets fund many years ago at the firm I worked for, we weren't investors that -- while the return over many -- will volatile, you have to be a long-term investor, really long term. I'm talking 15, 20 years to really realize the steady growth of the economic improvement in those -- in that sector. And indeed, that has proven to be true.

So you're seeing this tremendous variation in volatility, standard deviation, or what have you. And, you know, hopefully it doesn't -- doesn't panic an investment committee and pull out of that just at the wrong time. And that's one of the things that we teach university boards or the longest investors -- longest horizon investors, use your long-term horizon to your benefit. And that gives people a little thought -- something to think about particularly.

And pension funds are some of the longest invention -- longest years -- your's is a perpetual fund too. It is a huge advantage when you can ignore the volatility and the panic of other investors, because you will -- you could benefit from that occurrence.

Let's move on here quickly. Let me make sure I State the -- what this is -- what this chart is.

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MR. GRISWOLD: It is a U.S. versus international equity. So if you put them again together, they make the whole global equity pie. But it shows you the difference in volatility is these are rolling standard deviations of monthly returns from 1970 on your far left. That says '74 there, so I'll say it's '74, to the end of 2018.

And what it shows you is the -- that individually the international and the U.S., the volatility is quite high. But if you put them together, that's the green line, that shows you that together it makes my point that I made earlier, your volatility is actually reduced most of the time. Not always, but most of the time.

CHAIRPERSON FECKNER: We have another question.

Mr. Jones.

COMMITTEE MEMBER JONES: Yeah. Thank you, Mr. Chair.

Yeah. Back to the general statement about global equities. And I don't know recall what that number is, but over some period of time the number of public companies where we have access to global equities have been decreased by some 40 percent as I think I remember a number.

INVESTMENT DIRECTOR SIMPSON: Yes.

COMMITTEE MEMBER JONES: And so my question is, is that looking at our long-term philosophy, do you think that that decrease in number of public companies where we have access to global equities will continue to decrease, and if so, what kind of thought you have about new strategies to deal with the ever-decreasing number of public companies in the marketplace?

MR. GRISWOLD: It's interesting. I appreciate your question. I think Anne might be able to shed some light on that too, because I think you've thought a good deal about that as well. But let me just say from a -- it's one of the -- it's one of the issues that this U.S. Advisory Committee that I'm on at the CFA Institute has been wrestling with.

There are various theories about why that's occurring and what the ultimate result will be, if you will, for investors. Clearly, it is disturbing to see that. But what seems to be happening, at least in the U.S., which is really more easily seen, but it's probably, to some extent true, in all developed markets, is that companies feel it is more profitable to be private, to go private, or the -- given the activity of private equity of taking firms -- taking companies private has produced this over time.

And, in fact, it has reduced the breadth of the market. There's no question. The option are not easily taken on, because you don't want to be regulating something where you -- there would be lots of unintended consequences potentially.

So, Anne, what's your thought about that too? I'm not sure I've answered your question.

INVESTMENT DIRECTOR SIMPSON: Yeah. No. Thank you very much. It's an excellent question. CalPERS sits -- I represent CalPERS sitting on the SEC's Investor Advisory Committee and we had hearings on this topic last year. It's a global phenomenon. I think that's one thing to note. And I think there were two lessons that came out of the hearings. One is that the abundance, the supply of finance in private markets means that companies don't need to go to an IPO as soon as they might have done before. So they're staying private longer and more of their growth is happening in private markets.

And for many companies going public is a way to monetize incentives, in other words, options for the inside team for the management, and also to give an exit for the first and second round funders in the private markets. Because the venture capital and the private equity industry, they need the public markets, because they need a place to go. They can have trade sales through private market deals, but the public markets really matter for the private markets. So that whole issue of what are the public markets there for was really center stage in the discussion.

Another issue was about the rising costs of listings, which have gone from, you know, modest amounts to several million dollars. And that's felt to be a burden. And then there was also --

MR. GRISWOLD: Extra regulation as well.

INVESTMENT DIRECTOR SIMPSON: Well, there was a --

MR. GRISWOLD: That's part of the cost.

INVESTMENT DIRECTOR SIMPSON: The listing costs are --

MR. GRISWOLD: Considerable.

INVESTMENT DIRECTOR SIMPSON: -- an item in their own right. And you'll recall that there was some efforts to lift the regulatory burden by giving exemptions to, you know, certain rules and regulations to have a lighter touch. But that doesn't seem to have been followed by a surge in IPOs. So there's a real interest in say, okay, what's really going on in the wider economy, taking the United States as the example. So the need for finance is diminished. The type of industry, there's been a huge transformation. And that in itself means that financial capital is playing less of a role in company value.

I'll give you one data point that we were very struck by. Thirty years ago, the S&P 500, which is, you know, a very important index on the balance sheet, which is a way -- one way to value a company, 85 percent was fixed assets. So fixed assets 30 years ago were really important. Fixed assets are expensive. You've got equipment, and land, and inputs, and all the physical things that could be valued on a balance sheet.

Fast forward to now, 85 percent of the S&P 500 balance sheet is what's called intangible. That means brand. That means goodwill. That means human capital. And so one of the projects that's come out of this SEC work is actually looking at what is the reporting regime that we need now to start capturing the value that's on the balance sheet. And that includes the human capital reporting initiative that CalPERS has played an important role in.

So I think the question -- I think another thing that came out at the hearings was a recognition that the private markets do not have the same regulatory requirements, but there is a case -- some argued to the hearing there is a case that the SEC's remit needs to be extended further.

And you'll see that in the last round of regulatory expansion, private equity firms, hedge funds came under the umbrella of SEC regulation, which is one step in that direction. But right now, there is, as John said, a quiet life if you're in the private markets. But there is also some concern to ensure that private markets get better regulated, because, you know, a growing part of the economy is growing that.

MR. GRISWOLD: And just to follow up on your point about the reluctance or the delay in going through an IPO process, that may be encouraged by the ease of getting financing because of the easy money we referred to earlier when Hiro was here. There's an enormous amount of money sloshing around the world. And it is -- if you don't have to go public and you can get financing from private sources, the question is why would you bother going public? It exposes you to all kinds of things that you may not want to deal with.

And, in fact, that could be a serious issue that might be -- I don't know how you solve that without -- without going through the trauma that we started to go through last year, that Hiro referred to, and I'm sure has, you know, happened, too.

Dan, you had a question -- you had a point too.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Yeah. I think it's a terrific question, Mr. Jones. And the only comments that I would underscore is that it is a global phenomenon, but it's especially pronounced in the United States. And I would say less so developed international, and even less so emerging markets, where even you're not seeing the level of -- nearly the level of shrinkage. It's also worth mentioning that there are fewer companies public, but they are larger companies. So the capitalization of the markets has actually grown significantly, but it's just concentrated in fewer companies.

That said, the growth of the private markets relative to public markets is really where we're talking about. You know, in some of your -- you know, I think it was Andrew that mentioned yesterday just how much dry powder is on the --

INVESTMENT DIRECTOR SIMPSON: Right.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: -- is on the sidelines around private markets. This is one of the reasons why we're so focused on finding a way to deploy more capital into the private markets is that, you know, historically the Apples, and the Oracles, and the Genentechs went public as very small companies. Now, these companies are staying. And so as an investor, you could -- as a public markets investor, you've got exposure to really early growth of those companies.

Much of that growth is now happening while it stays in the private markets, which again is a rationale for our desire to really deploy more capital, but in a thoughtful way in the private markets.

MR. GRISWOLD: All right. Let's move on here.

COMMITTEE MEMBER JONES: So, yeah --

MR. GRISWOLD: Oh, sorry. I'm sorry. Henry, another question.

COMMITTEE MEMBER JONES: Yeah. No. So the bottom line is, is that using Ben's analogy is that where are we on the wave? You know, have we -- are we at the crest where we -- it's time to get on and start moving from global equities in a more strategic and advanced way, or do we kind of wave -- the wave hasn't reached a crest yet and just kind of stand back and monitor?

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: I think our thought on that really is thinking more -- first of all more creatively about not thinking so much on the asset class and thinking more about the exposure that we're trying to get. So for us, this is a lot of the work that Ben has been talking about around harvesting equity, public-private. It's -- when you think about the exposure you're trying to get, you're exposing yourself to earnings growth. You're exposing yourself to economic growth.

So really, we want to be thinking about equity and then thinking about if we believe the growth will be more on the private markets, it's thinking about how we, you know, position the public markets to kind of be a liquidity source in some sense, which again is a lot of Ben's focus around -- around the -- you know, this liquidity dashboard and really thinking about how we generate liquidity.

So I think the wave that we're looking at is that we think there is more to come from a migration of capital from public to private, and that's why we really want to position ourselves to -- you know, to get more in private.

CHIEF INVESTMENT OFFICER MENG: Just on that note, we are privileged CalPERS, because who we are. Our size and brand, brand name really help us get access to the top private equity managers. So not everyone equally shared that privilege as we do.

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MR. GRISWOLD: Right. So this chart shows you a very long -- this is again from *Triumph of the Optimists* originally, but the data is updated yearly by Credit

Suisse, who's their publishing sponsor. But it's an interesting chart, because it basically shows you the gross return on equities versus other asset classes. Bills, bonds, and inflation are the other measures against the equities.

The equities in the left-hand chart over that period of 1900 to 2018, I believe, or '17, is, in fact, 9.4 percent. If you look to the right, you see it minus inflation, and it's actually 6.4 percent.

So it's really quite astonish -- it's a somewhat sobering chart in my mind. Because, in fact, over very long periods of time, if you really want to talk to somebody about being a long-term investor, 120 years isn't a bad place to look at.

And in fact, in those numbers are some markets that collapsed and disappeared for periods of time, including Germany and Japan, of course, during the war, and other -- in some other markets as well.

But, in fact, there is a huge gap because of inflation. And inflation is sort of an insidious risk that you have to take account of in any investment strategy long term. This chart to me shows you that. So it's a -- it is somewhat sobering statistic. It goes from 44,000 to 1,500 from -- nominal to real.

INTERIM CHIEF OPERATING INVESTMENT OFFICER

BIENVENUE: John, can I make one more comment?

MR. GRISWOLD: Sure, absolutely.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Just go back to slide 9 really quickly. It's just worth mentioning really quickly.

MR. GRISWOLD: Nine?

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Yes, please.

And if you --

MR. GRISWOLD: Here you go.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: John said a couple of times, and I think it's worth underscoring thinking as a long-term investor, note that if you look at the United States and the endpoint of this chart is from 1900 to 2010, so that 2010 endpoint is after a 30-year bull run in the bond market, right, where interest rates went from the mid-teens down into the low single digits, and right after the financial crisis where the equity market was at low, and still you can see that with the United States with all the other countries also, that equities still vastly outperformed bonds.

Now, bonds are a really important part of a diversified portfolio. Jeff talked about that last week, but it's also important that we continue to expose ourself to equity, because that's where -- that's where the larger returns can be gained, though, with the volatility.

So I just thought I would mention that even with that endpoint, thinking like a long-term investor is one of the real advantages that CalPERS has.

But again, long term is -- here, is 110-year perspective.

CHIEF INVESTMENT OFFICER MENG: And the challenge with equity in the long run, if you can stick to it, the history proves that it does deliver the premium over bond.

The challenge is the volatility and the drawdown risk. And that's why the Investment Office so focused on managing the drawdown risk with the next crisis comes, so that we can continue to benefit from the equity premium -- the return in equity premium.

So this all ties together why, as Dan mentioned, that we're so fixated on having a plan, liquidity dashboard, to protect ourselves against from the next drawdown. In the meantime, we try to explore all the ways that we can benefit -- we can expose to the equity exposure, that be public equity or private equity.

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MR. GRISWOLD: All good points.

Other questions?

Okay. So this is from your own statement about global equity. It's worth repeating. The primary role of equities is, “Total return oriented and to capture the equity risk premium, defined as the excess return over risk-free government bonds, by means of ownership risk in companies and exposure to corporate earnings growth. The major driver is appreciation, with some cash yield (growth and liquidity)”. And that's from your website.

A very good statement. Probably more technical than most people would understand, because the equity risk premium is a calculated number that basically looks at the -- at the advantage of equities over a risk-free rate, which is usually use -- the one we use is -- normally is treasury bills, basically, which is considered risk free because the collapse of the United States would have to happen before they would -- before they would be not able to pay it off.

So they, yes, are very low right now, and, in fact, could go negative at some point I suppose. So then, you know, the -- but the fact is that there is almost always a advantage gap, the risk premium that you take to go into equities. And that's what you're trying to harvest when you're going into global equities as well.

You're looking for those premia across the globe. When you're a global investor, you can look at them in the U.S. and look at them internationally.

But I want to go back to Henry's question, looking at global. One of the answers might be why you stay with it is because you don't know which ones are going to be moving in and out of the advantageous cycles, but also you're looking -- it gives you the chance to look for those premia where they exist.

And you may see different ways of taking advantage of those available risk premia that occur and even prevent -- trying to produce better returns through either leverage or arbitrage strategies. You use alternative beta in your portfolio to some extent to do that.

So it's an -- it's an opportunity set that is not available when you stick with your home market. You want to stay well positioned to take advantage of opportunities wherever they occur in the world.

This is a good statement -- as good a statement as I've seen anywhere actually in the institutional market.

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MR. GRISWOLD: So why? Again, you're looking for price appreciation, cash yield, dividends. But primarily it's the capital gain, the price appreciation that you're really after in most cases in equity.

Risks. Clearly, economic risks, high sensitivity to global economic growth and also anti-growth. If you have '08, '09 again, it was tough to stay with your equity allocation. And a lot of people didn't, much to their chagrin later on particularly if they were quote, "long-term investors".

You clearly have to worry about liquidity. The portfolio has got to remain highly liquid, particularly when you're paying out the size of payouts that you do. So clearly, you've got to figure that out. But that's also another reason why you have fixed income and other liquid sources.

CHAIRPERSON FECKNER: I have a question from Ms. Taylor.

VICE CHAIRPERSON TAYLOR: Yes. Thank you very much, Mr. Chair. Thank you very much.

When we get to risks, you have high sensitivity to global economic growth variability. What do you -- what does that entail? Does that entail the global outlook in terms of geopolitics? Does that include our ESG sustainable development goals? What does that include? Is that just a very narrow it's only about economic growth.

MR. GRISWOLD: No, it does include all of the above. It -- what affects global economic growth, and that's happening now, can be any manner of geopolitical events, and statements, and, you know, this -- the tariffs, the trade controversies that we're going through now are affecting -- are really affecting economic growth globally. You're seeing growth slow down.

People are worried that if this battle continues between U.S. and China over that, that it will further affect growth globally.

So you can't separate that entirely. There are obvious ones. There are less obvious once. Clearly, there are industries which are growing, sort of organically and others that are declining organically for other -- for reasons that they don't have the economic reason to be any longer. It's kind of the old buggy whip argument. And, you know --

VICE CHAIRPERSON TAYLOR: Right.

MR. GRISWOLD: -- as AI takes over, you know, information sources are going to change and the generation of information will change.

It's extraordinary, you see that actually in the investment business. That business is changing because big data comes in, AI machine learning are applied to that data, and the decisions made by the portfolio managers are made in a different manner than they were 20 years ago. It is changing. It's changing the environment.

VICE CHAIRPERSON TAYLOR: So in --

MR. GRISWOLD: And the skill sets that you're looking for in your new employees are different than the skill sets you were looking for even 10 or 15 years ago.

VICE CHAIRPERSON TAYLOR: And so then consider that in the financial market. And I noticed -- it was spoken before in our previous class with AI and everybody taking account of this, and I don't know that our job as pension investors is particularly -- but we need to be concerned about this gig economy kicking up, AI replacing workers. What -- or displacing workers. What are we -- are we helping the capital markets face this, you know, though our own investments or are we sort of sitting by and watching it happen, and hoping the capital markets take account of our possibly very soon displaced workers that -- you know, in consumer America that makes up a lot of what our GDP is, so...

MR. GRISWOLD: Well, all I can tell you is I do a lot of work with universities. They're facing the same question, because they're seeing a demographic drift -- drip in their student population now. And they're saying how can we -- how can we train and educate the next generation of students to become part of the workforce?

That is a big question, and it's a very good question. No one has a clear answer to it yet. A lot of optimists are saying, even with the growth of robotics, AI, machine learning, et cetera, there will be plenty of jobs, because --

VICE CHAIRPERSON TAYLOR: I'm not sure about that.

MR. GRISWOLD: But the jobs will be different.

VICE CHAIRPERSON TAYLOR: Yeah.

MR. GRISWOLD: I mean kids now are being trained by universities in code -- coding.

VICE CHAIRPERSON TAYLOR: Yeah, but not everybody can be a coder.

MR. GRISWOLD: Not everybody can be a coder. That's right. But there will always be need for communication, for clear thought, common sense, all those good things that liberal arts teaches you.

And I speak to a lot of university boards and do some consulting with them. And that's always an interesting question to get into is how is that university or how is that college or school adapting to the new realities, and how do they incorporate that into their curriculum? You know, there's no easy answer.

VICE CHAIRPERSON TAYLOR: It just seems to me that it is something we need to be forward-thinking on --

MR. GRISWOLD: I agree.

VICE CHAIRPERSON TAYLOR: -- as an institutional investor that does invest in the entire index. I think it's very important that we -- we find out a way that we can help folks look at this. I don't know. I think it's really important.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Can I -- I'll just make a -- I think it's a great point. I'll make a couple of comments.

First to your most recent question and then also to your previous one, because they're both great questions. With regard to AI, Beth and her team -- and she did a collective process around the Investment Office, but she did a whole project recently. One of the two main research projects she did in this most recent fiscal year was on disruptive technology, and AI was certainly a portion of that.

So it is something we're spending a lot of time thinking about. There aren't clear answers. But it is something that is -- that is critical and it will have an impact.

On your previous questions around economic growth, this is one of the reasons why we spend so much time on thinking about the economy and having John Rothfield here and otherwise. When you think about equities, ultimately the way that equities make money is off of earnings. And earnings, right -- I mean, an equity, as John said earlier, is a pro rata ownership in a company. Earnings are what drives the value of that ownership, right, that company's ability to earn money.

VICE CHAIRPERSON TAYLOR: Right.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Those earnings are based on economic growth. So this is all these things that you're talking about, whether people have money to spend, what -- you know, consumers, whether -- whether there are new productivity things, things that drive the economy, and all of these things, whether it's ESG and otherwise.

And I couldn't agree more with what Hiro was saying earlier that this is why for us ESG is an important factor. We look at it through the lens of an investor. It's about how is it going to drive earnings growth and otherwise. But it will result in impacts on our investment return, and that's why we need to be thoughtful in this space.

VICE CHAIRPERSON TAYLOR: Thank you.

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MR. GRISWOLD: So let's take a quick look at your total fund allocation. You can see global equities 50.2 percent. Fixed income on the left, 28.7 percent. Private equity 7.2. So, in effect, equity -- and you have real assets, 11 percent. So a good portion of that you could consider equity, but it may be both. So, in fact, you are heavily allocated to the equity side of the fence. And that's really what you see in most large institutional investment portfolios. Because they have been trained to look for the opportunities for growth. And you need to do that if you're going to keep the contribution of the investment fund to the income you need to -- liquidity et cetera that you need to pay your beneficiaries.

CHIEF INVESTMENT OFFICER MENG: Yeah. I'll add one comment to it. You often hear the term 60/40. So our portfolio refers to 60 percent equity, 40 percent fixed income. So if you look at our portfolio allocation now, it's not that different from 60/40. So we have global equity -- if you put global equity and private equity together, it's close to 60 percent of equity exposure. And if you think of our real assets, our objective mandate of the Real Assets Program is core -- U.S. core.

So that acts similar to a fixed income. So if you add our fixed income and real asset allocation plus liquidity together, it's about 40 percent. So our portfolio is quite similar to 60/40 that what you often here in the media and in the context in our conversation with other peers.

MR. GRISWOLD: Right.

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MR. GRISWOLD: So the global investment -- global equity investment philosophy of CalPERS is really a --

they are very difficult to predict. We talked about that. The alpha opportunities are multi-faceted and time varying. They do change, so you have to be very nimble. If you're going to invest globally, particularly in emerging markets where you are -- you do see more volatility and more cyclical shifts.

But you can take advantage of that as well. There is -- there is a good portion of the job of global allocation, of global equity investing, which is looking for opportunities in terms of cyclical changes which occur. Focus finally on holistic portfolio net of costs. I just mentioned 80 percent of the portfolio invest in costs-efficient internally-managed strategies.

Now, I'll let Ben and Dan talk a little bit about that, why that's the case.

CHIEF INVESTMENT OFFICER MENG: Yeah. So I leave the cost to Dan. But I'd actually like to comment a little bit on the alpha opportunities. So if you look at the four major asset class we invest in, global equity, global fixed income, private -- excuse me -- private equity and the real assets, one can argue the most efficient market is global equity.

So the alpha opportunity -- in the most efficient market, the alpha opportunity I would say not just time varying is, you know, being -- to a certain extent is illusive. So capturing the alpha in the most efficient market segment is very challenging.

So instead, we focus on what -- at least our plan in the most efficient market -- markets, we tried to focus on the -- controlling the risk with tracking error and then reducing operation cost. So it's -- on the cost part, I will leave it to Dan.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Yeah. So this speaks to Ms. Olivares question previously around some of the questions on fees. For an organization that's largely externally managed, that cost structure is more difficult. As we said, you know, with 80 percent internal managed, it gives us a real advantage. And the whole global equity portfolio runs at about 8 basis points. And that's been on a downward trend from maybe mid-teens. Actually, maybe in the 20s when I got here to down to -- you know, into the mid-teens, and now, as I say, into 8. And I think we're on the path to -- I don't want to set myself up. But my goal would be in the next few years to be down into the -- into the mid to low single digits for global equity.

And that's -- and that's what we've -- that's what we've seen from a standpoint of our trajectory, because, I mean, Investment Belief 8, which is one of our ten Investment Beliefs, we know that the opportunity for alpha, and markets will bounce around, but costs are always a headwind. They're always negative, and so we manage those very closely.

MR. GRISWOLD: And you've been very successful from what I've heard and seen -- or read and seen in your literature that -- in being able to reduce those costs. In general, by the way, the investment business, because of the growth of passive investment, index-based investment, whether it be index funds or ETFs are highly cost-efficient vehicles. Those have been aided by the bull market we've been in for 10 years. No question.

And investors are saying why should I pay 30, 40, 50 basis points or more for active investment when, in fact, they've been losing to passive investments.

They're really talking about equities because that's the most efficient market. In fact, though, that trend has been affecting everything in the investment business. It's been shrinking the business to some extent, because you -- it is no longer -- on long-only strategies like U.S. equities, no longer a viable business to be an active manager unless you're -- you've got some edge. You've got some distinctive way of making money so that you're attracting new business.

CHIEF INVESTMENT OFFICER MENG: So on the note the cost, I just would like to compliment our Investment

Office. Close to 80 percent of our assets are managed internally. And we have been running one of the most efficient asset management from that perspective, cost efficient.

As Dan said, the Global Equity Program is only about 8 bps. And we are still -- we're not stopping there. We're still finding ways to reduce that cost. And in real assets, Paul Mouchakkaa can tell you, we're trying to bring -- changing -- we have changed our business model for better control and lower cost. And then again, the innovative ways we're trying to explore -- explore in private equity the Pillar 3 and Pillar 4. One of the goals is to reduce cost, and more transparency, and reduce cost.

So we're very proud of the efficiency the Investment Office is operating now, but we continue to look for other ways to reduce cost.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Yeah. And I'm sorry. Ben, I'm really glad you mentioned that, not to just single out global equity, because it is the case that some of the -- you that have been on the board for a while remember that our cost structure was north of 1 and half -- you know, approaching $2 billion dollars years ago. Now, we're down in the sort of $1 billion range on total fees. And again, that's on an AUM that's much higher. Part of that is this focus on costs.

The fixed income portfolio is over 90 percent internal managed. And I think that runs at -- you know, Arnie will have an update next month, but it's -- it's lower than global equity. I think it's down in the sort of 5 basis point range. Private equity has done a ton of work this. Real assets, like Paul -- you know, Ben mentioned, you know, we're a lower cost than our peers and what the benchmark computes. So lots of work on cost. It's been a critical focus across the asset classes.

MR. GRISWOLD: Yeah. I think the private markets are an area where you'll see -- as Hiro said, you'll see more work being done with innovation to get those fees down, so that you're aligning the manager -- the GP's interests with the -- with the investors, with the asset owners more and more.

That may be -- we may be seeing the last of the sort of the great halcyon days of private equity in some respects. But they're still -- still able to make a lot of money staying shoulder to shoulder and resisting a lot of the changes that have been proposed.

CHAIRPERSON FECKNER: A quick question from Ms. Olivares.

COMMITTEE MEMBER OLIVARES: Thank you, Mr. Chair.

So as we talk about the basis points that are paid out to manage some of these funds - 8 bps is relatively know - when I think of how we would apply that fee externally -- so if I was to go buy an index for the S&P 500 and pay 8 bps, that covers all of their operational expenses, right?

CHIEF INVESTMENT OFFICER MENG: (Nods head.)

COMMITTEE MEMBER OLIVARES: So if we say that our cost is about 8 bps, does that cover operational and investment expenses as well, like personal costs, real estate, everything?

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Yes. So there's a whole cost allocation structure. But we get a set of costs that -- from the enterprise that includes the -- you know, all the work of the rest of the enterprise. Then there's the cost of our own fees, which we do have some active management that includes fees. We also have some sort of model provision strategies, where we're actually managing against a factor, but we do pay for that sort of factor provision. And then also our own headcount and everything else, technology, all of the above. So, yes, that 8 basis points is a fully loaded number.

COMMITTEE MEMBER OLIVARES: Great. Thank you. I'd love to get more information on that.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: We'll have more next month with the global equity program review and happy to -- happy to dig in as you -- as you see fit.

COMMITTEE MEMBER OLIVARES: Thank you.

CHAIRPERSON FECKNER: Go ahead.

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MR. GRISWOLD: Did I miss a space?

No. Okay. No, we're -- I think we're good.

This is just some of the -- we threw in some charts that are more sobering than others. But, in fact, you have -- over a long period of time here, you've seen the U.S. clearly outperform non-U.S. stocks. It doesn't diminish the fact that the diversification benefit and the ability to find inefficient markets outside of the U.S. is very valuable to the global investor. But you have had a long period where the U.S. has outperformed.

That has obviously benefited some people more than others. But, in fact, you could -- as you do see there, you do see periods where international stocks do better, or at least relatively. And then you -- this, of course, is looking -- looking back in the past. So you don't know what the future is going to hold. But clearly, you have benefited from being in this market where the economic growth has been extraordinary and the equity returns have been extraordinary as well over a long period of time.

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MR. GRISWOLD: The other side of that is that you do have more correlation between the two, you know, U.S. and international markets. This chart shows you that. This is the top -- the blue line is the U.S. versus non-U.S. stocks. The red line is U.S. stocks versus U.S. bonds. So there's a lot less correlation. I go back to Dan's point, Ben's point that the -- that's why you have fixed income, because there is that lack of correlation that you want to count on, particularly when things get rough like they did in '08, '09 when the bonds literally saved a lot of people's bacon and provided the liquidity they needed to get through that.

I can remember Harvard University having to go out into the public debt markets to be able to pay their staff during that period. It was very painful, because they were subject to capital calls with their enormous percentage of I private equity and venture capital. And they were really squeezed. There were in a liquidity squeeze.

So good to have fixed income, good to have liquidity in different vehicles that you can count on if you do get into problems. But this shows you the change that's quite dramatic in both cases of the correlations.

Okay. Did you have a point there?

Okay.

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MR. GRISWOLD: So let's talk about benchmarks briefly. I think Hiro covered benchmarks extraordinarily well in his remarks, so I'm not going to delve too deeply. But clearly, you heard this from Jeff Bailey a month ago. He talked about the types of things that you want to see in a benchmark.

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MR. GRISWOLD: You use a benchmark which is a customized benchmark from FTSE Russell. And I'll let Ben and Dan talk about any details here -- in detail, if you have questions on it.

But fundamentally, these -- these characteristics of benchmarks should be present. They are -- everybody has to be understanding of what the benchmark is. And in principle, I just want to talk about that. We can talk a little bit about -- by the way, that list of characteristics is in the Primer for Trustees that you all received - and if you didn't we'll make sure you do - from the CFA Institute library. It's published by CFA Institute Foundation.

But it's a terrific book for trustees of institutional funds. But all of these characteristics should be present in an index that you choose -- benchmark you choose.

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MR. GRISWOLD: The custom benchmark, Ben or Dan, do you have any comments on this or are there any questions on this? You've seen this before, so I don't want to dwell on it too long.

But, in fact, you've got a customized benchmark. Benchmarks are developed by really three primary producers, MSCI, FTSE Russell, and -- what's the third I'm thinking of? Not Bloomberg, but they have one too now. There's another large -- I'll think of it in a minute. I'm having a brain freeze.

INVESTMENT DIRECTOR SIMPSON: FTSE Russell combined. Maybe that's what --

MR. GRISWOLD: No, there's actually a third one, but I have to think of it.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Are you talking about the old S&P IC?

MR. GRISWOLD: Yeah. Yeah S&P. Thank you.

I think the interesting thing here is the size of the United States allocation, if you will, in the benchmark reflects its capital -- world capital market share.

And, in fact, if you'd looked at this, and I think you can, on the FTSE Russell website, they have a PAR chart of the original FTSE all-world. It was called something different then in 1987. And in that one, U.S. was 27 percent not 54 percent. And guess which market was 35 percent in 1987?

Japan.

And those of you who remember the automobile industry in the late eighties being taken over by Japanese, Toyotas and Datsuns, and Suzukis and so forth, they were ascendant at that time. But this does change. And, of course, the benchmark that you use to judge whether you're succeeding or failing versus a previous regime has to be thought of in terms of the economic shifts that are going on around the world.

These numbers change and your benchmark has to change. And it's -- you want to make sure that you, as a Committee, are looking at the right benchmark.

CHIEF INVESTMENT OFFICER MENG: So just on the left chart, back to your earlier point John I made, the United States percent of global GDP is about 25 percent. But the percent of the market cap share is 54 percent.

And China is the second largest economy called -- depending on which measure you use. Some are between 15 to 20 percent of global GDP. It does not even command its own category on this capital market. So that just shows the share we invest in capital market. And when we look at benchmark, we have to mindful both of the GDP, the economic growth and other depths -- the depths of the capital market.

MR. GRISWOLD: That's true.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: The one other thing I would add to that is also demographics, which is another important point. And, you know, we referred to it earlier.

MR. GRISWOLD: Yeah, we've got one chart on that, but I'll comment on it, a little bit, but that's absolutely right.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: It just -- it's another lens.

MR. GRISWOLD: Right. But if you -- if you're interested in China itself, then -- and vis-à-vis this chart, there was an article in the journal I think yesterday on China opening up its markets through the A shares primarily, which have been around for a long time for foreign investors.

But clearly, you have to be very aware of how to do due diligence in China versus other markets, because there's a whole layer of different control from obviously a political and economic standpoint than really almost any other market that you're looking at, certainly any other large market.

And it's astonishing that you don't see -- I was going to make a comment on that, but thank you, Ben. Astonishing you don't see China in that capital market list. But that's the fact today and you probably will see it soon, I would imagine.

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MR. GRISWOLD: So looking ahead. We've just sort of summarized some of the -- some of the things that we've been talking about. We are seeing changes in the world economy, which are going to change the opportunities and the challenges in global equity investing. You're seeing slowing growth in the world's economies now for a lot of reasons. We talked about some of them.

Flatter lower returns for global equities, that has been predicted for some time. In fact, the U.S. has been a surprise in how good our returns have been on average. Yes, you've had bumps like last year. But overall, this bull market is now the longest expansion in our history. And, in fact, can continue now as far as we know, but with clearly increasing risks in certain areas that you have to be aware of.

And we refer -- Hiro referred to it earlier. One of the big ones is how long can they central banks continue this easy money rate suppression policy that we've been living under for 10 years now? And what is the ultimate risk of trying to normalize interest rates, discount rates in the world economic and monetary system?

There are probably unintended consequences that we still haven't seen out of that whole regime. The future inflation interest rates are uncertain. We don't have a way of predicting those particularly well, even though the central banks can forecast or can hint as to what their policies are going to do. You still don't know where exactly those are going to go.

Central bank intervention may distort cyclical market cycles. It already has. It is certainly affected a lot of consumer rates and commercial rates of borrowing and lending that are both stimulative, but also a little scary, because you -- there is a shadow banking unregulated pool of funds floating around that can be -- can be really opportunistic for companies to borrow or individuals, but also can be somewhat scary because you're not share whether those are going to be withdrawn at any point or what the lenders will do if there is some sort of a break in the markets.

Increasing geopolitical tensions. Clearly, we've seen that in the headlines. They may impact returns, obviously due to trade threat and tariffs. And, of course, Dan mentioned demographic shifts.

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MR. GRISWOLD: Let me just show you one chart that's a demographic chart. This shows you a projection out to 2100 of the demographics of the U.S. workforce. And, in fact, you're going to see a steady increase, slow but steady increase, protected for that by experts in the U.S. government, basically. It's the Population Division -- Population Projection Division.

If you looked at most of the major developed countries in the world, Japan, most of Europe, China too, you see that line from 2000 say 20 begin to go down in varying amounts very rapidly.

So the aging -- and Hiro talked about that extensively, so I won't go into it in detail. But when you see that around the world in the developed markets, it is a little alarming. Because, in fact, the birth rates in those markets are dropped -- they've dropped to the point where they're not replacing the workforce. These are ages -- by the way, workforce is defined as age 20 to 64.

So in many countries that are -- where the biggest economic activity is going on, their demographics are not favorable to continuing long term to maintaining their workforces. It's a major concern on a long-term basis. And as long-term investors, I think it's one of the issues -- one of the risks that you have to take into account, where are you seeing those shifts more rapid -- occur more rapidly than you were anticipating, or where can you take advantage of that?

It was interesting. I went to a conference in Tokyo a years ago. And one of the presentations was by a professor who had developed exoskeleton. I don't know if you know what an exoskeleton is. But if you think of a beetle, a beetle has an exoskeleton. It's an external shell. In this case, it was a motorized very sophisticated piece of equipment that an individual could put on. And it was almost like the Avengers. You could do a lot of things that you couldn't do. It had extraordinary, et cetera, because you had these little motors helping you move, and picking things up, and so forth.

He developed that in anticipation of Japan's demographic projection, because it would allow older workers to work. Now, that's extraordinary. But it's a good small little example of what the innovation to try to deal with the aging population Japan might look like or anywhere else for that matter.

CHAIRPERSON FECKNER: We have a question from Mr. Jones.

COMMITTEE MEMBER JONES: Yeah. Thank you, Mr. Chair.

Yeah. Going back to your comment about shadow banking. Is that prevalent in the U.S.? I understood that to be a problem in foreign countries. But is that a major issue in the U.S.?

MR. GRISWOLD: I don't think so, but it's certainly -- based on the number of emails all of us get from lending institutions we've never heard of before, there's a lot of lending going on outside of banks. And we all know the trouble banks have been through coming out of the 08-09 period. I don't want to be alarmist, but in fact there is a lot of money being lent by off-radar institutions and private individuals.

A lot of the funding of start-up companies done by angel investors now are very small private syndicates. And I think that -- I don't know the size of that, because it's not measured. But, in fact, there is a lot of money. We know that, because the central banks have been printing it for a long time. And where is it going?

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Yeah. The only -- the only thing I would add is that it's a -- there's a -- there's a definitional question there how you define shadow banking, right?

I will say that a lot of the risk we think has come out since the financial crisis, where so much more regulation came into place around, you know, lending and things like that.

But depending on how define shadow banking, you can include even like hedge funds and things like that.

MR. GRISWOLD: Dodd-Frank covered a lot of those areas clearly. And, you know, so it -- as I say, I don't want to be alarmist at all. But, in fact, there are -- it's one of those things that you think about and you don't really know how to quantify, so it's difficult to tell. But there are -- there's evidence of lending going on and borrowing, and how much leverage is in the mix that we can't measure. And so you can't -- what you can't measure, you can't regulate. Don't know. But, in fact, don't want to end on a down note, because we are out of time.

INVESTMENT DIRECTOR SIMPSON: Oh, well, you can end with the glossary.

MR. GRISWOLD: Oh, the glossary.

(Laughter.)

MR. GRISWOLD: Yeah, actually --

INVESTMENT DIRECTOR SIMPSON: Knowledge is power.

MR. GRISWOLD: I don't think we need to go through it page by page.

INVESTMENT DIRECTOR SIMPSON: Not, but I though you could have a nice cheerful slide up for your final remarks.

All of the mumbo jumbo that goes into talking about investment, we decided it was time to start breaking it down. We made this promise in another governance workstream to put things into plain english. So we've had a first crack at the back of this presentation. And you can tell us where we've got it right and where we've got it wrong.

But it's part of a new practice. We want to start explaining everything. And if we can't explain it, we shouldn't have it on a slide. So that's -- that was the thinking --

MR. GRISWOLD: Um-hmm, that's true.

INVESTMENT DIRECTOR SIMPSON: -- behind having a glossary.

MR. GRISWOLD: Yeah. One of the jobs that I had at the Commonfund was to try to make the complex simple and explicit in plain english. I was actually an english major in college. And how I ended up in the investment businesses was quite -- was another story. But, in fact, Peter Bernstein was one of my heroes in this business was also an english major. I find out -- I found out. We were talking at lunch one day.

CHIEF INVESTMENT OFFICER MENG: So he's the author of the book *When Genuius Failed*, so -- and he's author for a number of books. But I think the most famous one is *When Genius Failed*.

MR. GRISWOLD: The *Story of Risk*.

CHIEF INVESTMENT OFFICER MENG: The *Story of Risk* and *When Genius Failed*.

MR. GRISWOLD: *Capital Ideas*, a whole bunch of books. There are a number of people that I think define great thinkers in this business. I may be sitting next to one or two here. But, in fact, Charlie Ellis who wrote -- I don't know if any of you ever read any of his books, but me wrote the famous book called *Winning the Loser's Game*.

And, in fact, it talks about -- Charlie is one of my good friends, but he drives me a little crazy, because he ran the investment committee at Yale University for 17 years.

CHIEF INVESTMENT OFFICER MENG: You know you're on record on YouTube, right?

MR. GRISWOLD: I know. Yes, I do.

INVESTMENT DIRECTOR SIMPSON: He's been to speak to the Board.

MR. GRISWOLD: He has been -- he's been -- he is one of -- he's one of the great figures in investing, and, in fact, has talked about indexing probably ahead of anyone else in this country, and for all the good reasons you're hearing now, but he was doing this 10 years ago, more.

But he ran the -- he ran one of the most successful active management groups, which was the Yale Investment Office as head of their committee for many, many years, more than 15 years. I think it was 17 years. And during that period, you know, was the top -- I think the top institutional investor globally for a long time.

But he is fan of indexing, which just shows you the change in how the environment in investing has changed over that period. But Charlie was one of the people who was predicting it in his book, *Winning the Looser's Game* was -- which has come out in various editions, was predicting that or talking about that. It was based on a tennis game, playing defense.

I think we've -- I think we've exhausted everybody, but...

INVESTMENT DIRECTOR SIMPSON: It might be time for some questions.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Are there further questions, Mr. Chair?

CHAIRPERSON FECKNER: There are no questions right now, no.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Okay. Then I think we can conclude it there.

But definitely, John, thank you very much for joining us.

CHAIRPERSON FECKNER: All right. Thank you very much for being here.

INTERIM CHIEF OPERATING INVESTMENT OFFICER BIENVENUE: Thank you for your time.

(Applause.)

CHAIRPERSON FECKNER: We appreciate that.

Anything else, Mr. Meng?

CHIEF INVESTMENT OFFICER MENG: No. No.

CHAIRPERSON FECKNER: All right. We do have one request to speak from the audience, Dave Elder, but I notice he's not in the room.

Here he comes.

Hurry on down, Mr. Elder. It's your turn.

It's your turn, Mr. Elder. We have your handout already, by the way. Please identify yourself for the record and you'll have up to three minutes to make your comments.

CHAIRPERSON FECKNER: They're on.

MR. ELDER: Good afternoon, everyone.

CHAIRPERSON FECKNER: Good afternoon.

MR. ELDER: My name is Dave Elder. I'm a former State Assemblyman. I served 10 years as the Chairman of the PERS Committee. I carried legislation setting up the prefunding account for health benefits. And I carried a number of the bills, 2 percent at 55 retirement formula, and 2.5 at 55 for correctional officers, so I had about 200 bills signed.

I served as Chairman of the PERS Committee for larger than anybody in history. And I'm just saying this because there are a lot of new faces here for me. And I don't have any speech to make or anything. I just wanted to bring your attention to this. It's been handed to you.

Harry Markopolos prepared this report. It's 165 pages. This is simply a summary. And I would have provided the whole thing, but it would have cost me about $300 to have it copied, so I didn't do that.

But in any event, I just wanted to bring it to your attention. I think if you have your professional Investment staff look at it, and analyze it, and then maybe you want to put it on the agenda for a future meeting -- in the near future, I would suggest, because G.E. went down in your portfolio by almost $7 million today.

And so, at some point, that turns out to be some real money. In any event, I just would suggest that perhaps this would be a good thing for your staff to analyze and be aware of. And I just think if you -- you might want to get off the railroad tracks before this thing hits, because he's talking about the possibility of bankruptcy with respect to G.E.

And you have a lot of the bonds. Although I couldn't figure out how much you have in bonds. I know it's a lot, because it's pretty much gilded high-grade corporate, so you probably have a lot of it. But that will all -- and it's probably -- when you bought it, it was somewhere above par. And it may not be there now. I couldn't find any quotations on recent quotes on G.E. debt. Although, there are pages and pages of -- or columns and columns of them in the financial things like Barrons. I just didn't happen to have a copy of it to review where they are in relation to par.

So I just wanted to just make you aware of this, you know. At least, you know, if anybody asked you about it, the press or whatever, you can see yeah, we're well aware of it, we're analyzing it, and we're keeping an eye on it.

And that's basically all you can do. You might want to invite Mr. Markopolos to come out here and defend his report, which I would be -- hell of a public service, because I think in person -- and he's the fellow who outed Madoff. And he wrote a book *No One Would Listen*. You may have heard of that book. And it took him -- and Harvey Pitt who -- he referred all this stuff to Harvey Pitt who was one of the critics of his report saying, you know, he could have come to me. Well, it took four years the last time, so maybe we don't want to do it again.

That's all I got. I'd be happy to respond to questions if you have any, but thank you.

CHAIRPERSON FECKNER: No questions, but we thank you for the information and staff will look at it. So thank you.

MR. ELDER: All right. Thank you.

CHAIRPERSON FECKNER: So before we close, I just wanted to thank staff for bringing some great speakers to us today for our educational workshop. Very good time. Well spent. And thank you all very much and thank both speakers for some great information.

This meeting is going to adjourn.

(Thereupon California Public Employees' Retirement System, Investment Committee meeting open session adjourned at 12:12 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 24th day of August, 2019.

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